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NOW XEROX SUES APPLE OVER GRAPHICAL USER INTERFACES

Xerox Corp warned back in May that it intended to protect its copyrights in the user interface it developed for the original mouse-and-icon computer, the Xerox Star, when it announced that Metaphor Computer Systems Inc had signed to license its screen displays (UX No 233) - but observers were still stunned when late last week it slapped in a lawsuit against Apple Computer Inc demanding \$100m in royalties paid by others to Apple that it claims rightly belong to Xerox, and \$50m in damage to its business by the continued marketing of systems infringing its copyrights. The suit covers the user interfaces of the Lisa and all Macintosh computers, and throws into confusion the suit still going through the courts that Apple brought against Hewlett-Packard Co and Microsoft Corp over the same issue, directed specifically at Hewlett's NewWave and Microsoft's Presentation Manager. It is widely questioned whether the Xerox suit will be successful, coming as it does six years after the Lisa was introduced in 1983, and it could also stand or fall on whether there was a C in a circle on the screen displays of the Star computer. If it is successful, few developers of systems with iconic user interfaces would be immune from demands for royalties from Xerox - but while the Open Software Foundation's Motif would be exposed, the rival Open Look from Unix International Inc would be home free because Sun Microsystems, which designed it, has signed a technology sharing agreement with Xerox (UX No 175). Apple contends that the suit is without merit because only expressions of ideas can be copyrighted, not the ideas themselves, and its icons are not the same as those on the Xerox Star - but that assertion seems to compromise its lawsuit against Hewlett and Microsoft. Apple also noted that although the suit makes claims for unlawful use of copyrighted Xerox software, and charges Apple with copyright "misrepresentation", it makes no allegations of copyright infringement; Apple says the suit also "contains numerous inaccuracies about the Lisa and Macintosh developments" and that the allegations raised in Xerox's complaint are similar to defences raised by Microsoft Corp and Hewlett-Packard Co in Apple's own copyright infringement proceedings.

IBM LAUNCHES 80486-BASED PS/2 70-486 FOR IMMEDIATE AVAILABILITY

Having been stymied on its plans to get an 80486 offering into the market ahead of Compaq Computer Corp when bugs in the Intel chip forced it to hold its klugey replacement processor board for the PS/2 Model 70, IBM last week came out with the Real Thing in the shape of the PS/2 70-486 - for delivery in the US immediately. It does sound as if it's little more than a Model 70 with the 486/25 Power Platform factory-installed, because IBM says that a 70-386 can be upgraded to the new model by swapping the processor board for the Power Platform. The 70-486 has a 25MHz 80486 processor and comes with 2Mb memory expandable to 8Mb, 1.44Mb floppy, 60Mb or 120Mb disk, serial, parallel, VGA, mouse and keyboard ports, one 16-bit and two 32-bit slots and keyboard, at \$12,390 with the 60Mb, \$13,000 with the 120Mb disk. IBM accompanied the announcement with the news that it has resumed shipments of the Power Platform swapover board. The new machine is offered with OS/2 and MS-DOS 3.3 and 4.0, and AIX Unix is promised for the first quarter of next year; no indication of street prices yet, but the Deskpro 486/25 from Compaq Computer Corp, which lists for \$14,000 with 120Mb disk and 4Mb memory is on the street at \$12,800. IBM charges \$13,000 for a 2Mb model of the 70-486 with a 120Mb disk.

INTEL BEGINS SHIPPING GOOD 80486 PARTS

Intel Corp says that it has resumed shipments of the 80486 microprocessor after a month's hiatus while it fixed the bug in the chip's floating point processor. Not all customers have yet received good parts, but the company says it is still on target to ship tens of thousands of 80486s by the end of the year. Customers are being offered replacement parts on a one-for-one basis, and the previous version is still available for prototyping and evaluation because the vast majority of applications will never fall foul of the bug.

SEQUENT SETS UNIPROCESSOR

Sequent Computer Systems Inc is set to extend the architecture of its Intel 80386-based multiprocessors with the first uniprocessor in the history of the Beaverton, Oregon company. A company spokesman confirmed that an entry-level 80386 Unix box in its Symmetry line, running the Dynix implementation of Unix, would be announced early next year, with shipments set for the first quarter. Prices will start at about \$40,000 against the \$90,000 or so base price for the bottom-end two-processor Symmetry, which can grow to 10 processors and is designed for intensive transaction work. The main market for the systems is expected to be existing or potential customers of the mainstream Sequent line.

PYRAMID WANTS TO BUY BiiN ASSETS

A surprise bidder for the assets of liquidated BiiN Inc, the defunct transaction processing systems joint venture between Intel Corp and Siemens AG, has come forward in the shape of Pyramid Technology Corp. According to Electronic News, Pyramid is negotiating with Intel for the assets, and the paper says AT&T Co may put up cash to help the Mountain View firm to complete a deal.

Unigram.X wishes all subscribers a happy Christmas and a successful new decade. The next issue of Unigram.X will appear on Monday 8th January - Friday 5th for the electronic edition.

SEIKO INTRODUCES X-WINDOW FILTER FOR COLOUR PRINTERS

Seiko Instruments Inc, San Jose, California, is pushing the boundaries of the X-Windows environment forward with the introduction of an X-Windows colour print filter that allows its CH-5500 series of colour printers to function as a shared resource, accessible from up to 80 networked X-Window workstations. The CH-XWIN-XX filter allows control of dithering matrix size and fill order, image intensity, colour correction, image windowing, and X and Y scaling and translation independently, from a range of user interface tools. X converts the data to an X raster file, which is translated by the filter to Seiko's CHGL graphics language before being sent to the printer for printing, bringing colour graphics printing to X-Windows for the first time. The filter and printer can be configured to any workstation or server that supports a parallel Centronics port, or via Seiko's NS-2034 Ethernet adaptor that uses TCP/IP. A single user licence for the filter is \$500, for two-to-ten users it is \$1,500 and thereafter \$750 for each additional ten users. The 300 dots-per-inch CH-5500 printers go from \$6,000 up to \$15,000.

GENERAL AUTOMATION TO PAY \$4m FOR C ITOH PICK UNIT

Japanese companies are finding the Pick systems business in the US, and following Fujitsu Ltd's decision to sell its tiny Fujitsu Microelectronics Pick business to Alpha Microsystems a month or so ago, C Itoh Electronics Inc, Irvine, California has given General Automation Inc - and its partner and intended 51% shareholder in the UK, Sanderson Electronics Plc - a substantial fillip by agreeing to sell to General Automation the products and assets of its CIE Systems Pick business. General Automation has agreed to pay \$4m for the business, part in cash, the balance in the form of a long-term note. Maintenance alone is expected to add \$8m alone to General Automation's US sales. All products, assets, manufacturing, distribution and maintenance of the unit are to be transferred to General Automation's base in nearby Anaheim. CIE Systems has built up around 3,000 user installations and over 100 resellers worldwide since it entered the business in 1984, and annual sales are running at around \$13m. As well as Pick, it offers Ryan-McFarland Inc's RM/COS Cobol operating system on Motorola 68020-based systems. The agreement is due to be completed early next year. Primarily a trader, C Itoh & Co is one of the world's biggest companies, with an annual turnover running at around \$130,000m - making it twice the size of IBM.

VITESSE MOVES UP TO 30,000 GATE GaAs ARRAY

Vitesse Semiconductor Corp of Camarillo, California has upped the ante in the Gallium Arsenide stakes with a 30,000-gate GaAs array that brings the technology right down into the realm of RISC microprocessors - the original implementation of the Sun Microsystems Sparc took only 20,000 gates. The VSC30K is aimed at high-speed computer, telecommunication and defence applications, and can be used in air-cooled systems, the company claims. The new part features 30,528 2-input NOR gates with 100% gate usage and typical power dissipation for the device is 8W to 12W. It comes in a 344-pin leaded chip carrier, with 256 signal pins configurable to ECL, TTL and GaAs input-output levels. Vitesse currently has over 20 VSC30K designs in progress and new design inputs are being accepted now: prototype shipments are set for January 1990. All members of the Fury gate arrays are included in the second source pact announced with Fujitsu Ltd last month. Pricing ranges from 3 cents to 5 cents per gate for commercial grade versions of parts built on the array.

DATAPOINT, IN VIOLATION OF LOAN PACTS, MAY BE SOLD

Datapoint Corp is in violation of two of its loan covenants, and the First City Bancorp of Texas is calling in a loan of \$21m to the San Antonio, Texas company, the Wall Street Journal reports. The company is also suspending dividend payments on \$4.94% cumulative exchangeable preferred shares. Corporate raider and Datapoint chairman Asher Edelman wants to end his involvement with Datapoint and its sister company, third party maintenance outfit Intelogic Trace Inc, both of which have seen their share prices wither and their debt soar since Edelman took control of Datapoint in 1985 and engineered the split of the company into two quoted firms, and has hired Kidder, Peabody & Co to evaluate alternatives, including sale of Datapoint, for maximising shareholder value.

ALTOS FORMS MAINTENANCE JOINT VENTURE WITH 3M IN FRANCE; GERMANY, UK IN PLAN

Last spring Altos Computer SA and Minnesota Mining & Manufacturing Co, 3M, announced the formation of a maintenance subsidiary. The joint venture, 51%-owned by Altos, 49% by 3M, has been named TIM, Technical Maintenance Computing. TIM is capitalised at \$1m and employs 50 people, 30 of whom are engineers, O1 Informatique reports. It offers on and off-site maintenance and user training and support for Altos systems and Dataproducts printers from 22 centres across France which are affiliated to TIM. It provides technical assistance by telephone, meetings, the loan of software and of manuals by Altos and sends out weekly bulletins containing technical and commercial information on products maintained by the company. Terms are either per-call-out or on 12 or 24 month contracts. The Altos side of the unit looks for turnover of \$4m for its fiscal year to June 30, up from \$3.5m in 1988, which compared with \$500,000m a year earlier. The formation of TIM enables 3M, which guarantees Altos' and Dataproducts' products for four years after purchase, to disengage itself from third party maintenance and TIM will enable Altos to reinforce its position in Europe - in fiscal 1989, over half of Altos's \$140m business came from Europe. Altos claims that its 600 value-added resellers have now sold some 8,000 systems in France, 13,000 in the UK, 7,000 in West Germany. The company plans to open similar maintenance operations in West Germany this month, and in the UK next July. The US parent has a war chest of \$65m and is looking at getting its shares quoted on a European stock exchange in the next couple of years, perhaps floating a minority in Altos Europe.

BOSTON BUSINESS AND KI COOPERATE ON VMS BACKUP UTILITY

Boston Business Computing, Andover, Massachusetts, and Ki research Inc, Belmont, California, have signed an agreement to jointly develop DECnet support for Vbackup, BBC's emulation of the VMS Backup utility for Unix machines (UX No 256). It will consist of additions to Vbackup which will allow it to work over Ki's Unix implementation of DECnet - called DEKnet. It will be available on Alliant, Data General, Mips Computer Systems, Multiflow, Sequent, Stardent, Sun Microsystems and Tektronix hardware from the first quarter of next year - prices go from \$400 to \$4,000.

MASPAR'S PARALLEL PROCESSOR "WILL TOP 10,000 MIPS"

A new, massively parallel computer system with up to 16,384 custom processors, delivering 10,000 MIPS performance and controlled by a 14 MIPS-rated Risc chip is to be announced in January by MasPar Computer, a Sunnyvale, California-based company founded last year by ex-DEC vice president Jeffery Kalb. Known as the MP-1 it is to be front-ended by VAXstation 3520s running Ultrix - chosen for its multi-processing capabilities - as part of an OEM deal signed with DEC, reckoned to be worth up to \$1m in the first year. Other workstations or even X-terminals can also be used. The monster machine is aimed at computational chemistry, fluid dynamics, computer aided engineering and image and signal processing. With input-output capability tagged at 1Gb per second the MP-1 will support high-speed networks such as Fibre Distributed Digital Interface and High Speed Channel, and MasPar is currently understood to be working with Ultra Network Technologies to develop a version of UltraNet for the machine. TCP/IP and X-Windows will be supported, and the first software will be existing Ultrix applications that MasPar is configuring for the MP-1's single instruction multiple data architecture. The MP-1 uses custom VLSI chips, each with 32 processors attached. A top-end MP-1 will come in at around \$250,000. MasPar was founded in March 1988 and to date has received \$17.5m in funding from a range of investors.

HARRIS LAUNCHES ITS FIRST 88000-BASED NIGHT HAWKS

Harris Corp, which launched its Night Hawk real-time Unix computer family in Europe in September, promising that it would come out with the first models in the line to use the Motorola 88000 RISC before the end of this year (UX No 251) has been as good as its word. The Night Hawk 4000, which is rated by Harris Computer Systems Division at 20 MIPS, is being pitched at major real-time applications such as aerospace simulation including training simulators, at signal processing, and at military command, control, communications and intelligence applications. The machine comes with 4M-bit dynamic RAMs for peak transfer rates of 100Mbytes-per-second, and up to 144Mb of main memory is supported. Operating systems offered on the Night Hawk 4000 include CX/RT, which offers a frequency-based schedule, performance monitor and data decoding; the CX/UX Unix-based system that supports both System V and Berkeley BSD services; and CX/SX for developing applications in a secure environment - but the key feature of the machine is that all three environments are object-and file-compatible and can reside on the same disk. It supports Ethernet, Network Field System and X25 and has real-time interfaces to Mil-Std-1553B, Encore HSD and DEC DRIIW; it also supports the new Harris Nigh Hawk GS-1 VME graphics subsystem. The Night Hawk 4000 system nucleus with one CPU, eight VME slots and CX/RT operating system is £48,400 with 4Mb will be available in third quarter 1990, and the 16Mb version, £61,000 follows in fourth quarter.

AT&T "TO TAKE TANDEM'S MIPS UNIX BOX FOR 3B LINE"

October's story that AT&T Co was thinking about buying 40,000 of Tandem Computers Inc's three-processor fault-tolerant Unix workstations based on the MIPS Computer Systems Inc R3000 RISC (UX No 253) has resurfaced in a slightly different form. Initially it was thought that AT&T wanted the S-2 machines, due to be released on January 8 for volume shipments late next year, specifically for monitoring long-distance telephone lines, but Electronic News now hears that Tandem is hopeful that AT&T will adopt the machine for general remarketing as part of its 3B family of Unix computers. AT&T, which has 20% of Sun Microsystems and has implied it intends to build future 3Bs around Sun's Sparc RISC, has still not announced anything firm along those lines, but has already signed to market Pyramid Technology Corp proprietary RISC-based servers. With Nixdorf Computer AG due to take the Tandem S2 and GEC Plessey Telecommunications adopting it to add a Unix capability to the System X digital public telephone exchange, the S2 - which are expected to start at about \$250,000 in typical configuration - begins look a very hot property even before it is launched. The development suggests that AT&T's 3B machines, based on the proprietary WE32200 complex instruction set microprocessor, are not long for this world, because at the bottom end AT&T is expected to have a "6486" Unix Workgroup System based on the 80486 likely buying the processors OEM from Intel ready shortly.

NIPPON UNISOFT IMPLEMENTS UNIX FOR TOSHIBA'S TRON CHIPS

Nippon Unisoft Co and Toshiba Corp have joined forces to do an implementation of Unix System V for Toshiba's TX1 and TX3 microprocessors, which are optimised for the Tron operating system. The parts currently support Tron-OS and Ready Systems Inc's VRTX real-time kernel. Unisoft will market the new Unix as UniPlusTX, but doesn't expect to sell more than five copies of the thing over the next 12 months, Newsbytes Japan says.

MOTOROLA ADDS LOW-END DELTA 88000 MODEL

Motorola's Tempe, Arizona-based Microcomputer Division has introduced a new entry-level addition to its Delta 88000 Risc series. The Model 8408 with 17 MIPS performance runs at 20MHz, comes with 8Mb memory, six add-on slots and supports up to 64 users. Available with 600Mb or 300Mb storage capacity prices are \$26,685 and \$23,935 respectively. Previous bottom-end machine in the series was the Model 8608 at \$27,935.

XIOS PROSPERS FROM ITS SWITCH TO OFFICE SYSTEMS INTEGRATION

Its coming up to two years since Xios Systems UK was formed from the reorganisation of Canadian dedicated word processor pioneer AES Data, and the company thought it time to give a progress report. The company's speciality now is the fashionable business of systems integration - in the office automation arena. It claims to provide "integrated office information management solutions to allow all levels within an organisation to interact and use information more effectively". Installation, maintenance, engineering, project management and information technology consultancy services are also offered. Xios claims an in depth knowledge of open systems standards and offers TCP/IP and Ethernet networking, connecting Micro Channel and AT bus personal computers to DEC, IBM and ICL environments. Unix applications offered include Uniplex and Q-Office office automation and Wordperfect, Systems Union Ltd accounting, Informix and Sybase database and Interleaf desktop publishing to complement Xios's own vertical market software for local and national government. It offers its own iAPX-86 family of personal computers and Sun Microsystems Sparc, 68000 family and 80386 machines. Xios Systems (UK) Ltd was formed in March 1988 by a merger between AES Data Inc, Canada, a subsidiary of the Kinburn Group, which specialised in office text management systems and Xios Systems Corp, Canada, which develops and markets office networking and integration software. Before the merger both companies were making a loss but last year the UK business alone did £500,000 profit on approximately £15m turnover. The company has direct sales organisations in six countries including Switzerland, Germany, England and Scotland, in Wales and Northern Ireland sales are via dealers, there are also 20 other distribution channels throughout the world. Headquarters of Xios Systems (UK) are in Slough, Berkshire and between the nine regional offices 250 people are employed.

INFORMIX HAS QUICKSTEP SQL QUERY, REPORT GENERATOR

Informix Software Inc, Menlo Park, California is offering a new interactive report generator, Informix-QuickStep, designed to enable users to build Structured Query Language database queries and custom reports through an interface that the company believes will be easy to use for those with no experience in SQL syntax. For developers, QuickStep provides optional Informix-4GL source code generation, so that developers can spend their time customising existing applications rather than writing base code. Reports can be created from information stored in any Informix database, and SQL database queries are built up using query-by-example techniques, using pull-down menus and fill-in-the-blank forms. Join screens enable users to relate information in different tables. Informix-QuickStep will be available on a limited number of Unix systems by the end of this year and on a wider range during the first quarter of 1990. Workstation pricing goes from \$360 for a single user to \$2,280 for up to 32.

INTERACTIVE TO SUPPORT XVIEW, LOOKING GLASS ON 486/ix

After showing a demonstration version of its AT&T Unix V.4-based 486/ix operating system at last month's Unix Expo show in New York, (UX No 255), Interactive Systems Corp says that when available in the first quarter of next year, 486/ix will support Sun Microsystem's XView toolkit as well as X-Windows, the Interactive Motif Development System - based on OSF/Motif - and Visix Software Inc's Looking Glass desktop manager interface. On the 386/ix operating system, Interactive is also supporting its Motif development system - cost is \$500, and a Motif User Environment, which has all the end-user bits for running X applications - the window manager and user's guide - but no facilities for application development. Price is \$250. Furthermore WordTech Systems Inc's Quicksilver/Unix, which allows DOS-Based dBASE applications to be compiled and run under Unix without modification, and FaxIX, the on-line fax transmission application from PC Research are also now available for the 386/ix.

ACCESS TO INTEGRATE REAL-TIME SPREADSHEET WITH MICROGNOSIS DDS

Access Technology, Natick, Massachusetts is to integrate its 20/20 spreadsheet package with Control Data subsidiary Micrognosis' Digital Distribution System, for the financial services industry, under a joint marketing and technology agreement. It is intended to give financial traders access to real-time market data from DDS, which can then be analysed within the real-time version of 20/20, previewed at Unix Expo (UX No 255). The 20/20 RealTime Connection will be available during the first quarter of next year.

WINGZ AVAILABLE ON SUN WORKSTATIONS EARLY NEXT YEAR

The Unix version of Informix's Wingz spreadsheet, which was on the drawing board as far back as July 1988, (UX No 189), will be available on Sun Microsystem's Sun-386i, Sun-3 and Sparc workstations from the first quarter of next year. It has been jointly developed by Sun and Informix, and is based on the Open Look graphical user interface, priced at \$700. It supports all of the Sun's colour and graphics capabilities, as well as the SunView windowing environment, and text and graphics data exchange between SunWrite, SunPaint and SunDraw. In addition Sun and Informix have signed a joint marketing and development agreement to sell Informix software on Sun's hardware platforms.

USHARE MAC CONNECTIVITY NOW READY FOR SUN, DEC, HP AND MIPS

uShare, Information Presentation Technologies' Apple Mac-to-Unix connectivity software, is now available for Sun Microsystems' Sun-4 and Sparcstation-1 systems, Hewlett-Packard's 9000 series 300 and 800 workstations, DEC's DECstation 3100 and Mips Computer Systems' hardware. uShare resides on the Unix host and allows Apple Macs on the network to use the full range of Unix resources. uShare - based upon TCP/IP - supports Ethertalk Phases I and II, as well as a LocalTalk interface to Sun, Apollo, Mips and Sony systems. uShare also incorporates a Virtual Disk facility that allows Macs to run diskless by storing the MacOS operating system and user files on a virtual disk running on the Unix host, a Unix-compatible electronic mail system, and support for a range of peripheral devices. IPT is based in Calabasas, California.

FALCON TEMPTS US FEDERAL

GOVERNMENT WITH MIPS RISC SERVERS

Landover, Maryland-based Falcon Microsystems Inc, which markets Apple Computer Inc Macintoshes to the US Federal government, reckons (probably rightly) that Uncle Sam is about to discover a deepfelt need for RISC-based Unix file servers, and has acquired rights to market MIPS Computer Systems Inc's servers to the government. Falcon will add MIPS' RC3240 to the General Services Administration's Schedule C, the official purchasing catalogue for personal computing products, and will add MIPS products as an integral part of its systems integration activities. "Leading" is a term bandied about by US companies with an abandon that invites deep scepticism - companies filing for Chapter 11 bankruptcy protection still style themselves as the leaders in their field, but when Falcon calls itself the leading supplier of Macintosh-based integrated systems to the US government, it may be justified - it claims to be Apple's third-largest customer, and to have sold about 90% of all Macs used by Uncle Sam. Privately-held Falcon looks for \$125m sales in the year to April.

CLEO'S DATATALKER CONNECTS UNIX PCs TO MAINFRAMES

Cleo Communications, Ann Arbor, Michigan - a division of Interface Systems Inc - is offering its DataTalker 3270 U/X multi-user PC-to-mainframe communications software for Unix systems on DigiBoard's DigiChannel/Xi intelligent input-output boards for IBM PCs, PS/2s and compatibles. DataTalker supports AT&T Unix V.3, SCO Xenix 386, and Interactive's 386/ix. It has IBM 3278/79 terminal emulation, with Cleo's own application programming interface and IBM's HLLAPI, NetView support, 3287 printer emulation and is configured for four and eight port versions of the DigiChannel board, with synchronous and asynchronous support. The four port version is \$2,595, or \$2,895 on the eight port board.

DOLPHIN'S TRITON 88

"IS FASTEST 88000 MACHINE ON THE MARKET"

Dolphin Server Technology A/S, the Oslo, Norway-based subsidiary of Norsk Data A/S, has asked us to point out that its Triton 88 range is not in fact an OEMed Motorola Delta system, as implied by our front page article last week (UX No 262). According to marketing manager Lars Lauritzen, the Triton range, introduced late in October (UX No 255), takes only 88000 microprocessors from Motorola, and implement them on a custom CPU board along with own-designed I/O processors and other system components. Dolphin sells entirely OEM, and says that to the best of its knowledge, the Triton 88 "is the world's fastest implementation of the 88000 - it is a much more mature server implementation than the Delta, with essential features on fault tolerance and system availability that the Delta will never have". Confusion arose from the OEM agreement parent company Norsk Data has with Motorola for the 68030-based Unline ND-5850 (UX No 254).

SUN BREAKS INTO FRENCH FINANCIAL SYSTEMS MARKET

Sun Microsystems has sold 60 of its 386i workstations to Paris-based brokerage house The Tuffier Group, which specialises in the instrument rate instruments market. The sale, made through French systems integrator Effix Systems, also includes four Motorola-based Sun 3/280 servers running Effix's own decision support software, and promises to yield an additional 40 workstation sales during 1990. The network replaces a read-only video-based system, and will allow traders to perform real-time analysis and calculation on information from Reuters, Telerate and Fininfo on a single screen, using high resolution graphical displays. Tuffier is one of the two two largest brokerage house in France, representing 400m French francs in commissions and employing around 90 brokers.

Unix in the UK

Kapiti Ltd, the Slough, Berkshire-based banking software house is to merge with the The Aregon Group Ltd which specialises in digital datafeed technology: Aregon reported a £5m turnover in 1988, with £1.4m profit, and Kapiti turned over £16m, with £2.3m profit; the new company, to be known as Kapiti, will have 18 offices worldwide and a combined staff of 280; the two companies have already collaborated on a project for the First Minneapolis Bank, where they are installing a \$1.5m dealing room system.

Unix experts The Instruction Set, based in the City of London, and acquired by the Hoskyns Group last October (UX No 252), turned over just under £5m to March 1989 and made a pre-tax loss of £18,000 - at the time of the acquisition, Hoskyns chief executive Geoff Unwin said he expected The Instruction Set be turning over £7m by March 1990, and to be £500,000 in profit, and he now claims it is well on target to achieving that, although it contributed virtually nothing to this year's figures.

SQL connectivity specialist Gnosis NV, Antwerp, Belgium, has formed a British subsidiary, Gnosis UK Ltd, based in Stockport, Cheshire, and headed up by Richard Taylor - France is to be its next port of call.

Moss - a 3D modelling application for highway and civil engineering, mining, land survey and construction projects from Moss Systems Ltd of Dorking, is now available on Intergraph's Clipper Risc-based Unix workstations.

Tektronix UK Ltd has belatedly announced the low-end XD88/10 in its family of Motorola 88000-based Risc workstations, it was previewed in October in the US, (UX No 253): prices in the UK start at £14,395, shipping early next year.

Brighton-based ABS Computers has won an order worth £480,000 from Oxford Regional Health Authority for Arix multi-processors running the WIMS2PLUS works information management system package: ABS, which also sells Unix systems from IBM, Prime and Pyramid, says that it achieved 42 shipments of Unix medium scale systems worth £3.5m in 1988, and expects to double that number this year.

And Sequent Computer has made its first sale to the National Health Service - West Lancashire Health Authority has ordered a four-processor S27 system which is intended to support 150 users.

C is now the third most popular computer language in Europe, according to IDC in Germany - Basic is still number one in terms of the number of programs, but Cobol far outstrips it in number of lines - and Maidenhead, Berkshire-based Migration Technology says it is reaping the benefit through increased demand for its CGEN BASIC-to-C software translator products.

Altos Computer Systems UK now says that all existing users of its 386 Series 2000 systems can upgrade their machines to the 2000-EP, with up to 64Mb RAM, a 600Mb ESDI disk module and 8, 12, or 16Mb memory boards: Altos has 700 Series 2000 customers in the UK.

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Wang is set to launch its first Unix-based server product next month, according to the Wall Street Journal.

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Intersystems Corp, Cambridge, Massachusetts, has joined Sequent Computer System's associate program - the two companies are to offer Intersystems' M/SQL database on Sequent's multiprocessing Symmetry series - prices go from \$19,900 to \$339,000: M/SQL is a merge of the SQL query and MUMPS database programming language.

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Associated Computer Experts bv, Amsterdam, Holland, has produced a report comparing benchmark tests carried out on over 100 Unix systems - price is \$495.

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AiCorp Inc, Waltham, Massachusetts, is to participate in Oracle Corp's IBM Independent Software Vendor and DEC VAX Oracle Solutions Vendor programmes, developing interfaces between its knowledge base management system, KBMS, the Intellect natural language system and Oracle's database for IBM mainframe and DEC VAX environments.

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Japanese Unix users look set to benefit from a new development by Network Computing Devices, which has a keyboard with Japanese language Kana characters as an option on its range of X Window network display stations - the 97 key Kana keyboard is available at no extra charge as an alternative to the standard keyboard usually supplied.

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And NCD, in conjunction with Software Research Associates of Tokyo have also added JIS Kanji fonts and automatic Kanji font downloading to NCD's X-terminal software - Japan is reckoned to account for around 25% of NCD's user base.

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Both Data General's 88000-based AViON line, and supercomputers from FPS Computing will soon be able to communicate with DEC systems via software brought in from Technology Concepts Inc, under OEM deals the Unix systems makers have recently signed with the Sudbury, Massachusetts-based Bell Atlantic company: Technology Concepts' CommUnity software connects Unix systems, PCs, Macintoshes and other proprietary systems to DECnet - FPS is to resell CommUnity under the name FPSnet/DN.

Zentec Corp, San Jose, California, has a new version of its Genisys processing terminal which uses a 16MHz Intel 80386sx chip. The Genisys SX Processing Terminal can be configured as a stand alone system, or with a local area network card, as a terminal on a LAN or a multi-user system. On the SX, Zentec has removed the CPU unit from the monitor housing and packed it into a wedge-shaped base unit. It has from 1Mb to 8Mb memory, two PC/AT slots, a SCSI interface and costs \$1600 in OEM quantities.

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T and B Computing, Ann Arbor, Michigan, has released a Unix and X-Windows version of its VMS TrackStar project management application - TrackStar 2.0-4 comes with a database and report writer, it costs from \$7,900 to \$60,000.

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Graffcom Systems Ltd, Old Isleworth, Middlesex, has launched a top-end version of its Lotus 1-2-3-compatible Accounts II accounting package for Unix - its files can be accessed from SQL applications, it features a window manager, multi-currency and a report generator: initially available running on AIX, with other Unix versions to follow, Accounts II is from £375 to £800 per module depending on the number of users.

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Hewlett-Packard Co has changed its mind on its 16-bit Micro 3000 MPE line and will phase it out in 1991.

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The new Texas Instruments 386/33 systems introduced recently (UX No 261) turn out to come from AST Research Inc, Irvine California: TI's previous OEM supplier for Intel-based systems has been Acer Corp of Taiwan, which is still supplying TI with 16MHz 80386 machines and an 80286-based workstation.

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Sun Microsystems Inc shows a quite insatiable appetite for cash, and it has just sealed what must be its fifth or sixth fund-raising exercise this year. It raised some \$50m in two financings only three months ago, and now wants another \$66m. This time it has concluded an agreement with a group of insurance companies and will receive about \$66m from the sale of 10.55% senior notes due 1996 and warrants to buy 404,000 Sun common shares at \$24.80 a time - the shares are currently trading at \$16.25.

Arix Corp warns that, mainly because of lower OEM sales to Unisys Corp, it will report a net loss of about \$5m, 63 cents a share, for the second quarter of fiscal 1990 to December 31: net sales are expected to be at the same level as in the first quarter of fiscal 1990 but represents a fall of about \$4m on the same period last year; Arix is actively broadening its customer base and increasing marketing and research and development expenditures as the company expands its sales channels, enters new markets and bids on government contracts.

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The next release of the operating system for the Apple Computer Inc Macintosh - System 7.0 - will suffer from the same big drawback as does OS/2: it will occupy 3Mb of memory, Newsbytes reports. The newswire lists the files that make up the new release, with their sizes, and these add up to 2.8Mb. The new release, due out early in 1990, year, will require a hard disk.

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Michael Blumenthal's ambitions to grow Unisys Corp to a \$20,000m company by the early 1990s are long dead, and the company's president, James Unruh, now says that Unisys is forecasting little growth in 1990 on turnover for the current year that is not likely to be up much on the \$10,000m that the two core constituents were doing immediately ahead of the merger in 1986 - but he does promise a "significant" profit for 1990 on the back of the stringent cost-cutting measures taken this year; the company is expected to report a loss after write-offs of about \$650 for 1989; much of the profit will have to go towards lowering the company's excessive debt burden - a debt-to-equity ratio of over 50% including Unisys' finance subsidiary, 40% excluding it; Unruh hopes to get the latter figure down to between 30% and 35% by the end of 1990, he told the Wall Street Journal.

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STEEL KING MANNESMANN "TO TAKE CONTROL OF NIXDORF COMPUTER", WEST GERMANY DECIDES...

West German steel pipes manufacturer Mannesmann AG, which has just won the franchise to construct and operate West Germany's second cellular telephone network, is the right partner to rescue struggling Nixdorf Computer AG, the great and the good in Bonn and at the Deutsche Bank have decided. Although no-one would give any details of the arrangements, Mannesmann, long touted as having an interest in Nixdorf, is believed to have called a meeting of its managers last week for the purpose of briefing them on the acquisition. Nixdorf has a board meeting scheduled for January 22, an employees' meeting for the following day, and a press conference on January 24, but it is unlikely that the news can be kept under wraps until then. The original plan is said to have been for Mannesmann to take 60% of Nixdorf and Siemens AG 40%, but as the plan will clearly lead to a merger of the Paderborner with Mannesmann-Kienzle, and it is Mannesmann-Kienzle that has won the cellular licence, the West German government is said to have been unhappy at the prospect of Siemens having any involvement in that. Although Nixdorf has only non-voting preference shares in public hands, it is not in a strong enough financial condition to make dividend payments painlessly, and after two years of no dividends, the shares acquire votes.

AT&T WINS \$850 OATS CONTRACT OVER ZENITH, EVEREX

AT&T has won a further major contract from the US Federal Government, following on from its \$4.5 billion Air Force contract won at the end of 1988 (UX No 204). The new contract, Office Automation Technology and Services, known as OATS, was awarded by the Federal Aviation Administration on behalf of the US Department of Transportation, and estimates put its value at up to \$850m over the next eight years. Initial value is \$18m, but if the contract value is fully realised, AT&T will supply up to 40,000 of its Intel-based networked computers, including StarLAN and StarGROUP software and other software and services supplied by 70 or so other vendors. Core software will be a new office automation package called Conquistador using the Open Look graphical user interface. Competitive bids came from Lockheed bidding Everex systems, and Zenith Data Systems and EDS. AT&T is also thought to be bidding for the forthcoming TMAC Treasury Department workstation procurement.

...AS DATA GENERAL BEATS SUN AND HP TO \$127M WATER DEPT DEAL

Meanwhile Data General, which was not ready with its Open Systems strategy in time to bid for the OATS contract, has won instead its first major open systems contract for the Motorola 88000-based Aviiion Risc systems from the US Interior Department's water resources division. Worth \$127m over a period of seven years, the contract is the largest ever won by Data General, and follows on from a \$15m reseller agreement from Zetaco Corp for Aviiion systems. DG will supply around 5,700 workstations and 300 servers running DG/UX. Software associated with the deal includes the Ingres relational database, GKS graphics library from Prior Data Sciences Ltd, the Tactition spreadsheet from Southwind Software Inc, and FrameMaker desktop publishing from Frame Technology Inc. Data General says it won the award in competition with Sun, HP, DEC, Prime, Intergraph and Tektronix - Lockheed bidding Sun and SMS bidding Hewlett-Packard were the other finalists.

ULTIMATE, HP GIVE SEQUOIA \$10M BOOST

Fault-tolerant Unix systems company Sequoia Systems Inc, Marlborough, Massachusetts is being wooed in every direction, and Ultimate Corp, East Hanover, New Jersey is cementing its September marketing pact with Sequoia by agreeing to pump \$4m into the company in return for an equity stake. The chairman of each will join the other's board. And at the same time, Hewlett-Packard has confirmed its own agreement with Sequoia (UX No 262): it will put \$5.8m - representing a 10% stake - into Sequoia, and plans both to market Sequoia machines under its own name and use Sequoia's fault-tolerant technology for its own machines.

FUJITSU "TO TAKE ICL STAKE"

ICL declined comment last week on gossip flying around the market that Fujitsu Ltd had taken a 20% stake in the company - but the talk was good for a 14 pence rise in parent STC Plc's shares at 261 pence as they participated in the euphoria that took the main London indices to new all-time-highs. Another version had it that Fujitsu would pay £250m for 25% of ICL, but any announcement would have to wait for today, because Japan was closed for the three-day New Year holiday yesterday. Foreign minority shareholdings in ICL are definitely on the cards and separate deals have been discussed, variously involving Ing C Olivetti & Co SpA, Siemens AG and Nixdorf Computer AG, on holdings of between 15% and 20%. On the European front, a merger of ICL Espana with Fujitsu Espana would give the latter a larger product line for the local market.

...AS ICL PREPARES FOR UNICORN LAUNCH

ICL's new generation of SPARC machines - codenamed Unicorn - are now waiting in the wings, with a launch date set for January 18th. The machines, which will come in at the top of ICL's DRS line, have been out at beta customer sites for some months now, and are expected to use 25MHz and 33MHz SPARCs, rated at 15.5 and 23 MIPS. UK software house Sea Change Ltd (previously Thomson Computers) says it has already ported the latest version of its Sea Change 4GL to the new systems.

PANORAMIC OFFERS SECURENET FOR SAFER TRANSACTION PROCESSING USERS

San Jose, California-based Panoramic Inc has announced plans to market SecureNet, a network security product for transaction processing systems. It provides initial security by granting application and functional level access to users. This is enhanced by encrypting information during transport and storage, and by an authentication process that verifies the identity of the user. It operates with most hosts, and Panoramic says that it complements host access control security systems such as Tandem's Safeguard, IBM's RACF, and Computer Associates Inc's ACF/2 or Topsecret. Developed with Atalla Corp of San Jose, and Tandem Computers, Securenet will be available in the second quarter of 1990.

DANSK DATA LANDS \$1.7m FINANCIAL FUTURES CONTRACT FOR SUPERMAX IN SPAIN

Dansk Data Elektronik AS, which last week launched new models in its Supermax range (UX No 263), has now signed a contract to supply and maintain hardware and software for MEFFSA, the Spanish Financial Futures Market, following an unofficial agreement made last June. MEFFSA has invested \$1.7m so far and chose Dansk for the versatility of its Supermax computer and its experience in the financial market. The systems were installed in August and have been operating on a test basis since October 16 before going fully live on December 1.

SEQUENT SIGNS DISTRIBUTION DEALS IN ASIA/PACIFIC REGION

Sequent Computer Systems has signed up two new distributors for its multi-processing Symmetry systems: Control Data de Mexico SA de CV in a three year deal expected to be worth \$6m; and Ssang Yong Computer Systems Corp in South Korea. Sequent and Ssang Yong are to jointly develop a Hangul - Korean language - version of Sequent's Dynix Unixlike, and reckon it will be finished by mid-1990. Sequent has also recently added more distributors in the Asia/Pacific region, Sigma Data in Australia, Mitac Inc in Taiwan, Pacific Technology Ltd in the People's Republic of China, and Far East Computer in Singapore, Indonesia, Malaysia and Thailand. In Japan, Sequent sells its kit through Pana-Sequent, a joint venture with Matsushita Electric Industrial Co Ltd.

BULL COMMITS TO \$450M IN HARDWARE FROM ZENITH

On top of the \$600m that Groupe Bull is to pay for the business of Zenith Data Systems from its Zenith Electronic Corp parent, (UX No 252), it is now clear that the deal could top the \$1bn mark, with a long-term commitment from Bull that it will purchase monitors and power supplies worth up to an additional \$450m from Zenith. For its part, Zenith is to plough most of the profits it will make from the sale of its Data Systems subsidiary - Bull is paying around \$91m over the odds - into the development of High Definition Television technology.

JAPAN TURNS OUT IN FORCE TO ENDORSE, LAUD THE NEW

MERGED SYSTEM V.4 VERSION OF UNIX

At the Japanese launch of Unix System V.4 - an event hosted by Unix International Inc at the New Otani Hotel in Tokyo earlier this month, Japanese members of the AT&T Unix fan club scrambled to endorse the new release and vied with each other to declare their long-standing Unix credentials, Anita Byrnes reports from Tokyo. Tadeo Higashaki, managing director of Oki Electric Industrial Co, welcomed the manner in which input was being invited, and said his Oki hoped to contribute real-time and transaction processing extensions to V.4. A senior vice-president from Toshiba Corp claimed that his firm was one of the first to ship Unix System III, back in 1982, and said the combination in V.4 was particularly gratifying because Toshiba supported both Berkeley and System V Unix. Similarly enthusiastic noises came from Fujitsu Ltd, Fuji Xerox Co and Sun Microsystems, and NEC Corp boasted that it was the only Japanese beta test site for V.4, and highlighted its loyal support, showing up at both Unix Expo in New York and the Tokyo Unix Fair this month. Larry Dooling, president of AT&T Unix Software Operation, acknowledged that the unit was considering broadening its ownership, stressing that Unix International members would have priority.

Week of Unix events

The Asia-Pacific Unix International organisation has 38 members, including four universities and majors such as Oki, Ascii, Astec, Toshiba, Prime Computer Japan, Nippon Steel, Omron Tateishi, Nippon NCR, Nippon Sun, NEC, Nippon Unisys, Fuji Xerox, Nippon Data General, Matsushita Electric, Yokogawa Hewlett-Packard - bit of a surprise, that, since Hewlett in the US was an Open Software Foundation founder - and Fujitsu. Yumio Imamura from Fujitsu is general manager of Unix International AsiaPacific Operation. The launch heralded the start of a week of Unix events - a seminar on Unix standardisation, attended by more than 1,000 participants from industry. The annual Unix Fair, sponsored by the Japan Unix Society, followed the System V.4 launch and was bigger and better this year, with a total of 63 exhibitors, including our cousin paper Nippon Unigram. Stands that attracted particular interest from visitors included Marubeni Electronics, exhibiting the Firex 9000 System, a networking optical file server; and the joint MIPS-Kubota Computer stand where the new ECL RISC machine was being displayed. MIPS Computer Systems Inc vice-president of systems technology John Mashey noted that MIPS saw itself as "part systems vendor like Sun, part technology developer and licensor like Intel", and suggested the "the way to work in Japan and elsewhere was through partnerships" - such as its ones with Sony Corp and Kubota. Tomen Electronics showed IXI Ltd's X.desktop running in Japanese, a source of some competitive advantage, since no other company was able to run a comparable environment in Japanese. International Sekisui AI Corp, the distributor for the S language statistical analysis and graphics product, showed it running on Sony's News workstation, and revealed that it is developing a News version of the Nexpert artificial intelligence tool. And Altos Computer Systems Inc was at the show, preparing to have a new crack at the Japanese market: its initial foray through a Kobelco Systems, a Kobe Steel subsidiary, was not a success and it has now signed trading company Shinsho Corp - also a Kobe Steel affiliate - as a distributor: Shinsho is positioning the Altos boxes as office servers and departmental systems designed to be connected to a mainframe through an SNA/Fujitsu Network Architecture gateway - but Altos confided at the show that in the long term, it wants a strategic partnership for the Japanese market.

IBM INTEGRATED REASONING SHELL FOR OS/2, AIX, MVS

IBM's first offering for the New Year is an Integrated Reasoning Shell, a "knowledge-based system family of software products" to enable users "to build and run knowledge-based applications in a multi-platform environment" more efficiently within the AD-Cycle and System Application Architecture frameworks. Knowledge bases under the new shell can be developed on the PS/2 under OS/2 and on the RT under AIX using the development system, and can be designed to run under OS-2, AIX-RT and VM and MVS with the appropriate Runtime System. It costs a one-time \$7,500 for the Development System and \$750 for the PS/2 and RT Runtime Systems; the 370 Development System is \$11,000 to \$113,000 and the 370 Runtime System from \$3,000 to \$28,000, available in the US next July.

...PUTS AIX PS/2 1.2 UTILITIES BACK TO MARCH

Delays and changes of course in its Unix software and strategy have been excessive even by IBM's standards, but the company had more bad news this week when it announced that AIX Unix 1.2 for the PS/2 had been delayed - none of IBM's AIX implementations for personal computers or 370s have shipped on the original date promised. AIX PS/2 1.2 and the companion Network File System, the Transparent Computing Facility and TCP/IP 1.2 and X25, all promised for delivery last quarter, are delayed until March 30 and the Application Program Interface function for AIX PS/2 X25, announced in March 1988, will not be available even then - IBM now promises only a date for it in March. "The decision to delay these products is based on the need for additional testing, required to ensure the delivery of quality products," IBM says.

MICROSOFT SHIPS SOFTWARE DEVELOPMENT KIT FOR 32-BIT OS/2

The time when users will finally get single-user desktop software that can really exploit the benefits of the 80386 chip - before the thing is completely obsoleted by the 80486 - came a step nearer as the Old Year died and Microsoft Corp sent it on its way with the news that the first release of the Software Development Kit for the interminably promised 32-bit version of OS/2 was now available. Components of OS/2 2.0 Kit includes a pre-release version of OS/2 Standard Edition version 2.0 with Presentation Manager, a 32-bit compiler based on Microsoft C optimising compiler version 5.1, a 32-bit version of the Microsoft Macro Assembler version 5.1, Presentation Manager tools, sample code and OnLine support. For the first pre-release version of the Kit, the developer will need an 80386 or 80486-based personal computer with a risible 6Mb main memory - you can successfully run a nuclear power station with a mainframe with less memory than that - EGA or VGA graphics, and a 60Mb hard disk. The pre-release version has IBM's blessing and can be used for developing applications for the IBM version of OS/2 Version 2.0, but is available only through Microsoft. It costs \$2,600, \$8,500 for four copies, but there is no seasonal cheer from Microsoft - there is no upgrade pricing available for purchasers of previous versions of the OS/2 Development Kit.

ONE YEAR ON, SIEMENS INTEGRATES ITS IN2 SUBSIDIARY

Siemens has now fully incorporated the French IN2 computer systems business it acquired in January of last year into its operation, (UX No 215), and is set to reveal a £2m deal for IN2's range of Pick systems in the UK at the beginning of February. In France, IN2's rebadged Mips Computer Systems' kit has been available for some time as the IN 6000 Series, but there are no plans to introduce them into the UK. However Motorola 68020 and 68030-based IN 4000 and IN 8000 ranges - respectively low-end and top-end machines - will be launched in the UK at the end of this month and the beginning of February, running the Pick operating system. New IN2 Unix boxes will be revealed in the third quarter, but its Intel-based PCs are unlikely to be seen in the UK before the end of the year according to Siemens' IN2 product manager in the UK M.Pavlovski. Siemens' MX and Sinix ranges are built around National Semiconductor processors - the top-end MX 500/70 and /80s are re-badged Sequent Symmetry parallel processing systems. Siemens pays for Sequent to rebuild the boards around the Nat Semi 32532 chip rather than the the Intel 80386 it ordinarily uses - the West German firm puts the boards into boxes, which run Sequent's Dynix unixlike operating system. Siemens is also thought to be working with the 80386 with an eye to the introduction of a parallel line of Intel-based systems, though it claims the large European customer base for the current machines make discontinuation of the Nat Semi-based line unlikely.

ARIX HIT BY COLLAPSE OF OEM UNIX ORDERS FROM UNISYS...

That monster OEM contract for multiprocessor Unix machines from Sperry, continued by successor company Unisys Corp, is turning into something of a poisoned chalice for Aris Corp. Unisys accounted for 71% of Aris' \$85m business in the year to June last, but the company now says it has received an order forecast from Unisys for calendar 1990 that is significantly below earlier expectations, and account for only 20% of the company's sales in 1990. Aris is working hard to plug the gap but had not factored in the accelerated decline in Unisys sales.

NIPPON STEEL FACTORY SYSTEM USES SYMBOLICS IVORY

Artificial intelligence techniques and technology still generate much more excitement in Japan than in the US or Europe, and Nippon Steel Corp has put together a factory computing complex using Symbolics Inc's Ivory Lisp microprocessor, coupled with a RISC from MIPS Computer Systems Inc and multiple Intel 80386 CPUs. The system is designed for real-time data collection and analysis, trouble-shooting and producing production schedules. With Ivory chip, R2000 RISC and four 80386s, it costs \$240,000.

HEWLETT-PACKARD UPS RISC STAKES WITH CMOS PRECISION ARCHITECTURE

Hewlett-Packard Co's January 10 announcement this week is expected to include computers and servers built around a new CMOS implementation of the company's Precision Architecture RISC processor - the present version is fabricated in NMOS. A 48MHz version of the part delivering up to 30 MIPS performance, is expected to be used in a new top-end HP3000 Series 970: although initially offered as a uniprocessor, the new model is expected to be offered with up to four processors in due course, with support for over 400 users. At the low end, an HP3000 Series 915 is expected to support 16 or so users and to start at \$11,000. Systems and servers in the HP9000 Unix family are also expected, and there is talk of an HP9000 Series 600 family, although it is not clear whether this will use the RISC or the upcoming Motorola 68040.

UNIX IN 1989

RISC with everything. Prosperous desktop business and high performance shake out.

January: After months of pressure from the industry, AT&T chose the start of the year to begin the process of distancing its Unix development activities from its commercial computing business, spinning out the operating system into the charge of a new division, the Unix Software Operation. Meanwhile in the opposing camp, the Open Software Foundation was flourishing, and made its final choice of technologies for its Motif graphical user interface, choosing a combination of the submissions from DEC and Hewlett-Packard. Visix Software Inc introduced the Looking Glass user interface manager, set to clash head on with X.desktop from UK rivals IXI. DEC confirmed its increasingly serious Unix aspirations by launching a new line of non-VAX workstations running Ultrix and using the Mips RISC processor. And young workstation pretender Solbourne Computer Inc threw down a challenge to Sun Microsystems with the first SPARC-based systems outside of Sun's own. Another start-up, Network Computing Devices, came out with early examples of a new class of intelligent terminal based on the X-Window system and dubbed X-Stations - many more were to follow throughout the year. Prime Computer Inc was still battling against a takeover bid from MAI Basic Four, while UK Unix house Sphinx Ltd was reported to be up for sale.

February: AT&T had to work hard to regain industry confidence in its future plans for Unix after the Open Software Foundation was formed in 1988, and this month 46 of its supporters formally announced Unix International, to plot the future course of Unix in conjunction with the Unix Software Operation. By now, Mips Computer Systems was on a roll that was to last all year, introducing new systems, signing up Siemens and NEC to fabricate its Risc processors, and signing up Sony Corp to use its chip in the face of competition from Motorola's 88000 and Sun's Sparc. After handing Xenix to the Santa Cruz Operation a couple of years ago, Microsoft bought back into the Unix business by acquiring a substantial stake in the company. Pyramid Corp revealed its challenge to the mainframe market with a multi-processor system rated at 140 MIPS running Unix, whilst Amdahl released version 2 of its Unix-compatible UTS operating system. Unisys continued its spending spree by signing a \$250m OEM deal with Sequent, while Norsk Data began its rush to Unix following heavy financial losses.

March: The UniForum trade show in San Francisco saw previously stubborn open systems opponent Data General begin to fightback with its first Risc-based Motorola 88000 AViiON workstations, and DEC's showstopper was a multi-user version of its new DECstation line. Intel caused a stir with its i860 Risc processor, claiming that workstation vendors which had already chosen their next generation of CPUs would now think again. AT&T, Olivetti, Prime and Convergent began work on a multi-processing version of Unix for Intel processors - and rashly promised it for the end of the year. AT&T hoped to steal a yard on the OSF's Motif interface by shipping source code for its Open Look graphical user interface. SCO - with a little help from its friends - announced a desktop graphics and database bundle for Unix called Open Desktop at less than \$1,000 in a challenge to OS/2. The Japanese Nippon Mining Company sold Gould Computers to Encore - but Gould had to lend Encore \$140m to do the job - while minisuper makers Cydrome and Scientific Computer Systems fell under market pressure, and operating systems vendor Microport was put up for sale.

April: Intel's predictions for the i860 seemed to ring true as Stratus turned tail and abandoned Motorola's 88000 in favour of the new chip - but Motorola shrugged it off by attempting to steal the thunder of Intel's much-awaited 80486 launch with a preview of its own 68040 processor, while Tektronix launched its 88000-based XD88 workstation line. Sun held its first major hardware launch for a year, with a blitz of new Sparc and Motorola-based systems, but again this was somewhat overshadowed by the news that Hewlett-Packard had bought workstation pioneer Apollo Computer for \$476m - pushing it ahead of Unisys and just behind DEC in size. French giant SGS-Thomson bought up the UK's promising Transputer technology with the acquisition of Inmos International. But while Control Data was shutting down its ETA supercomputer business, stirrings at the low-end of the market looked more encouraging, with "mass-market" dealerships for Businessland and MicroAge for IBM's AIX systems, newly announced for the PS/2. Businessland also took the NeXT computer from Steve Jobs. The Open Software Foundation issued its second Request for Technology to find a method of distributing software in a single format, independent of target hardware. Following the virus scares at the end of 1988, trusted Unix became a hot topic, with Addamax and SecureWare offering new secure operating systems technology. In the UK, the fast growing Pegasus Group stepped in as the last minute buyer for Sphinx.

May: At a Tokyo Unix summit this month, Unix International and the Open Software Foundation both joined X/Open, in a move hailed as the start of a long process of reconciliation between the two groups. Also at the meeting, Japan's Sigma project said it would conform to X/Open's Common Application Environment Portability Guide. There were already rumours flying around about the imminent arrival of IBM's next generation successor for the RT, known as Rios. First reckoned to be heading for a summer launch, the expected launch was soon put back to October. Now running from Olivetti, AT&T began selling its 3B2 boxes directly in France. DEC announced plans to bundle Relational Technology's Ingres database with every Ultrix licence - a big boost to Relational given that too many firms were fighting to get their databases onto a finite number of computers. Meanwhile, Unigram revealed that DEC had sacrificed binary level compatibility with other Mips-based machines on its new Risc lines by reversing the byte ordering to fit in more closely with VAXes. Pyramid revealed plans to rebadge Mips systems at the low-end. Hungry UK software house Mysis snapped up two Unix acquisitions, TIS Ltd and Mentor Systems Ltd.

June: Attention in the Unix world shifted from Tokyo to Toronto, where the Canadian Multi-User Unix exhibition was held. Here it emerged that Sun was so far the only recipient of a patent letter from IBM spelling out its claimed intellectual ownership of Risc technology - and show speculation put a mid-1990 launch date on the RT Rios machine. Following a meeting in Montreal, X/Open said future editions of its Common Applications Environment would represent the wishes of users, manufacturers, members and non-members alike, in a document known as the Prospectus of Market Demand, to be published later in the year. Elsewhere, Apricot launched the first Intel 80486-based machine in the UK, NCR got the multi-processing bug with a new Tower, and Sony launched its first Mips-based workstation in Japan. Xerox collected royalties from Metaphor Computer Systems for its Metaphor iconic graphical user interface, calling into question Apple's long running suit against HP and Microsoft. And in a shock announcement, Unix high-flyer Sun predicted a sticky end to its financial year with profits down and a huge backlog of orders waiting to be filled, then raised a further \$250m funding from AT&T and others. NeXT Computer won another powerful ally in the shape of Canon, which paid \$100m for a 16% stake in the company. Control Data's troublesome UK Systime business dissolved into five companies after management buyouts. Prime still reckoned it could finding a better offer for its business than that from MAI Basic Four.

UNIX IN 1989

Unix V.4 looks set to dominate. IBM disappoints with non-appearance of AIX 3 and Rios.

July: X-Windows hit the spotlight this month with the Xhibition in San Jose, where the general consensus was that OSF Motif was winning the interface battle - both Motif and AT&T's Open Look interfaces became generally available for the first time this month. Unisys declared that it would use the Motorola 88000 in future systems, while DEC unveiled a further Risc line of products as an alternative to the VAX - Mips-based DEC systems set against top and low end VAXstations. Silicon Graphics came out with an eight processor 160 MIPS server, and Evans and Sutherland weighed in late with its 1,600 MIPS supercomputer. AT&T finally sold its stake in Olivetti, introducing a new line of PC systems OEMed from Intel to replace the Olivetti products. Pick Systems said it would intergrate the Pick operating system with Unix over the next year. Arix looked to broaden its product base with the acquisition of Edgecore Technology, and while takeover bells rang at Nixdorf yet again, Prime revealed its white knight to stave off the hostile MAI bid - J H Whitney & Co coming to the rescue with a leveraged buyout.

August: Even with the i860 still in the sampling stage, Intel was rumoured to be working on an enhanced version optimised for multiprocessing, touted as the i870. Concurrent got cold feet and pulled the plug on its joint Supercomputing Solutions venture with General Microelectronics, and AT&T appeared to be having second thoughts about its support for the Sparc chip, saying it "still had to decide" on a Risc part for a new generation of 3B2s. However Philips became the first European manufacturer to fabricate Sun's processor. Apple lost its copyright infringement lawsuit against Microsoft and HP, but still reckoned it could win on the issue of overlapping windows. McDonnell Douglas announced it would float its computer systems business on the London Stock Exchange. Yet another top-end systems casualty was Elxsi, which gave up on its 64-bit minisupercomputers and laid off over half of its workforce. Following its \$375m fourth quarter loss Wang was in trouble with all its financiers and began laying off staff, whilst Unisys was looking to shed 10,000 jobs. Noises coming out of the summer UniForum show in Boston indicated a November launch for Unix V.4. Comdex show organisers the Interface Group pitched in with a Unix Solutions show set for October 1990, bringing the number of major US Unix shows up to five - the others worried.

September: Bitter graphics supercomputer rivals Stellar and Ardent merged to create Stardent in what sounded like a marriage made in hell. Intel's 80960 Risc chip appeared and was immediately taken on board by the Intel/Siemens joint real-time venture BiiN. Relational Technology developed a multiprocessing version of its Ingres database. Sun, Novell and Netwise announced a plan to combine their networking technologies to allow shrink-wrapped software to run across a variety of networks and architectures. Inmos launched a 10 Mips transputer at \$20. Leaks about licensing and pricing for Unix V.4 looked like sparking off a new industry row. AT&T boosted Pyramid's fortunes by taking its MIS servers to top off the 3B2 line in a deal worth hundreds of millions. NeXT released new system software for the NeXT machine, planning a 68040 machine for early 1990. IBM was going to be three months late in shipping version 3.0 of AIX, but the OSF still promised its AIX-based OSF1 would come out on time.

October: Rows over the license fee for Unix V.4 were largely avoided with a fee set by the Unix Software Operation that generally worked out to be cheaper than previous fees, although favouring the low-end of the market. The computer industry's Silicon Valley survived a monster earthquake relatively intact. Bull paid \$635m for Zenith Data Systems, making it top European computer manufacturer ahead of Olivetti. More good news for Mips, when Bull, Nixdorf and Pyramid said they would be taking up a Mips-Risc option in future. The Open Software Foundation was revealed to be more worried about IBM's AIX delays than it had let on, and was set to incorporate Mach multiprocessing capabilities into OSF1, following hints from Hewlett-Packard that it might wait for OSF2. Ravaged by its takeover battle, Prime had to withdraw from Unix multiprocessing efforts. Intel and Siemens pulled the plug on their short lived BiiN project, while Stratus brought fault-tolerance to the low end with a new Unix box. Hewlett-Packard rushed out an 80486 EISA bus machine, and Unisys unveiled some major imaging systems. Hoskyns paid £12m for UK Unix veterans the Instruction Set, The European Commission decided it couldn't wait for X/Open to make up its mind on an interface and plummed, like many others, for OSF/Motif. Sun looked to break even in the current quarter, and landed another \$250m in funding, but put its Tops networking division on the block at the same time. IBM's Rios did not appear, and was now expected at UniForum in January 1990.

November: At Unix Expo in New York, Unix International and the Unix Software Operation unveiled Unix System V.4, confirming that although the Open Software Foundation had won the most support for its interface, Unix V.4 had taken the operating system battle hands down. OSF1 was not now expected until late 1990, and talk at the show suggested that the most concrete merger talks so far between the Foundation and Unix International were now beginning, with discussions round a sale of the Unix Software Operation to a joint consortium along the lines of X/Open. In other news, Intel unveiled an applications binary interface for Unix V.4 on the 80X86 line of processors, and entered the operating system software market in competition with Interactive Systems Corp and Santa Cruz Operation, while SCO itself revealed the first shrink-wrapped multiprocessor version of Unix with extensions from Corollary Inc. Mips also plotted a course through the byte-ordering minefield created by DEC announcing a binary interface standard for its Risc chips, and launched new ECL R6000 processors and systems, saying it would go public in the new year. DEC launched the top end VAX 9000S series. Compaq unveiled its 486 Deskpro systems, and found a bug in the Intel chip, delaying system manufacturers all round. AT&T set up a new division to sell computer systems directly in Europe - previously handled by Olivetti. Evans and Sutherland gave up on the ES-1 supercomputer, only launched in July.

December: Sun introduced its first purpose built Sparc servers, and Sony unwittingly revealed two more Mips Risc chips in the pipeline, while newly-wed Stardent produced its first sibling, a Mips Risc-based system from the Ardent side of the firm and promised i860 models in 1990. Amdahl abandoned its efforts to market Fujitsu's Unix supercomputers and laid plans for its own. AT&T and Unix International got a further boost when Japan's Sigma project opted for Unix V.4. Norsk Data's Dolphin subsidiary signed with Motorola to do a 1,000 Mips ECL version of the 88000. IBM launched the 80486-based PS/2 70. The year ended with a launch date for the the Rios box touted as the end of February of 1990 and finally Apple's chickens came home to roost - Xerox slapped a \$150m lawsuit on it for royalties from its iconic graphical user interface.

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The consortium of vendors submitting to the Open Software Foundation's distributed computing request for technology that includes IBM and Transarch Corp (UX No 255) is now ready to talk, and held analysts meetings late last week under the title DECORUM. Using the IBM-backed Andrew File System commercially enhanced by Transarch Corp of Pittsburgh, the submission also includes contributions from Apollo/Hewlett-Packard (Network Computing System) Microsoft Corp (Lan Manager for Unix) and Locus, and at the last minute the architecture was endorsed by DEC, amongst other vendors.

K mart Corp seems to have let one or two cats out of the bag with its announcement of an enormous multi-year contract with Unisys Corp for its U6000 series of Unix computers. The U6000 line includes Sequent Computer Systems Inc's Symmetry multiple 80386-based machines at the top end and single processor 80386 models from Convergent Inc lower down, but K mart says that the order includes 1,000 Unisys Series 6000 computers including multi-processor 80486-based machines - presumably unannounced Sequent models. The machines are intended to improve service to customers and cut costs at the mass-market convenience retail store chain. The contract also includes 2,500 80386-based U6000s for handling product receiving and shelf edge marking systems in all stores. It says that 300 systems have already been installed from August last year and will be completed in 1991.

Having adopted the D-NIX real-time Unix developed by Diab Data AB, Stockholm, and launched the Swedish company's machines in the US (UX No 258), Dynatech Computer Systems Inc, Mountain View, California has now taken a licence to manufacture the 68030-based multiprocessors. It will build pedestal and rackmount machines with up to four 68030s to support up to 256 users. Manufacturing the machines will enable Dynatech - the former Cromemco - to start offering a 60-day delivery schedule.

Hewlett-Packard has announced the first fruits of its collaborative agreement with Northern Telecom Ltd, unveiling HP's Applied Computerised Telephony software and Northern's Integrated Services Digital Network Applications Protocol for its PABXs: the combination allows for the simultaneous arrival of telephone call and computer file to the desktop, identification of the phone number and customer called, and automatic call-back - software runs on HP's 3000 MPE/XL and HP9000 Unix machines.

Allant Computer Systems Inc, Littleton, Massachusetts, retained by Intel Corp to help with software for the 80860 RISC processor, is to launch its first 80860 machine this month, Electronic News reports. The machine is expected to have up to 32 80860 processors packed four to a board, with each board having 2Mb of static RAM cache for a CPU-to-cache memory bandwidth of 1.6G-bytes per second - implying peak throughput of 400 MFLOPS. Ships are not expected before next June.

Unisys Corp announced that a settlement had been reached dismissing Zenith Data Systems' protest against the US Air Force's award of the Desktop III contract to Unisys: the contract, for desktop machines to run both Posix-compliant and MS-DOS operating systems, is estimated at \$706m to the Blue Bell company.

Ingres Corp says that its Ingres relational database management system is the first in the world to run on Cray Research X-MP and Y-MP Unix machines running Cray's Unicos implementation: in future releases the product will be optimised to provide for large memory, high I/O bandwidth and computational capabilities of the Cray machines.

Fourgen Software Inc of Edmonds, Washington, has expanded its recent cooperative software program agreement with IBM, allowing FourGen Accounting to be offered on IBM's RISC-based AIX computers (including the unannounced RIOS machines) as part of a "pre-installed business system" that also includes the Uniplex office automation suite, installed on the hard disk at the IBM factory: FourGen, recently upgraded to Version 3.0, has been developed using Informix-4GL, SQL and CASE tools from Informix Software Corp.

Hummingbird Communications Ltd of Markham, Ontario, has announced HCL-eXceed Plus, a protected mode version of its X Window server for PCs running MS-DOS: the new version gives TCP/IP connected PCs full access to X Windows applications, making up to 16Mb of memory directly available to X clients, breaking the 64K memory barrier of the real mode version.

And Hummingbird also has a new product, HCL-eXtend, which provides PC-based X servers with a DOS/Unix file management facility: the product allows DOS and Unix file handling commands to be used interchangeably.

Borland International has signed the rights to the Turbo Prolog language compiler back to its original developer the Prolog Development Centre, Copenhagen, Denmark: PDC is to develop and market new versions of the software under the name PDC Prolog - OS/2, and new DOS versions will be available in February priced \$500 and \$250 respectively, with other Unix editions to follow by the middle of the year.

Microsoft Corp shares dipped \$1.25 to \$85 even on the news that president and chief operating officer Jon Shirley, the man seen as a steadying influence on co-founder and chief executive Bill Gates, is resigning his executive posts at the end of the financial year in June. Shirley says he wants to devote more time to his family and his hobbies; his 500,000 Microsoft shares are currently worth about \$40m. Shirley, who joined in 1983 after 25 years with Tandy Corp, plans to remain as a director.

Advanced Micro Devices Inc is shipping 33MHz versions of the Am29000 RISC at \$280 for 1,000-up: the Sunnyvale firm rates them at 22 MIPS.

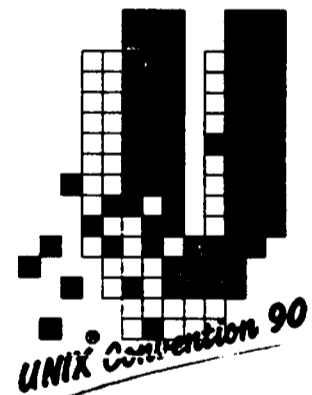
MIPS Computer Systems Inc, Sunnyvale, California got its initial public offering of 4.6m shares, 3.95m of them new, away at \$17.50 per share. MIPS says that the \$70m or so net proceeds will be used for working capital, primarily to finance accounts receivable and inventory, and to acquire capital equipment. Morgan Stanley & Co Inc and Cowen & Company were co-managers of the underwriting group.

Tandem Computers Inc is expected to launch its long-awaited fault-tolerant Unix machine, built around the MIPS Computer Systems Inc RISCs this Monday: the S-2 machine is expected to lead to a big rise in sales to telecommunications companies - AT&T Co and GEC Plessey Telecommunications Ltd are both expected to be revealed as customers for it, and AT&T may also market the S-2.

Siemens Data Systems has announced support for Oracle Corp's Oracle relational database for both its 7500 mainframe family under BS2000 and for the MX line of Unix boxes.

Not surprised that they were able to persuade him back at those rates: Apple Computer Inc has revealed that as well as guaranteeing him up to \$600,000 a year in salary and bonuses against the \$237,000 he was getting at Sun Microsystems Inc, it paid Joseph Graziano a \$1.5m signing-on fee to make the move back to Apple as chief financial officer.

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ARIX BOOSTS SYSTEM90 WITH THREE NEW MODELS

Arix Corp is set to deliver the promised expansion of its System90 Unix multi-processor line (UX No 258) with three new models introduced this week. The new systems include a boosted input/output system aimed at eliminating performance bottlenecks on applications demanding high I/O throughput, such as relational database, communications and distributed X-Windows graphics applications. Arix currently offers two System90 Models - the 40 and 80. These are now upgraded to the new Model90/45 for from 128-256 users, and the Model90/85 for from 256-512 users. Arix has also introduced a new low-end model - the System90/25 for 16-128 users - to cover the ground previously occupied by its older Series 800 Models. While CPU technology remains the same, with up to four 68020 processors for the Model 25 and eight for the 45 and 85, Arix has boosted the I/O with the addition of a generic 68030 processor mounted directly on the Arix compute subsystem CSS bus, claimed to be capable of sustaining data transfer rates of 128bps. Previous System90s used the same I/O subsystem as the Series 800, using multiple 68000s for I/O support on a separate bus system. The bus can be configured with "personality" cards to add support for SCSI, local and wide area networking, and asynchronous communications options. Arix shied away from using Motorola's 68030 as the main applications processor due to its integrated memory management unit (Arix had implemented its own MMU), and plans to wait instead for the 68040. A 68040 version thought to include dual 68040 processor modules, is "almost complete" according to an Arix spokesman, and will probably be revealed shortly after the official launch of the 68040 at the end of this week. The spokesman revealed that Arix's SPARC development is also "weeks from completion", but that the company was "waiting for a deal" on the systems before a launch. Arix, trying to move away from its dependence on Unisys Corp's major OEM deal for the Series 800, which Unisys sells as the Series 5000 Models 80, 85, 90 and 95, now sells through distributors and third parties such as Fortune Systems, Mannesmann Information Systems and Star Computers and ABS in the UK. The Model 25 comes with up to 160Mb memory and up to 5Gb storage, with end-user pricing starting at \$52,000. The Model 45, starting at \$128,000, supports up to 416Mb memory and 63Gb storage. Volume deliveries begin in March. The top-end Model 85 supports 416Mb memory and 82Gb storage and will start from \$280,000 when it is available in volume from June.

SIEMENS TO TAKE 51% OF NIXDORF

TO CREATE NEW SIEMENS-NIXDORF INFORMATION SYSTEMS

Siemens AG ended recent speculation over the future of struggling Nixdorf Computer AG in a midnight decision last Tuesday night, announcing the following morning that it would be taking a 51% controlling stake in the Paderborn distributed systems manufacturer. It will subsequently merge its computer interests with those of Nixdorf to create a new Siemens-Nixdorf Informationssysteme AG, with combined annual turnover of some \$7,000m, shooting Siemens up the world league of computer companies and putting it close in size to Hewlett-Packard Co in computers. The transfer of Siemens Data assets to the new company will raise Siemens' stake to between 70% and 80%. Siemens is taking 51% of the ordinary share capital: these voting shares are currently 25% owned by the Nixdorf family and 70% by two charitable trusts controlled by the family and Nixdorf management. The agreement is subject to approval by the West German Kartel Office - by no means automatic because of the resulting dominance of the PABX market in Germany - which says it will take about four months to rule, and the European Commission, miffed that it had been given no prior notice, said it would also have to approve the agreement. Mannesmann AG and BMW were the other German companies thought to be in the running for Nixdorf. How will they merge? - page 7.

123 FOR UNIX DUE THIS WEEK

Lotus 1-2-3 spreadsheet maker Lotus Development Corp, is spreading its wings and flying to Unix this week with the announcement of Lotus 1-2-3 for a range of Unix systems, including Sun Microsystem's Sparc, Motorola and Intel-based systems and DEC's Ultrix-based DECstations. Sun looks likely to win the race for the availability of the spreadsheet, which could be a significant boost to sales of Unix workstations in the commercial market. Full details of the software, first mooted back in April 1988 (UX No 176), are expected this Wednesday.

SUN GIVES TOPS INDEPENDENCE

Sun Microsystem's TOPS networking division which was reported to have been put up for sale back in October of last year, (UX No 253), has been spun off as an independent corporation, and the "for sale" sign taken down. According to a spokesperson, all formal development links between Sun and TOPS were severed on July 1st of last year - both Sun and TOPS came round to the belief that if the company was to become a fully successful operation, the apron strings would have to be cut. Rich Shapero, previously vice-president of the TOPS division becomes president and chief executive of the new TOPS company, now a wholly-owned subsidiary of Sun Microsystems, and it is understood that the TOPS management will report to an independent board of directors made up of senior TOPS and Sun managers, as well as other industry representatives. At the same time TOPS has released a Network Bundle package of networking applications for MS-DOS and the Apple Macintosh. Priced at £185 and £219 respectively, the software will be available from mid-February. Network Bundle includes TOPS 3.0 file-sharing software and the INBox 3.0 electronic mail system with gateways that was previewed at the Comdex trade show back in November, (UX No 258). TOPS 3.0 for MS-DOS can now be configured in 65K, has improved print facilities and supports the Hierarchical File System. Upgrades from TOPS/DOS 2.0 and 2.1 are available for £100 each. TOPS says that it will extend its product line to encompass DOS Windows and OS/2.

HP ADDS BLITZ OF RISC SYSTEMS TO EXPANDED 9000 AND 3000 LINES

After spending most of last year digesting the business of Apollo Computer it acquired last April, Hewlett-Packard has started the new year off with a blitz of new minicomputers built around its Precision Architecture Risc technology. There are additions to both the HP-UX-based 9000 Series, and the proprietary MPE-based 3000 family, including a top-end system using a CMOS implementation of the PA Risc chip announced at the end of last year, (UX No 261) - but not available until the end of this! At the high-end of the 9000 Series 800, the CMOS-based Models 870S/100 and dual-processor 870S/200 for up to 600 users are rated at 50 MIPS and 90 MIPS respectively - both are available as board upgrades from existing Models 850S and 855S. System memory goes up to 768Mb, with up to 83Gb disk space. In the mid-range, the departmental Models 845S and 845SE - the former board upgradable from the 835S - offer 23 MIPS performance for between 16 and 100 users. At the low-end a Model 832S, with 15 MIPS supports up to 48 users. HP's 9000 Series 600 family of servers also has a new addition, the transaction-processing Model 645SV, which is object-code compatible the existing Model 635SV server and all the Series 800 systems. It comes with 32Mb main memory, 23 MIPS performance, 1.3Gb disk, NFS, ARPA, X-Windows and the HP LAN/9000 Series 800 link. Available in the fourth quarter in the UK, the 870S/100 and 870S/200 come in at £584,789 and £355,626 respectively. The rest of the models are out in March - the 845SE is £110,338, the 845S comes in at £50,558, the 832S is £43,456, whilst the 645SV is £72,000. In the 3000 Series, there is a top-end 980/100 and dual-processor 980/200 built around the same CMOS chip and aimed at transaction processing (up to 70 and 100 transactions per second respectively are claimed) A mid-range Model 949 - upgradable from the 935 - offers 31 transactions per second, whilst there are new entry-level 922LX, 922RX, 922 and 932 systems supporting from 16 to 240 users, with disk space going up to 22Gb. At the micro level, the HP Micro 3000X supports up to 24 users.

...HP9000 345, 375 TO USE 50MHz VERSION OF 68030

Along with its new Risc systems introduced last week, Hewlett-Packard also introduced two HP9000 300 workstations, the Model 345 and 375, using the new 50MHz version of the Motorola 68030. Both use five new ASICs that replace over 400 parts in earlier models. The 345, rated at 12 MIPS and with 4Mb to 16Mb memory, is priced at from \$9,000, and an optional integral 200Mb disk will be available for the first time in a 300 at \$3,250 - addable to the 340 at \$3,600. The 375, which is designed to be upgraded to the 68040 when it becomes available, starts at \$22,000, and upgrades to the 68040, claimed to offer up to 10 times the performance of the 68030, will be \$2,000. It takes 8Mb to 32Mb, and will go to 128Mb; it has 12 slots. Both are set for availability this quarter. The HP9000 330, 350, 360 and 370, and the Apollo 3500 and 4500 will also both be upgradable to the 68040.

NIXDORF, GEC AND NOKIA LINE UP TO TAKE TANDEM'S FAULT TOLERANT MIPS RISC MACHINE

Tandem Computers Inc launched its new Integrity S2 fault-tolerant Unix system at the company's European headquarters in Amstelveen earlier this week (UX No 246, 264) and confirmed that it is negotiating a significant deal with AT&T. However, it wouldn't confirm the massive 40,000 figure mooted in October last year (UX No 253) to be used either for monitoring long-distance telephone lines, or as part of AT&T's 3B Unix family. Based on MIPS Computer Systems' R2000 RISC, beta sourced from Integrated Device Technology Inc and manufactured by both Integrated and LSI Logic Corp, the new offering is expected by Tandem to constitute only a modest 5% of turnover - \$100m, it suggests - over the next 12 months, despite several pre-launch orders and reseller The Integrity S2 has three processors, and if one differs from the other two, the maverick is switched off while diagnostic tests determine whether or not a fault has occurred. Running under the NonStop-UX operating system, the S2 has duplicated memory and mirror disks, and the input-output subsystem and power supply are also doubled. The operating system is based on Unix System V.3, but Tandem says it will offer V.4 "as soon as it becomes stable". Other features are a fault-tolerant bus compatible with the VMEbus, the Berkeley Fast File System, and a global and local memory management system. Also included are the X Window System, Network File System, TCP/IP, databases from Oracle, Informix, and Ingres, and a dual-channel Mass Storage Cabinet with two 295Mb disk drives. The S2 comes in six configurations, and the entry-level offers 16Mb of main memory, a quarter inch tape drive, and two 295Mb disk drives sourced from Control Data Corp. The S202 and 212 have up to 40Mb capacity, and the S204 and S214 have SCSI channels for up to four Mass Storage Cabinets with 3835Mb in the two included cabinets. Nixdorf Computer AG has been appointed as a reseller, and intends to launch the S2 at the Hannover Fair as the Targon/3300, to be made available from May. Nixdorf says that it will target the Targon/3300 at the retail sector, and forecasts that it will be running under Unix V.4 by the third quarter. Tandem has also signed a systems integrator agreement with Sagem SA in France, which has sold the S2 to six end users, and a value-added reseller agreement with GEC Plessey Telecommunications Ltd in the UK. The last has been running the system in a Coventry beta site since November last year, tying the computer to its System X and creating an intelligent network. Nokia Data has added the S2 to its Unix family, and signed an end user agreement with the Helsinki Telephone Company and two other unnamed users. In addition, Tandem has sold the system to Bayerische Motoren Werke AG, the German car manufacturer, which is using the S2 for production control and automated warehousing applications. Tandem says that the system was designed to meet immediate needs and is the first of a product line which will be upgraded as new processors become available. The company is targeting the S2 at manufacturing, telecommunications, government, and retail sectors, and expects European sales to be predominantly through third parties. The S201 and S221 with duplicated 16Mb main memory, two 295Mb disks and a quarter inch tape drive cost from \$172,000. The S202 and 212 take up to 40Mb memory and add a Mass Storage Cabinet with two more 295Mb disks at from £196,000; the S204 and 214 have SCSI channels for up to four disk cabinets and start at \$248,000. NonStop-UX carries an initial licence fee of \$12,000 then £400 a month. All are available now.

INTEL BOOST IPSC HYPERCUBE WITH FIRST ALL i860 MACHINE

Intel Corp last week duly unveiled its first 80860-based versions of its iPSC massively parallel hypercubes. The new iPSC/860 is rated at up to 7.6 GFLOPS peak - at a tenth the cost of a Cray Y-MP, Intel claims; it supports up to 2Mb main memory and over 100Gb of disk. The machine is the first fruits of the Defense Advanced Research Projects-backed - to the tune of \$7.6m - Touchstone project to develop a 150 GFLOPS machine by 1992 (UX No 227). The iPSC/860 comes with from 16 to 128 80860s and start at \$265,000 for the 480 MFLOPS entry model. System software includes Unix System V.3.2 running on the System Resource Manager, the default input/output processor, with a kernel operating system, NX/2, on each of the nodes. Processor connections are via Intel's Direct Connect Network. New software for the machine includes the Unix-compatible Network Queuing System developed at NASA Ames; Pacific-Sierra Research Inc's Forge Fortran parallelising converter; Scientific Computing Associates Inc's Linda and AIL Ltd's Strand 88, both languages for creating portable parallel code; and Block Island Technologies Inc's Interwork, which optimises parallel performance. Shipments start in March; over 200 80286- and 80386-based iPSCs, source code compatible with the iPSC, have been installed so far. First customers for the new machine include Boeing Co, Ford Motor Co, the US Institute for Computer Applications in Science & Engineering and NASA Langley Research Center. Prudential-Bache Securities, already an iPSC user, will upgrade to an iPSC/860 within weeks. Gesellschaft fur Strahlen Forschung GmbH is also to use one for studies in pollution control.

AT&T LISTS OPEN LOOK SUPPORT

Trying hard to prove that the Open Look graphical user interface still has friends out there, AT&T discloses that 25 hardware and software vendors have now signed up to supply the interface on an OEM basis to independent software vendors, who will be developing products based on the software, now included as part of the source code for Unix V.4. Apart from the most obvious AT&T supporters that have already declared for Open Look - Amdahl, Aris, Fujitsu, ICL, Olivetti, Pyramid Solbourne and Sun Microsystems - these include hardware manufacturers Commodore, Harris, Motorola, Tolerant, Toshiba and Wipro, some of whom are also supporting OSF Motif. More obscure are organisations such as KonsultHuset Data, Stockholm, Sweden; Australian systems manufacturer Labtam Information Systems Pty, Braeside, Victoria, and its UK subsidiary Labtam Ltd; and Quest Systems. AT&T says it will make available a list of Open Look products being developed by ISVs in the near future.

OSF'S NEUTRAL DISTRIBUTION FORMAT REACHES PROTOTYPE STAGE

The Open Software Foundation's ambitious Architecture Neutral Distribution Format project, to develop a method of enabling shrink-wrapped Unix software to run on any computer regardless of processor, (UX No 228), is about to enter a new prototyping phase, in which the competing technologies will be asked to prove the practicality of their designs with working models. The original list of 24 companies had already been whittled down to the 15 that met the original design goal, and a shortened list of those that have been invited to submit working prototypes will be published during the first week in February.

MULTIFLOW PREPARES ECL TRACE/400 WITH DOUBLED PERFORMANCE

Multiflow Computers Inc, Branford, Connecticut is upping the ante with its Trace very long instruction word minisupercomputers. The company is hard at work on a 64-bit ECL Trace/400 that it says will deliver at least 360 MFLOPS peak, compared with a peak of 120 MFLOPS for the Trace/300. The single-processor Trace/400, due to go into beta test by mid-year, is being designed to have a cycle time of around 30nS, compared with the 130nS cycle of the Trace/300 machine.

ALTOS TO SHOW 486 SYSTEMS AT UNIFORM

Altos Computer Systems promised its first 80486 systems for February this year (UX No 250), and now plans to debut its 486 System 1000 at the UniForum exhibition in Washington later this month, according to Microbytes Daily. The new machine will be offered as an upgrade for the company's existing 386 System 1000, and at 15 MIPS will double its performance, according to Altos. The machine, shipping immediately, will run the Altos version of Unix System V.3, which includes additional virtual disk and disk striping features to boost the machine's multi-user performance. Sold through the network of Altos value added resellers, machines should start at around \$10,000, with a 4Mb, 170Mb disk system with tape going for \$20,000. Future plans at Altos include more 486 machines, support for SCO's Open Desktop and Unix System V.4, and machines supporting graphics and X-Windows later this year. Altos also has plans to enter the RISC market using Intel's i860 processor (UX No 250).

INFORMIX INTERFACES SQL WITH POINT-AND-CLICK WINGZ INTERFACE

Informix Software Inc has introduced a new interface to front-end its SQL database products on desktop computers. Wingz- DataLink allows non-SQL literate users of the Informix SQL database to create queries through point-and-click options, while developers can create custom graphics for their Informix database products using the new software. Corporate data from the database can be directly imported into a Wingz worksheet or into a customised system running on platforms supported by Wingz, which now includes Sun workstations under Open Look (UX No 263) as well as the Macintosh. A version for the NeXT computer from Next Computer Inc is scheduled for the first half of this year, with OSF/Motif, OS/2 under Presentation Manager and DOS with MS-Windows versions also promised. The Mac version includes user options for connecting through either Apple's CL/1 connectivity product or Informix-Net: CL/1 allows access to data on DEC VAX systems. A low-cost "retro-pack" for users of Wingz 1.1 on the Apple Macintosh is now scheduled to be available in March 1990. Subsequent releases of Wingz will include the DataLink interface and documentation as standard features. Informix also announced an OS/2 version of its Informix-OnLine multimedia database, announced at Unix Expo last October (UX No 256).

...AS CLARIS SAYS IT WILL EXPLOIT WINGZ TECHNOLOGY

Clariss Corp has acquired rights to the technology of the Wingz graphic spreadsheet to "develop and enhance its family of productivity software", integrating it with Wingz graphics and spreadsheet facilities. The deal, value not disclosed, includes the HyperScript language. Informix said it would continue to support and enhance Wingz for the Macintosh.

OS/2's 32-BIT UNIX CHALLENGER EMERGES AS DEVELOPER'S KIT

Just in time for the New Year, Microsoft Corp, Redmond, Washington began shipping the IBM and Microsoft OS/2 Software Development Kit for OS/2 version 2.0 with Presentation Manager on December 29 (UX No 264). OS/2 version 2.0 appears to be the name that has been settled on for what has variously been known as OS/3 and OS/2-386 - that is the first full 32-bit version of OS/2. The OS/2 Software Development Kit programme is intended to provide early software and tools to enable corporate and third-party developers to begin writing 32-bit applications for OS/2 version 2.0. Although the Kit is a joint product from IBM and Microsoft, the pre-release version is available only from Microsoft. OS/2 version 2.0 is scheduled for general release sometime this year - three years after OS/2 was launched and only after the 80386 has been superseded by the 80486. The Kit is intended to give impatient software developers a head start in the creation of full 32-bit OS/2 applications, something most of them have wanted since they first got to grips with OS/2. Microsoft promises that applications developed with the new kit will take full advantage of the 32-bit 80486 and 80386 architecture. It supports large, flat memory address space and demand paging, has a full suite of 32-bit application programming interfaces for development of larger programs and the ability to manipulate large data structures "easily". It will also enable developers to transfer applications from other 32-bit systems, including Unix ones - although most of the traffic seems to be the other way these days. OS/2 2.0 is designed to run OS/2 1.0, 1.1 and 1.2 applications without modification and to run multiple MS-DOS and PC-DOS operating system applications at once, greatly improving MS-DOS support according to Microsoft. The Software Development Kit contains a pre-release version of OS/2 Standard Edition version 2.0 with Presentation Manager, a 32-bit compiler based on Microsoft C optimising compiler version 5.1, a 32-bit version of the Microsoft Macro Assembler version 5.1, Presentation Manager tools, sample code and On-Line support. But it's clearly by no means the last word, and there may well be bugs in it - "Microsoft will periodically update the 2.0 SDK code and documentation through the final release of the product". Documentation includes Online Programming Reference and Guide; Application Design Guide; Systems Application Architecture Common User Access Advanced Interface Design Guide; Programming the OS/2 Presentation Manager; Advanced OS/2 Programming; Sample applications code. Presentation Manager Tools, comprise an Icon Editor; Dialog Box Editor; Font Editor. Debugging Support includes CodeView and Kernel Debugger. MS OnLine support until 90 days after general availability of the final SD 2.0 release. For the first pre-release version of the Kit, which doesn't include Programming the OS/2 Presentation Manager, Advanced OS/2 Programming and Sample applications code - these follow later - the developer will need an Intel 80386 or 80486-based machine with an exorbitant 6Mb of memory, EGA or VGA, and a 60MB hard disk. The Software Development Kit is \$2,600 with a group discount offer of four copies for \$8,500. However, there is no upgrade pricing for people who bought previous versions of the OS/2 Software Development Kit.

...AS IBM BANKROLLS RATIONAL FOR 370, AIX ADA DEVELOPMENT

IBM has also moved to strengthen its hand in the Ada market by taking an equity interest in Rational Inc, in the form of an undisclosed amount of new voting convertible preferred stock. Rational offers computer-aided software engineering products and technology for the design, building and maintenance of complex applications written in Ada. The Santa Clara company's products run on its proprietary system and, with IBM Ada compilers, produce applications that run on System/370 mainframes and the RT.

CONTROL DATA TO TAKE ANOTHER \$210m WRITE-OFF

Control Data Corp is taking yet another monster hit against its profits for the last quarter of 1989, but promises that this one - a daunting further write-off of \$210m, implying a loss of some \$650m for the year, really will be the last. The main element this time is the writing off of its VTC Inc semiconductor subsidiary, which has been on the block for over a year, and has never been profitable. It makes primarily chips for military applications, and CDC now hopes to sell it in the second or third quarter of this year. Some \$32m to \$36m will be to cover foreign currency adjustments on businesses sold abroad, and final write-offs on US units already sold or closed. Control Data will be left with its mainframe business, which is looking to increase substantially the bought-in content of its products, Arbitron broadcast ratings unit, and state lottery operations.

OPUS CLAIMS RAPID GROWTH FOLLOWING SWITCH TO 88000 RISC

Cupertino, California-based Opus Systems has formed a new separately managed division, Opus Systems Technology Group, which is to develop the company's new hardware and software products and technologies. At the same time, Opus also formed the Opus Systems Commercial Group for sales and marketing of existing products, putting both divisions under the management of Opus Systems, which was founded in 1983. The new development group, under the control of general manager Madan Valluri, will work on Unix-based RISC systems such as the recently launched Portable Mainframe, which uses a dual processor architecture featuring a 20 or 25MHz Motorola 88000 processor within a personal computer, using the native Intel processor to handle input/output and DOS applications. Systems are rated at 17 or 21 MIPS, and have a starting price of \$14,000. Opus president Marc Johnston said that, since the introduction of 88000-based products last year the company had experienced "extremely rapid growth". The company claims to have 11,000 installations of its Personal Mainframe line, which originally used the Clipper processor from Intergraph Corp.

INTEGRATED DEVICE HAS R3000 DESIGN BOARD FOR MAC

Increasing its focus on its MIPS Computer Systems Inc R3000 RISC fabrication and exploitation activities (UX No 173), Integrated Device Technology Inc, Santa Clara, California has formed a RISC Subsystems division to centralise its R3000 module products activities. First move by the new unit was to launch the MacStation, which converts the Apple Macintosh II into an R3000/R3001 software development system. The kit includes a NuBus board carrying an R3000, Unix, and a C compiler so that embedded control designers can evaluate the R3000 architecture and design for it cheaply. The kit costs \$6,900 plus the cost of a Mac II with at least 8Mb memory, 80Mb disk and 40Mb tape drive. That's the good news from the company: the bad is that it expects to report lower sales and earnings for the third fiscal quarter to December 31 than for the second fiscal quarter - \$51.5m or so against \$54.1m with earnings per share down to 8 cents to 12 cents against 22 cents in the second quarter. The company says that orders taken for delivery during the quarter failed to meet expectations, and that there was severe pricing pressure on some products - there is a price to be paid for the intensification of the RISC Wars.

IBM FIDDLES WHILE HUNGRY COMPETITORS BURN UP ITS POTENTIAL UNIX EMPIRE

One of the most important maxims within the IBM announcement canon is "If in doubt, don't announce". The most striking illustration of this to come to light - it's clearly happened many times when the IBM watching community was less vigilant - came at the June Consumer Electronics Show way back in 1983. The show opened over the weekend, and IBM had come right down to the wire in launching Peanut, the PCjr home computer version of the Personal Computer at the show. But at a meeting in Boca Raton on the Friday before the show was due to open, some of the IBM top brass felt uncomfortable that the machine was really right for its chosen market, and with just hours to go to the opening of the show, where everything was in place for the razzmatazz launch, the announcement was pulled. The machine eventually surfaced in November, too late to make much impact in the Christmas market, which unlike 1989 represented a massive boost to retail sales of home computers that year. And the machine that did come out was overpriced, underpowered and ungenerous in the facilities that it offered. It had no doubt been configured that way to minimise the risk of self-impact, but the reaction of the market was to blow a loud raspberry, and the machine sank without trace within 15 months - and the world learned the hard lesson that even the IBM name is not a guarantee, and that users may find themselves orphaned. And for those pinning their commercial hopes on the next generation IBM Unix RISC machines, history looks uncomfortably like repeating itself.

Sunk in the mire

The launch of the so-called Rios machines is now hopelessly mired in IBM politics: almost universally expected this month after the launch was pulled last October, the launch date is beginning to slip again, and some that think they are in the know do not now expect the launch before March. Despite all the talk of ensuring that enough applications are available before the thing is launched, the reason is almost certainly the fear of self-impact, the mental gerontocracy in the Armonk Kremlin shivering in its collective shoes at a product carrying an IBM badge that will lie on a dramatically more attractive price-performance curve than the AS/400, the 4381 and the 9370 - if it doesn't it will be hopelessly uncompetitive with the offerings from DEC, Sun Microsystems, Hewlett-Packard et al - and unleash the threat of revolution in all the core Soviets that have kept IBM and its shareholders in the luxury to which they have become accustomed. While the Armonkeys fiddle, the neglected RT Unix box has to be sustained a little longer, so there are a couple of new offerings for it.

...adds Ingres 6 for AIX users...

IBM is releasing Ingres Inc's Relational Database Management System Version 6 for its AIX implementation of Unix. The architecture has been redesigned to support a multithreaded processing environment, and with a server acting as the common thread of access to the database engine or kernel, multiple users can share a single back-end or central processing unit. However, the embedded preprocessor for Pascal is no longer available. Available on January 26, the Ingres database Version 6 costs \$3,250, Ingres/Applications is \$975, and the embedded SQL preprocessor for Fortran is \$488. Ingres/Net costs \$550, and Ingres/PCLink is \$325.

...and a Unix transaction processing system with CICS links from VISystems

IBM has had to go outside for a transaction processing system for AIX. The VIS/TP Transaction Processing System is published and licensed by VISystems Inc, which is unfortunately not in Data Sources, so we don't know where the company lives. The software is offered through the Cooperative Software Programme for AIX Unix and is designed to provide an environment for executing and controlling on-line and batch applications, developing, testing and maintaining applications in C or Cobol, migration of existing CICS/Cobol applications and VSAM data to Unix, and remote access to data distributed on other AIX Unix machines or data on the mainframe defined to CICS. It is available on both the RT and PS/2 under Unix; no prices were given; VIS/TP is available immediately in the US.

...new version of NFS,

but cancels other AIX products

Highlighting yet again the disarray in its Unix activities, IBM yesterday accompanied launch of version 1.2 of Network File System for AIX/RT with the news that it is withdrawing AIX/RT Distributed Services Version 1.3, AIX PS/2 Distributed Services and the AIX/370 Distributed Services Statement of Direction: these were announced or made either in February last year or as long ago as March 15, 1988 (UX No 172), but have never been shipped to customers or acted upon. The new version of Sun Microsystems Inc's Network File System for the RT is based on Open Network Computing/Network File System Version 4.0, and the enhancements "include a wide range of communications solutions with improvements in remote file locking support, user authentication functions, and automatic file system mount capability". It is set for April 27 at a one-time \$1,090.

NETWORK COMPUTING DEVICES OPTIMISES SERIAL CONNECTIVITY FOR X STATIONS

Network Computing Devices Inc of Mountain View, California, has developed a new transport protocol to allow efficient communications over serial lines from its X-Window network display stations to local or remote sites. According to NCD, the new XRemote protocol has been designed specifically to do multi-level data compression in X-Window system environments, allowing X-terminals to be used not only in Ethernet installations, but through telephone line and RS-232 connections. NCD's executive vice president Judy Estrin said that XRemote was designed for local communications where high speed local area network services were not available, or for remote communication from branch offices to the central computer. It provides around 10 times the performance of the Serial Line Internet Protocol, currently the most popular means of serial communications for X terminal products, and is necessary, says NCD, because of the heavy bandwidth demands of bit-mapped workstations and windowing systems. Built-in reliability mechanisms are designed to cope with noisy lines and modem errors. The software is run from the display terminal itself rather than the host computer. The XRemote PROM set, containing XRemote (rather than TCP/IP) and all other standard NCD software costs \$300 per unit: any unit can be connected to a TCP/IP Ethernet network by re-booting from the network rather than the PROM. NCD is expected to reveal colour versions of its display terminals at the forthcoming UniForum show in Washington.

FUJITSU PROMISES SUPERCOMPUTER-ON-A-CHIP FOR THE LATE 1990s

Fujitsu Ltd reports that it has developed an experimental computer chip and claims that it is faster than current large supercomputers, running at up to 1 TFLOPS - 1m MFLOPS. The company claims that the chip "opens the way for a supercomputer the size of a laptop computer" in the future, but that it is about 10 years away. A working version of the chip has been completed and tested: it is fabricated in Gallium, Arsenic and Indium and contains five resonant tunneling hot electron transistors, which take only from a quarter to a half the voltage required by bipolar transistors, as well as conventional transistors. It needs to be cooled to minus 200oC, but does not involve superconductivity, and Fujitsu is working on making it capable of functioning at room temperature and on improving its stability.

ICL's SPARC UNICORNS WILL EMPHASISE NETWORKING

Details filtering out of ICL's Unicorn Sparc RISC-based systems due out at the end of this week suggest that the family, variously known as DRS 600 and DRS 6000, will start life with two models, a 15 MIPS Level 40 and a 20 MIPS Level 70. Pitched firmly at the server market, the machines will support up to eight network interface boards, each with support for both TCP/IP over Ethernet and ICL's OSLAN; a new, faster MicroLAN II version of ICL's proprietary MicroLAN will also be supported for direct connection. RS232 interfaces will be multiplexed on a single cable to give eight or 16 RS232 connections. X25 packet switching is in the plan, but is not expected to be in the initial announcement, which will include a new DEC VT220-compatible display terminal. The machines, supporting up to seven 750Mb disk drives, will be made at ICL's Ashton-under-Lyne mainframe plant: initial capacity is thought to be a little over 100 a month.

FUJITSU AND ICL COULD TURN OUT AS IDEAL UNIX PARTNERS

Something is definitely up between ICL and Fujitsu Ltd (UX NO 264) and one area of closer collaboration seems likely to be Unix: although Fujitsu fabricates 25MHz and 20MHz versions of the Sparc, it doesn't yet have a Sparc-based machine in its product line, which suggests that it may be planning to take the ICL Unicorn Sparc machines OEM; it has clear ambitions to get into the European systems business in a big way but at this stage in the game, there is little point in trying to Europeanise its proprietary IBM-like but not IBM-compatible mid-range computers; a first step to a closer alliance on the continent could well be a merger of Fujitsu Espana and ICL Espana - Fujitsu has the stronger presence on the ground in Spain but ICL has a much wider range of appropriate products and software.

WANG TO SELL 30% OF WANG TAIWAN FOR \$160m
Wang Laboratories Inc has agreed to sell a 30% stake in its Taiwan manufacturing subsidiary, Wang Laboratories (Taiwan) Ltd for \$160m. The sale will give Wang net proceeds of about \$120m. The acquirer, President Securities, is keen to build the business up, and a new low-end personal computer is in the works for worldwide marketing. Wang is scheduled to launch a Unix server later on this month.

WORKFORCE SYSTEMS OFFERS INTEGRATABLE WORKFORCE UNIX, MS-DOS PERSONNEL PACK

Workforce Systems Ltd of London has launched Workforce, touting it as an interface to all aspects of personnel planning, control, evaluation, development and management. It includes an unlimited employment history file to cover activities of each employee and can also show absences and holiday of each employee which are also available graphically, it integrates with payroll systems, having a two-way data interface into Omicron's PowerPay software. Workforce also offers user definable screens that can be used to hold company-specific employee information including car fleet management and pensions administration data. A range of predefined report writing is also offered allowing analysis reporting. All information produced by Workforce can be output to spreadsheet, word processor including WordStar, Wordperfect, Lotus 1-2-3, Symphony and Dataperfect. Written in C it is available under MS-DOS, Novell NetWare and Unix or Xenix. At the moment it running at test sites, but has just gone live in one company with over 2,000 employees. It is available on a rental basis, and the price varies according to the number of employees, going from £1,500 for firms with up to 250 employees and £2,500 for up to 500 employees.

SMT GOUPIL TAKES CONTROLLING 69% STAKE IN NORMEREL

SMT Goupil SA is bidding to become a dominant force in the European personal computer market - and meet the challenge of a Bull SA that has just added Zenith Data Systems to its existing interests in personal computers. Its latest move is the acquisition of a controlling 69% stake in Norca SA, the holding company for ambitious Normerel SA, for about \$2.3m. Normerel, which has spent the past 15 months trying to establish itself in the US, UK - and Chinese markets, looks for sales of \$55m for 1989, and for "satisfactory" profits in 1990. It will become the OEM arm of SMT - it already supplies Micro Channel machines to Memorex; SMT also seeks closer ties with Arche Technologies SA, which has 19% of Norca. Turnover at SMT is running at about \$220m a year.

OLIVETTI LOOKS TO SHED 500 MANUFACTURING EMPLOYEES

Ing C Olivetti & Co SpA faces labour unrest following the announcement that it wants to cut the workforce at five plants in Italy by a total of 500 jobs. The firm says the cuts are necessary because of rapid price erosion in its product lines. Olivetti also reports that the 18% rise in sales between May and July has not been sustained, and that growth for the first 11 months of 1989 was 10.7%; as a result it will not meet its target of profits matching last year's \$275m.

...WINS ITALIAN CONSULAR NETWORK ORDER
Olivetti's Systems and Networks division is to supply a new computer system to the Italian Consular Diplomatic Network worldwide, automating the Consular functions and registry data services to Italian citizens living abroad. The Diplomatic Network consists of over 250 offices, and Olivetti will supply about 50 LSX minicomputers and over 500 personal computers and printers. The company will also provide project management, installation and network installation services in a contract worth around 10 billion Lire (£5 million). The order includes the development of an automated electoral index system to administer voting rights for Italians abroad.

UNIX IN EUROPE

SIEMENS AND NIXDORF - HOW DO THEY FIT?

The acquisition of Nixdorf (see front page) is a remarkably good one for Siemens, almost as good as acquiring a major US company, because Nixdorf has been much more ambitious geographically than Siemens Data Systems: Siemens has only a vestigial computer presence in the UK, but now has a strong marketing base for its products. And where Siemens has largely confined its computer business to continental Europe, Nixdorf is a major player in Australia, Hong Kong and Singapore, has a small presence in Japan, and is the only European computer manufacturer to establish a US business of any size - Nixdorf does between \$100m and \$200m a year in the US, and has a couple of enormous retail point-of-sale system contracts there. Overall, the two businesses look a fairly good fit, because Siemens is still primarily a traditional mainframer, but has built a strong presence at home right at the bottom end of the Unix market, so that Nixdorf fills its relative weakness in the mid-range of its product line, where Nixdorf is moving its proprietary 8870 small business computers with medium and high-end Unix machines as quickly as it can. It is also strong in banking and retail terminal systems where Siemens has little presence. But looking more closely, the fit between the Siemens MX 500 multi-processor range (manufactured under license from Sequent) and Nixdorf's Pyramid-based Targon range looks less obvious - the two lines overlapping significantly. Siemens perhaps looks least secure with its end-of-the-line Balance systems from Sequent - the only customer using the Nat-Semi-based version since Sequent introduced its Intel-based Symmetry series in August 1987 (UX No 142). Despite rumours that it is planning a move to the Intel version in the future, Siemens will not wish to upset its existing Nat-Semi customer base: it also uses the chip for its low-end MX line. Nixdorf has Motorola-based Targon systems below its Pyramid machines, and along with Pyramid has also announced plans to use Risc processors from Mips Computer Systems Inc in future products.

METROLOGIE OF FRANCE BUYS REST OF TRINITEC,

FORMS METROLOGIE PLC FOR UK

Paris-based Metrologie International SA is consolidating its position in the UK market and has established Metrologie Plc as the holding company for Rapid Recall and Trinitec Plc. Metrologie SA bought the Rapid Recall group from Unitech at the beginning of last year for £45m, having acquired 20% of Trinitec in January 1988. The balance of Trinitec's shares are now in French ownership, bought for a combination of cash and shares in Metrologie Plc. The new company will be 85% owned by Metrologie SA and the remaining 15% will go to former Trinitec shareholders. Metrologie Plc is valued at over £20m, and Trinitec has been estimated at £7m, although the companies are still finalising financial details and advocate caution over valuations. The holding company will be responsible for strategic planning, but both Rapid Recall and Trinitec will continue to trade separately. They stress that spin-offs such as Pro Apta, Rapid Recall's networking division, and Rapid Premiere, which sells Hewlett-Packard's Unix-based Vectra systems, should not be affected by the restructure. However, supplier relationships and product access - all three companies distribute products for Intel Corp - will be discussed at some point in the future. Roger Haddad, president and founder of Metrologie International, is to become chairman of Metrologie Plc. Robert Mountain and Tim Curtis, chief executives of Trinitec and Rapid Recall respectively, will be joint managing directors. The combined turnovers of Trinitec and Rapid Recall would have been some £60m in 1989, and that figure is forecast to climb to around £80m this year.

APRICOT'S ACT SOFTWARE WILL ACCOUNT FOR HALF OF BUSINESS THIS YEAR

ACT Systems Integration, the new hybrid of Apricot Computers Plc' software and services operations and those of recently acquired ITL, has killed ITL's joint development work with Sequoia Systems Inc on the latter's fault-tolerant implementation of Unix. Mike Hart, joint group managing director, believes that the cost of developing fault-tolerant Unix hardware is too high, and he prefers to see others make that sort of investment. Consequently, apart from new software applications, ACT's Unix involvement will consist of selling Sequoia machines, OEM offerings from Sequent Computer Systems Inc and Motorola Computer Systems Ltd, and Apricot's own 486 FT Fileserver. Hart doesn't rule out the possibility of expanding that portfolio in the future, possibly with the new fault-tolerant Integrity S2 from Tandem Computers. ACT - Apricot was originally called Applied Computer Techniques - has been formed to address the field of open system software and services, and is expected to contribute £80m to turnover in 1990, which it hopes will be around 50% of the total. Chairman Roger Foster, expects that trend to continue and says that a sea-change in the computer industry has created a commodity market not only in personal computers but in Unix machines as well, whereby users are buying on price, and spending more on software and services. ACT Logsys will draw on the acquired expertise of ITL, Sigmex, and Logsys Ltd, and is targeting systems integration at central and local government, the defence industries, and large corporations. ACT Cablestream, formerly ITL Cablestream, specialises in networking for large multi-vendor systems. Headed by Howard Parkinson, it promotes itself as a one stop shop for the consultancy, implementation, and maintenance of local and wide area open networks. ACT Computer Support, the merger of Apricot Computer Systems with DDT Plc and ITL's maintenance arm, will support and maintain multi-vendor micro and mainframe systems, with Unix-based hardware services of particular interest. ACT Medisys, made up of ITL Healthcare and ITL's Silicon Labs acquisition, supplies software to the health sector, and has collaborated with DEC on bids for resource management and hospital information systems. ACT Financial Systems, formerly Apricot Financial Systems, is best known for the Quasar unit trust management system, the Adatco insurance software, and its Citydesk dealing room system. The personal computer manufacturing side of the business, likely to take an investment partner, retains the Apricot name.

SONY, EPSON IN LINE TO PARTNER APRICOT IN SCOTLAND

Apricot Computers Plc confirmed last week that it has been in negotiations with several US and Oriental companies to invest in its newly hived-off personal computer manufacturing division with its plant in Glenrothes, Scotland. Apricot chairman Roger Foster says that he is looking for a partner that could contribute equity and technology, and market Apricot's systems on a worldwide basis. He denies suggestions that the computer division is to be sold off, but wouldn't comment on the possibility of Apricot handing the majority and control over to a partner. Both Seiko Epson Co and Sony Corp have been mooted as interested parties, either as equity partners or potential buyers: several Japanese and Korean companies are looking to establish manufacturing within the European Community ahead of the Single Market.

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Talks between AT&T, Unix International and the Open Software Foundation regarding the sale of the Unix Software Operation appear to be cooling off at present: two main reasons have been put forward, one suggesting that nobody is prepared to pay a price that AT&T thinks USO is worth, the second (from within DEC) simply suggesting that AT&T is now getting cold feet about the whole deal.

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McDonnell Douglas Information Systems has enhanced its Series 19 range to offer co-resident Unix and Reality OS Pick application support at the high-end: the RX22 (four to eight processor) RX44 (eight to 12 processor) and RX66 (12 -18 processor) machines and software come from Encore Computer Corp, a result of the agreement signed between the two companies in October last year (UX No 255).

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HP has announced an August delivery date for software called VPLUS/Windows for the 3000 Series, which integrates HP 3000 applications with New Wave, and allows PCs to run transaction-processing applications under the Microsoft Windows graphical user interface.

- 0 -

On the peripheral side, HP is now in a position to offer its DAT storage subsystem with most of its computers. Developed in conjunction with Sony Corp, the tiny cassette tapes can each hold 1.3Gb of data, although it takes up to two hours to perform one whole tape's worth of backup. However HP says that by the end of the year the DAT system will have an improved average search time of 20 seconds.

- 0 -

As far as its Unix plans are concerned HP seems to have firmed up its commitment to the Open Software Foundation's operating system, saying that HP-UX "will only be OSF compatible in the future", and that it has no commitment to any part of AT&T Unix V.4. The company will continue to offer its proprietary MPE operating system on the Series 3000, and its HP-UX unikalike on the Series 9000, and will not run both together on any system. Unlike DEC, which has made a long-term commitment to integrating its VMS and Ultrix operating systems, HP says it has no future plans to integrate the two, the only concession being that MPE will be developed to adhere to the Posix standard, meaning that HP-UX applications can be run by MPE users, and that MPE-based systems can be tendered in bids for US Federal contracts.

Interactive Systems Corp's high-level Unix development toolkit - Ten/Plus - is now available on Concurrent Computer Corp's 5000 and 6000 real-time Unix systems. It allows users to execute Unix shell functions from a menu-driven interface, and is designed for building networks of computers. It includes the interface, a tool kit and C programming utilities which use Interactive's INEd text editor.

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IXI Ltd, Cambridge, has introduced a New Wave-like version of its X.desktop 2.0 desktop manager, incorporating new object management utilities - whilst New Wave only runs on DOS, X.desktop runs on Unix and X terminals.

- 0 -

Back-end database systems builder ShareBase Corp, Los Gatos, California - the company is still much better known as Britton-Lee Inc - reports that AT&T Co has bought five ShareBase SQL database servers valued at \$2.5m: AT&T is the firm's largest customer, having bought more than 160 database machines since 1981 and the latest sale involved four Server/8000 systems and one Server/700; the ShareBase Server/8000 is a RISC processor-based SQL server capable of managing 100Gb of data for hundreds of concurrent users and they will be used within AT&T's Software Defined Network and related support applications, providing relational database management for 3B Unix boxes.

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T & B Computing Inc, Ann Arbor, Michigan, has released a Unix and X-Window version of its VMS TrackStar project management application: TrackStar 2.0-4 comes with a database and report writer, and sells for from \$7,900 to \$60,000.

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Mentor Graphics Corp, Beaverton, Oregon has teamed up with microprocessor development tools supplier Microtec Research Inc, Santa Clara, California to incorporate the Microtec XRAY high-level debugger into Mentor's new CodeLink Station embedded software development system, and may develop the system further.

Apple Computer Inc rejects Xerox Corp's charges that the Macintosh user interface infringes Xerox copyrights, saying that while its interface was inspired by Xerox concepts, it was all its own work: it wants the \$150m Xerox suit dismissed with prejudice and is asking the court for damages and costs.

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IBM has gone to Lynx Real-Time Systems Inc for its LynxOS real-time Unix-like for use on the on-board computers for the US Space Station Freedom, due up in 1996.

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The Finance & Banking division of Siemens is to market South London Investment & Mortgage Systems Ltd's mortgage administration and investment system - Momentum - on its MX range of Unix systems, primarily targeting banks and building societies: South London Investment is a subsidiary of Peckham Building Society.

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MasPar Computer, the Sunnyvale, California company developing a massively parallel computer, (UX No 263), has opened its European headquarters in Reading, Berkshire: Neil Rowlands is European director of sales and the company is aiming for offices in Germany and Paris within a year.

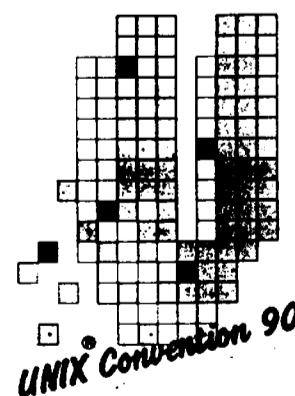
- 0 -

Uniplex Software has signed up the Software Clearing House, Cincinnati, Ohio, to distribute its Unix software in the US on NCR and Unisys hardware in a deal worth \$5m, and SYS, Caracas, Venezuela, to sell its applications in Venezuela, Ecuador and Peru.

- 0 -

In return for the \$5.8m, 10% stake that Hewlett-Packard took in Sequoia Systems Inc recently (UX No 264), Sequoia in turn will use Hewlett's Precision Architecture RISCs in its next generation: Sequoia did \$31m in the year to June against \$18m the previous year and plans to go public later this year.

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Number 266

ICL TO BECOME MAJOR SPARC PLAYER WITH DRS 6000 SERVERS

ICL plunged into the Risc-based mid-range systems market with two uniprocessor models in its new Sparc "Unicorn" series last week, claiming price/performance ratios up to 30% better than dual-processor competitors from NCR, Unisys, Hewlett-Packard and Pyramid Corp. The new DRS 6000 Series are the first systems using Sun's Sparc processor to run the latest version of Unix - System V.4 - which ICL developed in conjunction with AT&T as the reference port for all Applications Binary Interface compliant Sparc systems (UX No 256). Replacing the top-end DRS 500 machines from Computer Consoles Inc - acquired by ICL last year - the 6000 Series currently consists of two models: the 17.5 MIPS, 16Mb Level 40 and 23 MIPS, 32Mb Level 50, using 25MHz and 33MHz Sparc processors from Cypress Semiconductor, and expandable to 128Mb. There is a dual bus architecture, with a 33 slot VMEbus for I/O and High Speed Private bus running at 133Mb/sec peak transfer for CPU and memory control. Hard disk storage, using two 5 1/4 inch fixed drives with 760Mb unformatted memory as standard, is expandable up to 5.3Gb, or 19Gb in two external cabinets. And ICL has added a range of "open" connectivity and networking options such as X.25, X.29 and X.21 protocols, IPA and IBM SNA for mainframe connectivity, and ICL's OSLAN Ethernet implementation and TCP/IP. Intelligent controllers for SCI, Ethernet and synchronous communications are supported, and directly connected users via asynchronous controllers (384 devices) and ICL's DRS Connect for distributed RS232 connection for up to 896 users. Software available includes OfficePower office automation, the Ingres relational database, COBOL/2 (optimised for the Sparc), Informix and Sea Change - but ICL expects a wealth of software to become available very quickly, as support for the Sparc ABI on Unix V.4 is announced by Sun and others at UniForum this week. Prices start from £63,000 for a standard configuration Level 40 server with 16 ports, and £94,000 for a Level 50. Prospects - page 2.

INDUSTRY ENDORSEMENTS FOR MOTOROLA'S 20 MIPS 68040

Samples of Motorola's latest complex instruction set processor - the 68040 - are now being distributed to key customers, with general sampling scheduled for the end of the first quarter, Motorola revealed at the unveiling of the chip this week. Keen to dispel the impression that it has been losing its mid-range heartland Unix business to the increasingly high profile Intel 386 and 486 CISC chips, Motorola assembled endorsements from 35 computer manufacturers intending to build systems around the 68040, including Apple, Bull, Commodore, HP/Apollo, NCR, Nixdorf, Philips and Unisys Corp. Rated at 20 MIPS at a clock speed of 25MHz, Motorola claims the 040 is 25% faster than the Intel 80486 running at the same clock speed, and faster than some Risc processors. For maths calculations, Motorola claims an average of 3.5 MFLOPS, peaking at 8 MFLOPS. Integer, floating point unit, two memory management units and separate 4K data and instruction caches are crammed onto the 1.2m transistor chip (that's four times more than on the 68030), which will sell for \$795 in sample quantities. It is manufactured in 0.8 micron HCMOS technology, and its five processing units can process an instruction every 1.3 clock cycles. Several Risc features are used in the integer unit, including frequently used instructions and addressing modes optimised for single cycle execution. The floating point unit is an 80-bit part compatible with the 68882 maths coprocessor, but five to ten times faster on frequently used instructions, according to Motorola. First out with 68040-based systems will be single board computer manufacturers such as Tadpole Technology in the UK, and Dressler in Germany, while Bull HN said it had designed its DPX/2 range to incorporate the 68040 as soon as it was available.

FIVE YEAR TRAVEL PLAN

MAPPED OUT FOR UNIX

Consolidating the widespread industry support that Unix International and AT&T won with the release of Unix System V.4 at November's Unix Expo show in New York, (UX No 255), this week the duo again get all the glitz. They find their way to the first Unix extravaganza of 1990 in Washington D.C. courtesy of the long-awaited Roadmap, which plots the strategic goals, plans and time frames for the development of the Unix operating system over the next five years. Details - page 2.

ALLIANT MATCHES

CRAY WITH

i860 SUPERCOMPUTER

Alliant Computer Systems set the Monday before UniForum for the launch of its first Risc-based machine - the i860-based FX/2800, available within 90 days. The new supercomputers, priced from between £350,000 to £1.2M in the UK, support the recently announced Parallel Architecture eXtended (PAX) standard developed between Alliant and Intel Corp (UX No 254), now supported by around 50 independent software vendors, and include a "low-end" eight processor FX/2808 up to a high end 28 processor FX/2828. Alliant claims the new systems provide equivalent performance to a single processor Y-MP, twice the performance of a VAX 9000 Model 440 and two and a half times the performance of a high-end Convex C-240, with five times the price performance. It is ten times faster than Alliant's own FX/80. Alliant has designed the system to use its "Adaptive Supercomputing" facility that allows individual processor configurations to suit different application mixes. The systems run Alliant's Concentrix and Unix System V.4, and include support for Ethernet, DECnet, UltraNet, TCP/IP, NFS, NQS and X Windows. Intel is also expected to make some announcements about its own PAX-based offerings at the show.

UNIX ROAD MAP PLANS OUT FUTURE OF UNIX IN THREE STAGES

Chronologically, additions to the System V.4 kernel will arrive in three stages, according to Unix International's new Road Map, published this week (see page 1). Firstly enhanced security - up to B2 level, with remote systems administration - will be provided within 12 months. Then comes multi-processing - availability scheduled for mid-1992 - when full scale parallel multi-processing will be adopted, together with a new commercial file system, transaction-processing enablers and extended graphical user interface support. Last in the five year plan, for 1993 and onwards, are network computing features, including OSI communications, distributed multi-processing, object-orientated management strategies, real-time support, systems administration and network management enhancements. It is now up to AT&T's Unix Software Operation to decide exactly how these requirements are to be implemented, and to report back to Unix International with a development plan.

Collective requirements

Promised at the launch of the AT&T Unix supporters club back in February of last year, (UX No 216), the Roadmap represents the collective market requirements and demands of systems manufacturers, integrators, software houses, end-users and academic institutions for a formally defined development schedule for Unix via Unix International's various working groups. It includes input from X/Open (see below), the standards body which Unix International joined in Tokyo back in May at the same time as bitter rivals the Open Software Foundation, (UX No 231). The Roadmap should also allay some of the fears amongst the Unix community over the possibility that AT&T may sell off Unix to a separate company or consortium, for it is unlikely that AT&T could negotiate any such deal without the Roadmap being an integral part of the mission. UniForum had originally looked like being the stage for the launch of the Foundation's OSF/1 rival offering to System V.4, but the late arrival of AIX code from IBM and other complications, including divisions within its own ranks, means that the OSF is now seriously losing ground to its opponent. Indeed AT&T's Unix Software Operation, which develops and licenses the software itself, says it has already begun development on most of the requirements specified in the Roadmap.

X/OPEN MAY REVEAL DRAFT

TRANSACTION PROCESSING SPECIFICATION

X/Open may try to use UniForum to push Unix further out into the commercial DP market. Expectations are that the consortium will publish a "draft" transaction processing specification that it has been working on for at least a year, described by some as a "beta version". AT&T's new Tuxedo transaction processing engine (see page 3) reportedly adheres to the spec, which has been worked on by 15 different companies, with AT&T's original proposals heavily rewritten.

EUROPEAN ICL BROADENS HORIZONS WITH NEW UNICORN LINE

ICL made moves to shake off its image as a lacklustre supplier of other people's Unix machines yesterday with the launch of its much heralded DRS 6000 Sparc-based systems (see front page). The DRS 6000 represents ICL's most determined push yet to dominate the mid-range European Unix market in its chosen sectors - retail, manufacturing, financial services, public administration and defence - and also marks its first serious moves worldwide. With launches held in eighteen different countries, and OfficePower - ICL's flagship office automation package - immediately available in nine different languages, ICL is at pains to emphasise its commitment to internationalisation. The first announced customer for the new systems is the European Commission, which is spending one million ECUs (European Currency Units - equivalent to around £700,000) on DRS 6000 system. Other large orders have come from Government organisations in Portugal, Spain and the Netherlands, according to ICL. In the US, ICL will use the channels acquired through last year's take-over of Computer Consoles Inc to push the new machines into the lucrative telecommunications, legal and federal markets, and will also use the machines as a computer engines for its retail business interests, handled by its Datachecker division. After cancelling CCI's own Risc projects, ICL set the CCI's experts working on a symmetrical multi-processor architecture for the DRS 6000, ready for the launch of multi-processor versions of the machine. These are expected to appear with up to four processors and rated at over 60 MIPS, and are likely to emerge during the second half of this year. By that time, the CCI team are expected to have finished porting work on the telephone management and directory enquiry software essential for sales into the telecommunications market. Meanwhile, ICL says it has already sold systems to AT&T's Bell operating companies, but would add no further details. OEM deals will also be sought from CCI's Irvine, California-based OEM division, with the US and Far East as prime targets for this type of business. ICL chairman Peter Bonfield said that "if the new machines are not generating around \$400m worth of sales a year within two or three years time, we will be very disappointed".

UNIX SOFTWARE OPERATION LAUNCHES LEANER VERSION OF OPEN LOOK

This week at UniForum, AT&T's Unix Software Operation will unveil a new Open Look release that promises to shrink the amount of memory needed to run it. Release 2 - for V.3.2 and above - has been squeezed into 6Mb, down from the previous 8Mb. That's reportedly enough to run the operating system, Open Look interface and its clients: the file manager, window manager and workspace manager plus two applications. Sources say USO's development team over at Bell Labs improved on MIT's Widgets to achieve the memory reduction and have dubbed their approach Flattened Widgets. USO is also expected to announce the controlled availability of its OSI Communications Platform, its Streams-based implementation of the mid and upper levels of the OSI protocol stack. This implementation of Levels 4 through 7 is not yet ready for general availability and will only be offered initially to developers such as Pyramid Corp. First products could follow in May. In addition, USO is supposed to come out with the Graphics Service Rev 2 for Unix V.4, a new iteration of its graphics extension including the new Open Look release, X/Win and X.11 News, with provision for Postscript output. Current customers will be given free upgrades. Bell Labs have tinkered with X/Win's saveunder (sic) feature and reportedly achieved a 20% performance improvement.

UniForum News

AT&T TAKES SOLBOURNE'S C++ OBJECT INTERFACE LIBRARIES

AT&T has an agreement with Solbourne Computer Inc for the distribution of Solbourne's C++-based Object Interface Library, a graphical user interface development system. The agreement includes Solbourne's window manager, swm, an X Window system manager developed with the OI Library and AT&T's C++ language. The Library makes it easier for developers to implement graphical user interface features such as windows, buttons and menus. Current development versions support both Open Look and OSF/Motif, but could be configured to conform to future user interface standards that might emerge. Source code for the OI Library and swm application is available from AT&T's Unix Software Operation for computer vendors and software houses, who can then pass on binary versions for any system supporting X Windows. Solbourne, which says it has created a number of software tools with its OI Library, will be demonstrating the product at UniForum: it runs with MIT'S X11 Release 4 and AT&T's C++ Language System Release 2.0.

STRATUS TO REVEAL

"UNIX WITH EVERYTHING" STRATEGY

With competition in the Unix fault tolerant market hotting up, Stratus Computer Inc is set to reveal details of its long awaited Unix strategy at UniForum this week. The company plans to offer Unix V.3 (and later V.4) across its entire range of systems, as an alternative to its proprietary VOS environment. Stratus is thought to have been working with Olivetti, which oems Stratus machines as part of its LSX range, on the kernel level of the implementation for some time (UX No 192). Last October the company made its first positive move towards Unix with the launch of low-end 68030-based systems, promising Unix from the first quarter of this year (UX No 252), and at the high end the company is working on Intel 80860-based hardware, also for launch this year (UX No 224).

NCR's ADDS DIVISION COMBINES PICK WITH UNIX ON ADDS 7000 SERIES

The Systems Division of NCR Corp subsidiary Applied Digital Data Systems, Hauppauge, New York, is launching a concurrent implementation of Pick and Unix at UniForum this week, to run on its NCR-based Mentor 7000 range of multi-user systems. ADDS claims that the new release will make it the only manufacturer to take Pick-based users into the Unix environment with no change of hardware or applications software. The new implementation offers inter-operating system commands and has files can be accessed from Pick's Data Basic, and Unix programs can access Pick data files. "Our new product offers approximately 600% greater performance and connectivity compared with a system that only emulates Pick under Unix", said ADDS director of marketing Edward Grondahl. ADDS has co-operated with its parent NCR over the project, first mooted way back in 1987 (UX No 124), and is using its Mentor version of Pick, running over 3,300 applications, alongside NCR's implementation of Unix System V.3, including networking support (SNA, X.25, TCP/IP, Ethernet and Token Ring) and software development tools (C, Cobol, Fortran, Pascal, PL/1, Basic etc) - both areas where Pick has been notoriously weak. Pricing is to be revealed at the Show.

LOTUS 1-2-3 MAKES UNIX DEBUT ON SUN WORKSTATION RANGE

Lotus Development Corp released its long-awaited Unix version of Lotus 1-2-3 Release 3 last week in conjunction with development and marketing partner Sun Microsystems (UX No 241). 1-2-3 for Sun comes in versions optimised for Sun's Sparc, Motorola and 386i platforms, and is currently beta testing in the US, with deliveries scheduled for the second quarter of the year. The Sun versions use the core Release 3 code of 1-2-3, which was re-written in C prior to its launch last year, and are therefore fully compatible with PC versions of the product, using the same interface. Sun helped Lotus with additional features such as distributed network services, multiple window support, multi-tasking and support for larger memory. Sun users will be able to view up to 26 spreadsheets on a single screen using Sun's SunView windowing system. The two companies expect to gain sales both from scientific and engineering users wanting access to spreadsheets (Lotus says that it already gets 25% of its custom from this sector), and from commercial users making the move up from PCs to workstations, or looking to boost a PC network with a Sun-based server. Pricing in the UK is £550 for a standard edition, £750 for a server edition and £395 for a Node edition (for individual networked users). Lotus plans future Unix editions for IBM and DEC hardware, as well as other Sparc machines such as ICL's Unicorn, due out today. It is also working on DEC VMS and IBM 3090 versions. Lotus has been talking about a Unix version of 123 - the type of high profile flagship software product that Unix has always lacked - for nearly three years (UX No 176).

ORACLE ADOPTS AT&T'S NEW DISTRIBUTED TUXEDO FOR PYRAMID, SEQUENT

A new version of AT&T's Tuxedo transaction processing system began shipping from the Unix Software Operation last week, boosting the viability of Unix systems for use within on-line transaction processing environments. Tuxedo provides a standard interface for database management systems and has a new application programming interface for controlling transactions. The new release also allows the distribution of Unix OLTP applications across local area networks. Tuxedo's two major components, both incorporating the transaction model recommended by X/Open's XTP committee, can be licensed and deployed separately: these are the System/T Transaction Manager, providing communications and co-ordination; and the System/D database management system. System/T uses the XA interface, which controls transactions for compliant databases including the "two-phase commit" protocol, while still retaining the native SQL interface. Oracle Corp said it was working with both Pyramid Corp (UX No 252) and Sequent Computer Systems Inc to put the new release on the machines built by the two manufacturers. Other endorsements for the product were forthcoming from Unisys Corp, Amdahl Corp, AT&T's Computer Systems Division, and from database vendors Informix Software and Sybase Inc. New York City-based financial services company Transvik Inc said it had selected Tuxedo System/T for all its transaction processing applications, and had ported the product over to VMS to provide a smooth migration path to Unix.

CONTROL DATA REVEALS ITS FIRST MIPS-BASED DEPARTMENTAL SYSTEMS

Control Data Corp promised a line of machines based on the Mips Computer Systems Inc systems products back at Unix Expo last October (UX No 256), and last week came out with the new 4000 Series of four models. The top-end 4680 is based on the Mips R6280 data server with a bipolar, VLSI reduced instruction set R6000 chip, giving a 55 MIPS, over 10 MFLOPS performance rating. Like its Mips counterpart, the 4680 has an advanced I/O subsystem that includes multiple independent VME buses for a culminative 200Mb/sec I/O bandwidth, capable of supporting 400 to 500 simultaneous users. CDC positions the machine against DEC's VAX 9000 systems, but "at a fraction of the price". At the mid-range and low-end, CDC offers the 4380, 4360 and 4340 models rated at 18 to 20 VAX MIPS. The company promises that later this year its mainframe users will be able to tightly couple the new systems to NOS/VE Cyber systems using a high speed point to point link. Available in May, the 4680 costs \$152,000 for a 32Mb (expandable to 256Mb), 655Mb disk (expandable to 18Gb) system with Ethernet and SCSI controllers and 1/4" tape drive. Low-end systems begin at \$30,000.

IBM's 16 TO 50 MIPS RIOS FAMILY NOW LOOKS SET FOR FEBRUARY

The biggest no-show at this week's UniForum trade event - unless IBM changes it's mind in a hurry or decides to hide it somewhere off-stand - are IBM's RIOS machines, which according to InfoWorld will be called the System/6000 Power family. The general consensus seems to be that the long awaited new generation AIX system, first mooted for launch last Summer, will now appear early in February - the 8th or the 12th - and IBM has already begun contacting US consultants to ask for their attendance at a non-disclosure briefing down in Austin, Texas on the 8th, giving credence to the later date. One leading US analyst, who wishes to remain nameless, believes that the pricing and configuration of DEC's MIPS Risc-based workstations and servers announced last July (UX No 240) threw IBM back on itself and delayed the original launch. Big Blue then went on to miss its proposed October 1989 and now the January UniForum launch dates. InfoWorld expects six models all using a single Romp II Risc chip and featuring the enhanced Micro Channel Architecture technology revealed back in October (UX No 254). At the low-end will be a diskless desktop system with 4-16Mb memory, token-ring or Ethernet slots, 2 serial ports and one parallel port, with a 16MHz chip running at 16 MIPS. Then comes a desktop workstation model similar to a PS/2 Model 70, with 8-64Mb memory, 120Mb to 640Mb internal DASD hard disk, four MCA bus slots and a 20MHz, 20 MIPS cpu. A floor-standing 20 MIPS box similar to the PS/2 Model 80 will have up to four DASD drives of 320Mb or 640Mb each, and 8 MCA slots. The mid-range machine will come in a double-wide tower cabinet with up to six DASD drives, 8 MCA slots and a 25MHz cpu generating 30 MIPS performance. Finally comes a 9370-like rack-mounted model with 16-128Mb RAM, 8 MCA slots and DASD drives for up to 8Gb of data. The last features a 50MHz, 50 MIPS processor. High performance graphics will be provide on the new machine by using an i860-based card. Pricing is expected to be aggressive.

SUN "INTERESTED IN PRISMA SOFTWARE ARM"

Prisma Inc's ambitious plans to produce a 150 Mips Gallium Arsenide version of Sun Microsystems' Sparc Risc processor (UX No 198) came to an end at the beginning of last December when the company shut its doors, leaving all of its 45 employees without jobs. But industry sources claim that Sun, interested in the remains of the company, has taken out a contract with Prisma's software development arm, so that the ex-Prisma employees will become Sun employees. The trouble is, says the source, no-one wants to leave Prisma's home town of Colorado Springs, so Sun may be setting up a small operating unit there. Meanwhile another company, Systems & Processes Engineering Corp, is working on a 200MHz, 200 MIPS Sparc set for the end of the year (UX No 260).

APRICOT'S ACT FINANCIAL SYSTEMS PORTS QUASAR TO VX SERVER

The ACT Financial Systems Division of Apricot Computers has ported its Quasar portfolio and unit trust management software onto Apricot's i486-based VX FTserver series of computers, one of the earliest i486-based systems to be announced last June (UX No 234). The company says it was responding to requests from small fund management organisations for departmental systems. The VX FT includes fault tolerant and security features and supports OS/2 and LAN Manager environments as well as Unix. The Quasar port was written using the standard procedural language MUMPS under SCO Xenix and MS-DOS. Existing Quasar customers, mostly running on DEC VAX systems under VMS, include Lloyds Bank (Trust) plc, Barclays de Zoete Wedd, Legal and General Assurance and Allied Provincial.

VISIX WINS DATA GENERAL DEAL

Visix Software Inc has won a three year bundling agreement from Data General for its Looking Glass graphical user interface on DG's Motorola 88000-based Aviiion range of workstations, servers and multi-user systems. And Data General will also take another Visix product, Directory Shell, on its compute and file servers. Directory Shell provides a windowed, menu driven environment for character-based terminals, while Looking Glass runs on graphical workstations and X Window servers. Data General has an OEM deal for X terminals from Network Computing Devices Inc.

NEW DATAQUEST REPORT RANKS WORKSTATION VENDORS

Workstation sales worldwide grew by 40% in 1989, according to the latest report on the market from Dataquest Inc. The overall market went up from \$4.3 billion in 1988 to \$6.1 billion, with Sun Microsystems building its market lead from 27% up to 28.7%. Second came the combined HP/Apollo, with 26.4% of the market, while DEC's share went down from 17.6% in 1988 to a 15.9% market share. Fourth was Intergraph Corp, down from 6.8% in 1988 to 6% last year, while fifth place Silicon Graphics rose from a 4.2% share up to 5.2%. Dataquest expects to see a 30% growth in sales over the next five years, compared with a 17% compound annual growth rate for the technical computer industry in total.

UniForum News

V.4 BASE SOLIDIFIES SPARC APPLICATIONS BINARY INTERFACE

Sparc International has been keeping its cards close to its chest over its announcements on the second day of the show, but it is expected to reveal its Open Environment II, consisting of the now solidified Applications Binary Interface for the Sparc processor in conjunction with AT&T's Unix System V.4. ICL has handed back the source of its reference port of V.4 for the Sparc to AT&T for administration, and other vendors, including Sun, will be using the reference as the basis for their own V.4 offerings. Sun is expected to reveal migration tools and guides to help move applications over from SunOS to V.4, bringing over the 1,400 or so Sparc applications in line with the new ABI, and making them available to other Sparc licensees. Meanwhile, the European Sparc Group is holding its second meeting at the end of the month, with 32 companies expected to attend.

EMPRESS ADDS X-WINDOWS SUPPORT FOR DATABASE SYSTEM

Empress Software Inc is planning X-Windows support for a future release of its Empress distributed relational database management system, the company is revealing this week. Prototype versions of Empress now include an X-Window feature interfaced to Empress at the low, X-Lib level. According to president and co-founder John Kornatowski, this "avoids the limitations imposed on other RDBMS's with a graphical user interface at higher levels", and is possible because of the layered architecture of the Empress product. X will bring multiple and interactive screens, continued processing on closed screens, windows from different machines, and clocks and calculators to Empress applications, which have had mouse and touch screen support for two years, according to the company. The new facility is being demonstrated at UniForum both at the Empress booth, and on the Hewlett-Packard booth as part of the Empress-based Caseware software development application. Empress Software is based in Greenbelt, Maryland, but research and development is carried out in Toronto, Canada.

MODCOMP ADDS X, MOTIF SUPPORT TO REAL/IX REAL-TIME UNIX

Modcomp Inc's Real/IX real-time Unix operating system is to support the latest release of X-Windows and the OSF/Motif graphical user interface, the Fort Lauderdale, Florida-based company will announce this week. Support for both should be available in the second quarter of 1990, and will be the first time that a "true" Unix real-time system will be offered with this type of support, according to Modcomp. Real/IX, claimed to be the first fully pre-emptive real-time Unix when it was announced in June 1989 (UX No 235), runs on Modcomp's Motorola-based Tri-D series of computers. Modcomp claims that with kernel level pre-emption and minimised interrupt routine execution and context switching time, Real/IX has a performance edge over competitors such as Masscomp, Harris and Hewlett-Packard.

MOTOROLA ADDS NEW LOW-END DELTA SYSTEM

Motorola Inc's Microprocessor division is adding a third 68030-based system to its low-end Delta series with the new Model 3400. The system, which offers five VME expansion slots, up to 20 serial ports and 16Mb of on-board memory, sits in between Motorola's other complex instruction set Delta systems, the Models 3200 (introduced last April - UX No 227) and 3600 systems, and uses a 25MHz version of the chip. Hard disk storage options range from 104Mb up to 1.2Gb, and up to 96 users can be connected via Motorola's optional DeltaLink controller. Pricing is set from \$12,000 to \$18,000, with a typical configuration having 104Mb disk, 3.5 inch tape streamer, 4Mb memory, Ethernet, four serial ports, a printer port and external SCSI adaptor.

SPSS FAVOURS DESKTOP, NETWORK USERS WITH NEW PRICING

Statistical data analysis software specialist SPSS Inc is introducing new pricing structures to encourage the use of its software on a wider range of Unix machines, particularly low-end desktop and networked systems. At UniForum, the company says it will begin to sell a shrink-wrapped package for single session users, and will price simultaneous session users into categories according to the licensed number of users. Actual prices were not revealed. The latest version, SPSS 4.0, includes a menuing interface, context-sensitive on-line glossary of statistical terms, a Matrix language and over 50 statistical procedures. The SPSS graphics package provides over 40 different chart types, maps, and support for X-Windows. Both packages have direct interfaces to database management systems from Oracle, Ingres, Informix and Sybase. Chicago-based SPSS now claims to have over one million users worldwide.

BULL INTRODUCES PROMISED X TERMINALS AT UNIFORM

As already reported (UX No 262), Bull HN has become the latest in a line of companies that have gone to Mountain View-based Network Computing Devices to supply X-Terminal hardware. Bull's re-badged versions of NCD hardware are being introduced at UniForum as the NDX 1600 and 1920 stations, and like the originals feature paper white high resolution displays and expandable memory, with support for the Open Software Foundation's Motif graphical user interface. Interface options include thick and thin Ethernet and RS-232, using TCP/IP, TFTP, Telnet, Slip and NFS protocols. The 68000-based NDX 1600 with 16" screen has a price range of from \$2,500 to \$4,300, while the more powerful 68020-based NDX 1920 costs from \$3,700 to \$6,500 and has a 19", 1280 x 1024 resolution screen with from 2Mb to 8Mb memory. Bull will also offer DISPLAYnet (NCDNet) software, which allows the NDX terminals to participate on a DECnet network as a Phase IV end-node. This means that users will be able to work on a software development project from a Bull DPX/2 (or other TCP/IP) system, while referencing information on a DECnet accessible VMS system. The company said it was currently evaluating NCD's XRemote protocols (UX No 265), and would be one of the first beta test sites for the new colour systems (see this issue), but saw more demand for future low-end terminals that will be added to the range. Bull is particularly interested in the telecommunications, government and finance markets, and says its first sales have been to telephone companies accessing multiple mainframes from the display stations - around 200 units have been shipped so far.

NCD GOES COLOUR - PLANS MIGRATION TO X11 RELEASE 4

As predicted last week, (UX No 265), Network Computing Devices is to introduce the first colour version of its X-Windows display station at next week's UniForum show in Washington D.C. The 17 inch flat screen NCD17c, which has a 1024-by-768 pixel resolution and 70Hz refresh rate, can display up to 256 colours simultaneously and has a starting tag of \$5,000. It is built around a 20MHz Motorola 68020 microprocessor and two custom graphics chips with 2Mb RAM - NCD claims it is the first colour device designed from the ground up to be an X-Window terminal, rather than having colour capability patched onto a monochrome unit. Supporting Ethernet, TCP/IP and concurrent DECnet protocols, the system allows simultaneous access to X and DECwindows applications from networked systems running Unix, VMS and Ultrix. For the future, NCD is in the middle of beta testing new X software Release 2.1 - it has some of the X11 Release 4 features in it, including SHAPE and XDMCP, and will be out mid-February. The rest of the new features in X11 R4 are in the area of performance enhancements and memory utilisation which, NCD wants to test more thoroughly before introduction - Bill Carri-co said that he expected them to go in NCD's 2.2 Release, out in June. From the applications point of view, the new release is 100% compatible with previous versions, said Carri-co. NCD is also working on top-end terminals incorporating the PEX, X-Windows extension to the PHIGS graphics environment, as well as low-end products likely to see the light of day during the third and fourth quarter of this year. NCD's current oems include Tektronix, Pyramid, Mips, Bull HN, Software Research Associates, Kodak Legal Systems, Data General and Nokia Data, which distributes NCD terminals in Scandinavia. NCD also has a new 97-key keyboard designed specifically for Unix users, in which the most frequently used function keys have been relocated to more strategic positions on the board. The Unix keyboard is bundled in with any NCD X-terminal at no extra charge, but costs \$150 separately.

X-WINDOW SPREADSHEET LAUNCHED BY QUALITY SOFTWARE

A new spreadsheet developed specifically for the X-Window System is to be launched at the show by Quality Software Products Inc, Culver City, California. Also running under OSF/Motif, eXclaim! is to be licensed via what is termed the Floating License Server technique - on an individual, rather than per-machine basis. Like QSP's MasterPlan, it has standard PC spreadsheet features as found on Lotus 1-2-3 and Microsoft Excel, as well as a range of graphics capabilities, and the company says it is working with several Unix software houses to develop interfaces to desktop publishing and word processing packages. It runs on most workstations and X-terminals with the various flavours of Unix, and will be compatible with the OSF/1 operating system when it is delivered. Out in the second quarter, eXclaim! goes from \$1,000 up to \$10,000 and will be distributed by UniPress in the US, Sphinx in the UK, Nixdorf in Germany, AIR in Japan and Sisteco in Chile.

Canadian software outfit Fulcrum Technologies, Ottawa, is launching version 5.0 of its Ful/Text retrieval software at UniForum this week, which has new client-server distributed architecture for separating the various tasks to accommodate different processing resources. Ful/Text, which has been around for five years in its various guises, has its own Application Programming Interface. Version 5.0 is currently on test at six beta sites, awaiting a shipment date for sometime in the spring.

UK X software house IXI Ltd, Cambridge, will certainly be hard to ignore at the show, with its X.desktop user interface manager being demonstrated on systems and software from 18 different manufacturers - an interesting addition to those firms which are already demonstrating the thing is Unisys Corp, which has yet to make public its policy on a desktop manager for its range of Unix systems.

Auspex Systems has lowered the entry point for its NS 5000 Unix Network Server Series, (UX No 252), with a version priced at \$99,900, with 663Mb of disk space and two Ethernet ports. The standard model, which retails at \$114,900 begins shipping now. In addition the company says it has received \$7m in a second round of venture funding bringing total investment in the company up to \$14.8m.

Integrated Micro Products, Oracle Corp and Pyramid Corp are planning a joint announcement this week with a combined system including a Pyramid server, Oracle database and IMP fault-tolerant front-end system.

X/Open's user requirements document "Shaping the Future of Open Systems" is published in full for the first time at UniForum, and highlights a number of "deliverables" that users would like to see X/Open give priority to: these include the production of a set of guidelines to operating system procurement policy for government institutions and large commercial users; user interface guidelines; OSI alignment policy; PC and mainframe interworking; an applications programming interface for distributed transaction processing; reports on new technologies such as CASE and Object Management; and a guide to the problems of Internationalisation.

RabbitPLUS APPC is a new peer-to-peer communications tool from Rabbit Software Corp, allowing communications between PCs anywhere on a network, with or without an IBM host, and program-to-program interaction: it runs under Unix V.3 and Xenix, and will be demonstrated at UniForum.

Posix specialists Mindcraft Inc of Palo Alto, California, will be exhibiting at UniForum its C-Portability Verifier, which determines program portability to Posix, X/Open or ANSI C standard environments: the company will also be announcing training seminars entitled "how to write portable Unix programs using Posix".

Locus Computing Corp plans to introduce a new version of its PC-Interface DOS to Unix bridge product that includes national language support at UniForum, with an English to German version demonstrated on the stand: the Locus product, available immediately, will apparently be unique amongst national language support products in working over a local area network as well as on a direct host.

COMPUTERS GOING SO WELL THAT AT&T WILL BUILD 6386s

From being the ugliest of ugly ducklings, AT&T Co's computer operation is beginning to show the feathers of a swan, with sales in 1989 growing 30% to \$2,100m, shooting the business past such stalwarts as Tandem Computers Inc and Amdahl Corp. So well is the company's Workgroup 6386 family of personal computers going that Intel Corp can't keep up with demand, and AT&T is finally activating the plan - first mooted three years ago - to build some of its requirement at its Little Rock, Arkansas plant. And later this quarter, reports the *Wall Street Journal*, AT&T's lacklustre 386 line of Unix machines will get a major boost with the launch of the MIPS Computer Systems Inc R-series RISC-based transaction processor sourced under AT&T's agreement with Pyramid Technology Corp. Sales to other AT&T companies are now 30% of the total, down from 50% in 1986, and, most inspiring of all for the often demoralised Data Systems managers at AT&T, the unit is on target to break even this year, and may show a small profit.

HITACHI PLANS BI-CMOS PRECISION RISC FOR 1992

Hitachi Ltd rates its first implementation of the Hewlett-Packard Co Precision Architecture RISC at 60 MIPS and 16M FLOPS, and says that it will launch the first workstation built around it in early 1991, offering the Open Software Foundation's OSF/1 implementation of Unix and the Motif graphical user interface on it. Next up under the joint development agreement will be a Bi-CMOS implementation of the RISC - Hitachi is one of the leaders in Bi-CMOS technology, which uses CMOS power levels off-chip but uses bipolar circuitry internally for the time-critical parts of the chip. The latter part is being designed to deliver 100 MIPS, but Hitachi does not expect it to appear in products till about the end of 1992.

WYSE ENLISTS HUNTER'S XDOS IN ITS PLUNGE INTO UNIX BOXES

Wyse Technology Inc, the San Jose terminal and micromaker in process of becoming another front for Taiwan Inc, has introduced its first two Unix systems - 80386 boxes under its enhanced version System V-386 3.2. At the high end, the Wyse Series 9000i features tightly-coupled, symmetric multi-processing at from \$35,000 to \$200,000 for up to 128 active users. The entry-level Series 5000i starts at \$10,800 and supports up to 32 users. They arrive this quarter and come standard with Hunter Systems Inc's XDOS Transformer, enabling users to install all the MS-DOS products that have been Transformed with the product to run under Unix. XDOS applications have identical user interfaces and compatible data formats to the MS-DOS originals, and each Wyse machine will include an XDOS Transformer with a single-user token - a floating licence that allows one user at a time to be running XDOS applications - unless the user buys further tokens. The machines will also include demonstration versions of the DataEase database management system from DataEase International and the Sprint word processor and Quattro spreadsheet from Borland International Inc converted for XDOS. Other XDOS applications include Lotus 1-2-3 2.01 and WordPerfect 5.0. Wyse also announced the WY-999 Intelligent Terminal Concentrator and the WY-997 Multidrop Communication Interface Board; no prices given.

SQL ACCESS GROUP HAS CHOSEN X/OPEN Co's DEFINITION OF SQL

The SQL Access Group, formed to define a specification for interworking between different products that use Structured Query Language, has joined forces with X/Open Co Ltd to develop the specification for heterogeneous SQL applications portability and network communication database capabilities based on the existing X/Open Portability Guide definition for data management and the SQL Access Group's technical specification. The SQL definition from the fourth edition of the X/Open Portability Guide will be available to the SQL Access Group to serve as the base for its technical standard under a non-exclusive licence. X/Open will also take an active role in the SQL Access Group by attending meetings and providing technical and consulting support. It is hoped that the SQL Access technical specification will appear in X/Open's Portability Guide as soon as next year. The SQL Access Group, headquartered in San Jose, is a non-profit association open to all vendors with relational database application or server products. Members include Ashton-Tate Corp, Bull SA, DEC, Fujitsu America Inc, Hewlett-Packard Co, Infocentre Corp, Informix, Ingres Inc, Metaphor, NCR Corp, Oracle Corp, Retix, Sun Microsystems, Tandem Computers, Teradata Corp, Unify and X/Open Co Ltd.

SYBASE MOVES INTO SERVICES WITH SQL SOLUTIONS BUY

Sybase Inc, the Emeryville, California developer of relational database software that numbers Lotus Development Corp and Apple Computer Inc among its investors, is now well enough endowed to look at making acquisitions, and it has moved for SQL Solutions Inc of Burlington, Massachusetts. The company, formerly known as D&N Systems, is a professional services and software development tools company specialising in building relational database applications. Under terms of the merger, it will operate as an independent company, although being a wholly-owned subsidiary of Sybase. It will provide consulting services and tools to users of Sybase and other relational databases, including Oracle, Ingres, Informix, Rdb and DB2. Founded in 1986, it claims to have built over 300 relational database applications for more than 75 Fortune 500 customers and currently employs 108 people. Its tools support SQL Server running in OS/2, Unix and VAX/VMS environments and remarkets the OS/2 version of SQL Server. Its products are the DBA Companion toolset to assist database administrators in managing database security, applications, users, source code and storage capacity; the SQR SQL-based, procedural fourth generation language and report writer; and Deft, from Canadian Deft Inc. Deft is a computer-aided software engineering tool tightly integrated with major relational databases.

MENTOR GRAPHICS TO ACQUIRE SILICON COMPILER SYSTEMS, ADOPT SUNS

Mentor Graphics Inc, Beaverton, Oregon is to acquire Silicon Compiler Systems Corp, and has chosen Sun Microsystems Inc as its second supplier of workstations after the Apollo division of Hewlett-Packard Co. It will issue about 6.3m new shares for Silicon, valuing the company at about \$110m. Created in 1987 from the merger of Silicon Design Labs with Silicon Compilers Inc, Silicon Compiler Systems has a spread of integrated chip design systems running on Sun, Apollo and DEC hardware, and pioneered logic synthesis, mixed analogue and digital simulation, compilation and symbolic circuit layout. It employs nearly 400 people and has an installed base of over 1,700 chip design positions, doing \$45m in 1989. Sun, which will be supplying its Sparc-based systems under the agreement, and says that the electronic design automation market is already one of its biggest, accounting for 19% of fiscal 1989 hardware sales.

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Intergraph Corp is using UniForum to launch a new generation of medium to high-end workstations - the 6000 Series, rated at 10 to 14 MIPS. All the workstations are colour, and include Intergraph's new Extensible Display Geometry Engine - EDGE - a high performance graphics processor which is claimed to run at up to 30,000 3D vectors per second, with 16 million simultaneous colours. Looking Glass, the graphical user interface from Visix Software Inc, is also bundled in with the workstations. Rung Unix System V Release 3.1, the workstations offer a price performance improvement of between 30% and 40%, according to Intergraph. There are two levels of graphics performance: Edge 1, supporting eight planes and one highlight plane of double-buffered graphics. Edge II provides 24-bit true colour and drawing rates of 400,000 2D vectors and 350,000 3D vectors per second. Available now, the low-end 6040 systems is rated at 10 MIPS, and costs £25,200, comparable with the DECstation 2100, but with more memory (16Mb), disk storage (180Mb) and graphics (Edge 1). The 6280 is rated at 14 MIPS and costs £40,700 in the UK: it has Edge 2 graphics, 16Mb memory and a 670Mb drive. Single and dual workspaces are provided.

Despite all the gossip in the press lately that the Unix Software Operation/Unix International/Open Software Foundation peace talks are getting bogged down, sources inside USO claim the camps are still chatting it up. They ascribe the absence of any dramatic news of final detente to the "massive nature" of the organisational issues that still have to be resolved - like how to maintain the Unix development team at Bell Labs intact, and how to blend the disparate entities together without crushing any tender egos, and whether to use an RFT or workgroup method to develop Unix further. They say the idea of equity participation in USO is one of the hurdles but not the central issue.

Apart from those companies mentioned on the front page, others endorsing the Motorola 68040 include US companies such as Alpha Microsystems, Arix, Concurrent, Control Data, General Microsystems, GMX Inc, Heurikon Corp, Motorola, Myrias Research, ProVisions, Smith Industries and Synergy Microsystems: Europeans include ABB and Diab Data of Sweden, Eltec, Force, Kontron and Nixdorf of West Germany, Radstone in the UK and Themis of France.

Opus Systems, Cupertino, California, has become the first company to get the official Binary Compatibility Standard stamp of approval from the 88open Consortium for its implementation of Motorola's 88000 architecture in its range of 88000-based workstations and subsystems.

Unix and MS-DOS users have some extra connectivity options courtesy of a new software package from Performance Technology, New York, which links Unix into a variety of local area networks. PowerFusion will run MS-DOS applications with Unix files and printers, enable Unix users to print out on any LAN accessible printer. It links Unix up to its own Powerlan software, Novell's NetWare, 10NET from DCA, 3COM from 3COM Open, LANtastic from Artisoft, IBM's PC LAN, Network O/S from CBIS and Datalan from Data-point - without additional programming. Shipping now, PowerFusion starts at \$3,000 for Intel 80386 and 80486, and Motorola 680X0-based systems running AT&T V.3, Intel i386, Interactive i386, SCO 386 or Motorola 68/88k versions of Unix.

Pyjama press conferences are all the rage at this year's UniForum show in Washington: on Tuesday at 7.30am Unisys Corp is set to announce its corporate strategy for the commercial Unix markets, while at the same time on Wednesday the Open Software Foundation says it plans to "debut the OSF/1 operating system": Unix International is also planning a breakfast meeting on the first day of the Show, at the slightly more civilised time of 8.30am, while Sparc International waits until 8.00am on Wednesday for its ABI release, closely followed by "a revolutionary announcement" from Unify Corp at 8.30am.

VISystems, which we highlighted in UX No 265 for its VIS/TP Transaction Processing System for IBM's AIX, operates from Dallas in Texas, and will be demonstrating its product at UniForum.

Along with its new Sparc systems, ICL launched two new terminal workstations, the DRS Model 5 text and DRS Model 15 graphics models, supporting VT100 and VT200 screen emulators.

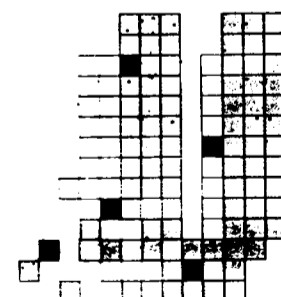
Siemens' Data Systems Division has announced the availability of the UltraNet 1 gigabit-per-second network from San Jose-based Ultra Network Technologies, for Siemens VP and S100/10 to S600/20 supercomputer families: Ultra incorporated its German subsidiary in July 1989, and since then has won orders from the University of Stuttgart (connecting a Cray 2 with Convex and Sun hardware), from the University of Hannover, and from the Nuclear Research Centre at Jülich, connecting two Crays.

The next Xhibition X Windows event is scheduled for May 22-24 and will be held in San Jose, California.

Migration Technology, Maidenhead, Berkshire, has a new version of its C-Gen Basic to C translator product that it says will make it easier to transfer Basic software onto the Sparc environment: the company says it expects demand for the product to rise dramatically this year, when new Sparc-based systems are announced "by a number of the world's major OEMs".

Compass Inc, Wakefield, Massachusetts has released Fortran compilers for Intel's i860 microprocessor and for the newly launched MPI massively parallel computer family from MasPar Computer Corp: Compass was formed in 1961, and one of its early projects was to provide an optimising Fortran compiler for the Iliac IV parallel computer, although more recent have included Alliant, Ardent, Concurrent, Multiflow, Numerix, the West German Suprenum project and Thinking Machines Inc.

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WEST GERMAN GOVERNMENT TO SPECIFY \$1.8 BILLION X/OPEN COMPLIANT SYSTEMS ANNUALLY

The West German Government is expected to make the recommendation this week that all of its ministries should specify systems based on X/Open's Common Application Environment in future purchases, X/Open revealed at UniForum. The decision from Bonn by the Government's IMKA committee is the first from a national government, means that the 23 West German ministries, and the Deutsche Bundesbahn railway and Bundesbank federal bank will procure only systems complying with the X/Open CAE, representing an investment of up to \$1.8 billion a year in open systems. Others supporting the CAE include Government departments in the US and Sweden, the UK's Central Computer and Telecommunications Agency, and the European Commission for internal use. Support for the third X/Open Portability Guide is "built in" to AT&T's Unix System V.4 release of the operating system, making it easier for vendors to achieve XPG3 compliance branding, and the Open Software Foundation plans similar support for its OSF/1 operating environment. The IMKA Committee cover all information technology procurements for the West German Government.

UNIX FACTIONS PLOD THE THORNY PATH TO "UNITY"

At least one highly placed official inside the Unix Software Operation is beginning to despair that the so called "unity" talks between USO, Unix International and the Open Software Foundation will ever come to anything. According to him, some of the Foundation's founders (among them IBM), as well as some leery AT&T friends inside Unix International, just can't countenance the idea - given their own business imperatives - and could throw up a whole bevy of seemingly rational reasons to impede it. If they could come to some agreement, which on Tuesday night of UniForum reportedly seemed faint, AT&T would be willing to part with a majority stake in USO. If not, as the USO official speculated, then a minority equity, including some OSF members, would probably be cut. Rumour has it that AT&T has valued USO at \$400m, and knows for a fact that it could get more from certain unidentified people that would either deep six Unix, "squeeze it dry" or impede its progress in the marketplace. A minority placement would make it easier for USO to retain its ties to the Unix developers over at Bell Labs, and might forestall key personnel from quitting. Current expectations inside USO and UI are that something will happen - at least along the equity front - this quarter. Other sources feel that the Foundation, buoyed up with the launch of its first "snapshot" of OSF/1 - see this page - now feels that it does have a product, and so is beginning to dig its heels in. Meanwhile, the party line at UniForum was to minimise the differences between UI and OSF. Using almost identical phrasing, OSF chief David Tory at the announcement of the OSF/1 "snapshot" and Hewlett-Packard's CEO John Young during the key note speech on Wednesday, both insisted that "to a large extent Unity had already been achieved, having snuck up on us before anybody noticed".

STRATUS SETS FTX UNIX FOR APRIL

Stratus Computer Inc duly made its plunge into Unix this week, calling its fault-tolerant implementation of Unix System V.3.2 FTX. The company offers FTX on all models of its XA2000 Continuous Processing Systems from the low-end, uniprocessor Model 30, which starts at \$37,000, to the Model 160, which starts at \$750,000. FTX is included in the base price of each XA2000 and will be generally available in April.

OSF ANSWERS ROADMAP WITH OSF/1 SNAPSHOT

Stung by criticisms of the non-appearance of its first operating system component, and faced with the ever increasing momentum of the now available Unix System V.4 from AT&T's Unix Software Operation, the Open Software Foundation attempted to claw back some ground at UniForum last week with the introduction of its first source-code "snapshot" of the OSF/1 environment to its members. The snapshot, which was demonstrated running on various OSF member company booths at the show, includes many of the features OSF points to to differentiate its implementation from Unix V.4 - including the Motif interface, the Mach multiprocessing kernel said to be the first implementation of Posix threads, transparent libraries, and modular, micro-kernel design. OSF technical director, Ira Goldstien, criticised Unix V.4 as "too complicated", pointing at the intended inclusion of distributed technology, multiprocessing and security features all in the V.4 kernel. The snapshot should allow early development for OSF members in preparation for the OSF/1 launch, expected to take place at the end of the year. At the event, the Foundation announced that it had signed up SecureWare Inc to provide the B1 security technology component for OSF/1, and OSF member companies including IBM, DEC, Hewlett-Packard, Bull and Nixdorf re-endorsed support for the environment. Only Hewlett-Packard, however, committed themselves to shipping OSF/1-based machines during the first half of next year.

WANG LAUNCHES UNIX SERVERS

Wang Laboratories Inc's promised plunge into open standards computing kicks off last week with the launch of 80386- and 80486-based Open/Servers with coprocessors for input-output and disk, running SCO Unix V.3. It also has a WP/x version of its word processing software, and has adopted Santa Cruz Operation's Open Desktop interface - and is hedging its bets by joining both the Open Software Foundation and Unix International. Full details see page 4.

PYRMAMID "INTERSTED IN BIIN"

Fast growing Pyramid Corp is one of the few companies that might gain substantial benefits from acquiring the assets of the defunct Siemens/Intel venture Biin Inc, and is reportedly holding quiet talks to do just that.

UniForum News - 1

On the road with Unix International

Showing how seriously it intends to stick to the five year plan for Unix, Unix International has set off down the route plotted by the Roadmap only a week after it was released, (UX No 266), announcing on the first day of UniForum that early implementations of B2-rated security enhancements for System V.4, developed by AT&T's Unix Software Operation in conjunction with Amdahl and Motorola, will be available to members of its early access programme from next month. Motorola's involvement stems from its takeover of the Gould operating system arm in Urbana, Illinois during 1988. Motorola says a side benefit of its development work will be its own early launch of a B2 product shortly after AT&T itself. In addition the AT&T Unix supporters club has added a further 20 names to its membership list which now totals 132. Amongst the new faces are Convex Computer Corp, Esix Systems Inc, Fellesdata A/S, Kmart Corp, Mentec International Ltd, Open Technology Ltd, Solbourne Computer, Solucions Infomatiques, Stollmann GmbH, Tantung Co, Wyse Technology, TIS Ltd, Andersen Consulting and JSB Computer Systems.

As Unix Software Operation toes the line

For its part, the Unix Software Operation formally accepted the Roadmap from Unix International at UniForum, with president Larry Dooling saying that the endorsement represented a \$100m development effort. System V.4 source code for Intel 386 and 486 microprocessors is now generally available, and a source code port for the Intel i860 will be available in the third quarter. As predicted last week (UX No 266), USO has also released version 3.0 of the XWIN graphical windowing system for Unix V.3.2 and above, which now includes device driver support for Ethernet, StarLAN and a STREAMS interface to LANs, EGA and VGA support. It says that the 80387 co-processor recommended for earlier releases is no longer required

...Signs with NetWise to Integrate C++, RPC Tool

USO has also signed an agreement with NetWise Inc, Boulder, Colorado, with the object of defining a new series of standard object classes to ensure the interoperability of AT&T's C++ language and NetWise's RPC Tool, making it easier for C++ programmers to develop object-orientated applications for different types of networks. The two will develop C++ to generate RPC source code. RPC Tool will then accept this input and generate communications code, helping programmers manage object-orientated operations across these networks.

...Unveils Open Look Developers List

Stepping up its campaign to rekindle the fortunes of the Open Look graphical user interface USO and Sun Microsystems have - true to their word, (UX No 265) - disclosed a list of software companies that are developing products based on Open Look. There are 69 developers on the list, including such names as Digital Solutions, Elan Computer Group, Entropic Speech, Expert Object, FICOR, Graphic Software Systems, Informix, Ingres, Lotus Development, Oracle, Research Systems, Softquad, Sybase, System Strategies, Unify, Verasoft and Visual Edge. Sun claims that nearly 500 independent software vendors have the OpenWindows application development environment, and Sun held a widely attended OpenWindows developers session at UniForum.

...prepares to offer Open Look for rival platforms

Cheekily trying to wrest back some of the ground from Motif, and having given up hoping that the vendors would do the work themselves, Sun Microsystems and UniPress Software Inc of Edison, New Jersey have agreed to offer Sun's XView toolkit - used to design Open Look - to DEC, IBM and Hewlett-Packard Unix workstation users.

Sun releases new version of SunOS

UniForum also saw Sun introduce a new 4.1 release of its Unix operating system SunOS, which is source-code compatible with the new Unix System V.4 and means that existing Sun applications need only to be recompiled to run under the AT&T standard version. SunOS 4.1 is also compatible with the previous SunOS 4.0.3, and is out in April for Sun-3 and Sparc-based systems..

Ashton Tate follows Lotus to Sun

With its dominant position in the personal computer small data base market under intense pressure, Ashton-Tate Corp is looking to diversify into the Unix systems market and has signed with the workstation market leader Sun Microsystems Inc as a first step. The two signed a joint development and marketing agreement to make Ashton-Tate's dBase IV available for Sun computer systems.

Mt Xinu offers Source Code Mach for Vax Sun and IBM
Berkeley, California-based Mt Xinu Inc (read the name backwards to see the joke) is offering supported source code versions of the Mach operating system for Sun Microsystems Sun-3, DEC VAX and IBM RT computers. The company has a contract with Carnegie Mellon University, originator of the Mach Unix variant, to prepare supported source releases of Mach for use in research and development. The release, called 2.6 MSD for Mach Standard Distribution, is based on Carnegie Mellon's 2.5 Mach kernel, but will have the Berkeley 4.3BSD interface that is a standard in the research community and will be source-compatible with existing 4.3BSD applications; "many" standard 4.3 BSD binary applications will also run unchanged. It costs \$3,000 for a licensed copy of the source code, 20 volumes of documentation and rights for additional internal use in binary form. An AT&T Co Unix source licence is also needed, and is available late next month.

Visual Technology introduces X-15 X Station

Fighting hard to repair the damage from its Chapter 11 bankruptcy case, (UX No 243), Visual Technology Inc, Westboro, Massachusetts, has introduced its expected X-15 X Display Station. Based on a Motorola MC68000 microprocessor clocked at 16.7 MHz, it comes with 4Mb RAM and has a 15-inch screen with a 1024 by 800 pixel resolution refreshed at 76 Hz. Price for a 1Mb monochrome system is \$2,195, a 2Mb version starts at \$2,595.

UniForum News - 2

**ADVANCED PICK MERGED WITH SCO XENIX -
MAY RUN ON IBM'S RIOS**

The Pick system achieved a fairly high profile at UniForum last week. Along with the NCR Adds concurrent implementation of Pick and Unix reported last week (UX No 266), Pick Systems itself chose the show to launch its expected tie-in development with the Santa Cruz Operation (UX No 241). A new Advanced Pick version of the database was demonstrated with "seamless integration" to SCO Xenix System V/386 Release 3.2. It gives the ability for both Pick and SCO Unix to co-reside on a single CPU, with interactive communications at the command level. Irvine, California-based Pick Systems, headed by the originator of Pick, Dick Pick, worked with AT&T on the preliminary development of the new Unix System V-based Advanced Pick System, now positioned as a multi-user database management system rather than a rival operating system, despite achieving a claimed \$2 billion turn-key industry as a standalone system. SCO president Doug Michels said the new software would add approximately 4,000 commercial business applications to the SCO catalogue. Shipments are expected during the second quarter of this year, and a Xenix version will follow. Meanwhile, Prime Computer Inc said that it was in the process of developing a Unix-based version of its Pick-based Prime Information software, written in C and running on both its Unix and proprietary Series 50 minicomputers. Prime currently uses VMark Software Inc's Universe Pick under Unix emulation product. Pick may also reportedly be represented at IBM's Rios kickoff (which we now hear is likely to happen on February 15th). IBM won't be taking up the Pick system directly, but it will be sold on Rios through value added resellers to capitalise on all those juicy Pick applications.

**MOTOROLA INC TO BOOST ITS
SYSTEMS BUSINESS IN RE-STRUCTURE**

Motorola Inc is set to make major strategic announcements in early March following internal re-structuring, designed to elevate the position of its Computer Systems Division to a more important part of its overall operations. The division has been re-designated as the General Systems Sector under Ed Staiano, and will include Cellular Radio business to tie in with local area networking. Motorola reportedly plans to push its systems business on a level with its mainstream semiconductor business. Sales of Motorola's Delta 3000 and 8000 series, which are sold both direct and through OEM agreements with companies such as Philips and Datapoint, totalled 6,945 in 1989, up from 4,074 in 1988, bringing the company's installed base up to 13,000. Next month, Motorola will launch its first 68040-based VME modules, and later in the year plans upwards and downwards extensions to its RISC-based 88000 line of machines. with Data General's AOS/VS and Unix environments.

X.desktop TURNS JAPANESE

UK X specialist IXI Ltd, Cambridge, has announced a Japanised version of its X.desktop interface manager developed by Tomen Electronics Corp, and at the same time has signed up Kubota Computer Inc to market X.desktop on Mips Computer Systems kit in Japan. Kubota has a 20% stake in Mips, and manufactures the Sunnyvale, California-based company's top-end systems in Japan, whilst Tomen is reported to be negotiating OEM licensing agreements for X.desktop in Japan.

**DATA GENERAL ADDS 10 WORKSTATIONS,
SERVERS TO AViiON LINE**

Data General Corp chose the opening day of UniForum Washington to take the wraps off three new series of its AViiON systems - 10 new workstations and servers in all - built around Motorola's 88000 RISC chip and running the DG/UX Unixalike - not bad for a company that until the launch of the original AViiONs back in March of last year was regarded as one of the most stubborn opponents to the general computer industry rush to open standards. The AV/400 series of graphics workstations has two uniprocessor and two dual-processor models. At the low-end are the 17 MIPS-rated AV/400 and 20 MIPS AV/410 single processor systems using 16.7MHz and 20MHz versions of the 88000, at \$9,500 and \$36,890 respectively. The dual-processor AV/402 uses two 16.7MHz 88000s to deliver 34 MIPS, and the 40 MIPS AV/412 uses two 20MHz versions of the chip; tags are \$12,500 and \$43,890 respectively. Each comes with 8Mb RAM, Ethernet, two expansion slots and user-installable graphics processors, an 8-bit one at \$5,500, 24-bit at \$9,500 or 24-bit Z-buffer at \$4,000. The AV/4000 server series again includes single and dual processor models, the \$17,000 AV/4000 has a 16MHz 88000 for 17 MIPS, the AV/4020 has two of the things with 34 MIPS and costs from \$25,545. They are configured with 8Mb memory, two expansion slots and Ethernet. Both the single-chip AV/400 workstations and AV/4000 servers can be upgraded to dual-processor configurations, 4Mb memory boards to a maximum of 32Mb are available, and they support up to 2.5Gb disk. At the high end Data General has pitched in with AV/5200 and 6200 servers using 25MHz versions of the 88000. The AV/5200 and 6200 uniprocessors offer 25 MIPS, the dual-processor 5220 and 6220 are rated at 50 MIPS. They are available in deskside (AV/5200/5220) and rackmounted (AV/6200/6220) boxes, coming with 208Mb memory, 10 expansion slots and support for up to 5Gb storage. The AV/5200 starts at \$55,000, the AV/5220 at \$94,400, the AV/6200 has a tag of \$81,875 and the AV/6220 costs from \$116,875. All are available now, except the AV/410 and 412 which are out in June. New software is version 4.2 of Data General's DG/UX Unix, OSF/Motif, Visix Software Inc's Looking Glass desktop manager, and DG/AVlib, a graphics library. A new communications facility supported under DG/UX 4.2 to connect AViiONs to IBM hardware is the Application Program Interface for LU 0, 1, 2, 3 and 6.2. A DG/UX 4.2 licence is \$500, now, APILU 0, 1, 2, and 3 are \$3,000 - 6.2 is \$2,000 - Looking Glass is available in the spring and DG/AVlib will be bundled with DG/UX in June. Also new are a range of terminals for use

**INTEGRATED MICRO IN VENTURE
WITH PYRAMID, ORACLE**

As previewed briefly last week, the Santa Cruz-based Integrated Micro Products Inc arm of the Consett, County Durham company has doubled the performance of its Unix-based fault-tolerant computer line with a model using the 50MHz Motorola 68030. The XR 655 is rated at 10 MIPS, double the performance of the XR 650 system and costs \$13,000 per MIPS, against "\$20,000 per MIPS" for the new Tandem S-2. System prices start at \$130,000. The company sees the XR 655 being used as a front-end to large database systems, and it has teamed up with Pyramid Technology Corp and Oracle Corp to integrate its fault-tolerant machines with Pyramid's MIServers and the Oracle Corp relational database. The partners see a big future for the combination, particularly telephone sales of financial services.

UniForum News - 3

WANG BEGINS HEADLONG RUSH TO ENDORSE OPEN STANDARDS

Wang Laboratories Inc has been keeping its Unix strategy tightly under wraps to try to ensure that nothing of substance would leak out before time, but now all can be revealed. The Lowell, Massachusetts company, biggest casualty yet of the market's break-neck rush into open standards, is pulling out all the stops to make up for lost time, and has picked Innovation on Standards as the tag for its Open/Architecture strategy, which brings its applications - sexiest of which is the Freestyle multi-media information processing system - into the Unix world; office automation will follow the same route.

No Rush for Risc

Wang has eschewed the rush to RISC and has settled on the Intel 80386 and 80486 as the basis of its Unix personal computers and servers, choosing the Santa Cruz Operation Unix System V.386 3.2 to run across the full product line. Core of the new product line are Open/Servers which will be the basis of Wang's planned client-server architecture, which will also embrace its proprietary VS business computers and personal computers running Unix, MS-DOS and OS/2. The company is supporting local networks using Banyan Vines, Novell NetWare, Microsoft LAN Manager and IBM LAN Server as well as TCP/IP. Wang is hedging its bets and has joined both Unix International and the Open Software Foundation, and has adopted the latter's Motif user interface, basing its new Unix Clearview object-oriented desktop manager on it and bundling it with all Open Desktop systems. Also new is the WP/x character-based word processing program at from \$1,000, pitched at those familiar with its word processing packages - but the company is only making promises about bringing its imaging and other office automation products over.

Symmetrical Multiprocessing

Wang has opted for the Micro Channel and the Multibus II System Architecture as well as the AT bus, but not the EISA bus. It is also promising compliance with the X/Open Common Applications Environment and Posix, Network File System and Remote File Sharing. On the hardware front, its initial offering is the Open/Server family using the 80486 or 80386 with input-output co-processors running SCO Unix and SCO Open Desktop for X Window-based client-server architectures. Wang is promising symmetric multiprocessing using Santa Cruz's NPX extensions in future. IN/ix on the VS machines will continue to be supported and it plans to implement Banyan's Vines and Novell's Portable NetWare on the servers. The Open/Servers start with the CPU, cache, 4Mb system memory, 1.2Mb floppy and a 145Mb SCSI disk and 150Mb cartridge tape, at \$22,690 for the 80386-based version and \$27,690 for the 80486. Separate iAPX-86 processors are used for input-output and such, with Multibus II to link everything, and Wang hints that it will add 80860 RISC co-processors in future. The things have 10 slots in the main cabinet with another 10 available in a separate one; disk can go to 6Gb. An 80386SX is offered as an optional Ethernet co-processor, an 80186 is used for direct connection of every 16 character terminals. SCO Unix V/386 for Wang PC300 micros starts at \$600, Open Desktop at \$1,000.

HEWLETT PULLS 9000 834 SRX RABBITS OUT OF UniForum HAT

No apologies for the fact that this issue is stuffed with UniForum news - pace those that still think that MVS is only getting its second wind, or that OS/2 is the operating system wave of the future, if you're tired of Unix, you're tired of the computer industry. Despite announcing 24 machines a couple of weeks ago, Hewlett-Packard Co still managed to hold back something for the show, coming out with the lowest-priced three-dimensional models in its Precision Architecture family. The HP 9000 Series 800 Model 834 SRX and Model 834 TurboSRX are claimed to offer three-dimensional graphics at up to half the price of previous models with comparable performance, and "produce realistic images at a processing speed of 14 MIPS. The Model 834SRX lists for about \$35,000, half the price of the comparable-performance Model 835SRX. The Model 834 Turbo SRX lists for \$38,000, 40% below a Model 835 with the same performance. Both are available immediately and differ from the 835s only in that they have one expansion slot in place of the four in the 835 models.

NCR OPEN SYSTEMS INTERCONNECTION SUITE FOR TOWER

NCR Corp's offering at the UniForum feast was a family of Open Systems Interconnection-compliant network management and communications products for its Tower Unix micros. The new line is headed by NCR Tower OSI Networking, a set of Open Systems communications designed to enable the Tower to operate in multi-vendor wide-area networks. The set comprises OSI Network Services; OSI Application Services; X400 Message Handling Services; OSI File Transfer, Access and Management; and Central X500 Directory Services. The NCRMail X.400-compliant message handling system runs on both the Tower and the proprietary NCR System 10000 under the ITX operating system. NCRMail is designed to provide a common mail facility for all major NCR computers operating over multi-vendor, multi-national private or public networks. Also new is NCRNet Manager, an integrated, enterprise-wide network management system for users of Token Ring and Ethernet local area networks and X25 wide area networks providing local and global management functions over a wide range of computer types. No further details or any prices were given.

SONY UNVEILS PROMISED WORKNETTING SERVER FOR MAC

San Jose-based Sony Microsystems Co's contribution to the UniForum festivities is its Worknetting Server, designed to open Apple Macintosh and MS-DOS networks to Unix and Sony's erasable and write-once optical disk storage without the need for users to have any Unix experience. The Worknetting Server is (of course) based on Sony's NEWS family of Unix workstations, coupled with the uShare Unix-to-personal-computer networking software developed by Information Presentation Technologies Inc, Calabasas, California, in which Sony bought a 20% stake last year (UX No 256). It supports all Macintosh models over TCP/IP and Internet, and Apple Computer Inc's LocalTalk and EtherTalk. The Worknetting Server is designed to enable users to exchange complex graphics files between systems; sharing expensive peripherals; back up files automatically; and upload CPU-intensive tasks to larger systems. Through Apple Computer's MacX software, a Mac can be used as an X Window terminal linked to a NEWS station or other Unix machine. The dual 68030-based workstations, complete with uShare and Unix start at \$9,070.

SEQUENT REPORT PREDICTS**ROSY FUTURE FOR CORPORATE UNIX**

Sequent Computer Systems Ltd, Weybridge, Surrey, has a new report on the future prospects for large corporate Unix-based computer systems in the UK, prepared by Benchmark Research Ltd, Orpington, Kent. 100 Times Top 500 companies were questioned - 44% of IT managers said they would consider using Unix for any new major corporate applications - and 93% of these anticipate doing so within the next five years - 30% of the sites would consider moving their current applications to Unix. Unix is currently being used on large systems at 11% of the sites surveyed, and interestingly it seems that the DTI's machinations on the subject are not falling on totally deaf ears - nearly half the sites were aware of the Government's Open Systems initiatives and 15% said that their organisations would pursue an Open Systems strategy more strongly. Sequent says it picked up 34 new customers in 1989.

**VENTURECOM SHIPS VENIX/386
REAL-TIME SYSTEM**

VenturCom Inc, Cambridge, Massachusetts, has begun shipping its Venix/386 real-time pre-emptable Unix kernel for PC and PS/2 systems. Based on System V.3.2, it includes DOS under Unix, NFS, TCP/IP, X-Windows and OSF/Motif, as well as real-time device drivers for A/D, D/A, IEEE-488, Stepper Motor and Digital input-output devices. Real-time features include fixed priority and biased scheduling, asynchronous and direct input-output, contiguous file system, access to DMA buffers and physical memory, and fast timers. The contiguous file system is claimed to increase disk performance by more than 150% for disk intensive applications.

**NOW UNISYS PICKS VISYSTEMS'
VIS/TP FOR CICS-UNDER-UNIX**

Underlining the problems that IBM faces as it starts to bring out products designed to open standards, earlier this month, it announced an agreement with VISystems Inc, Dallas, Texas under which it would market the VIS/TP CICS-compatible transaction processing system for Unix under AIX on the RT and the PS/2. Now Unisys Corp has followed IBM to Dallas and has signed VISystems as Marketing Associate and will offer the system on its U series of Unix microcomputers. VIS/TP enables CICS applications that could previously run only on IBM mainframes to run as well on cheaper Unix machines. It gives IBM CICS users the option of trading down to cheaper Unix machines without sacrificing performance, potentially opening up an enormous new base of applications for Unix. Committed IBM users can also use it to develop future mainframe CICS applications under Unix and run them on the 370 host. IBM's preferred solution for cutting the cost of CICS development is the new CICS OS/2 on the PS/2 - but a multi-user VIS/TP Unix system is likely to work out cheaper on a per-user basis. Unisys did not give any prices for the VIS/TP system, nor did IBM.

TADPOLE COMES FIRST IN 68040 RACE

Quick off the mark, Tadpole Technology has come out with two systems based on the 68040 CISC microprocessor just a week after Motorola announced that first samples were being shipped, (UX No 266). Both the TP40V and TP41V run 25MHz versions of the new part and are rated at 20 MIPS and 3.5 MFLOPS. The TP40V offers networking and SCSI features and is aimed at high-end applications, the TP41V has dual VME/VSB bus architecture, networking capabilities and is targeted at high performance VME-based applications. The TP40V has up to 16Mb - the TP41V will support 32Mb - both come with Ethernet, two RS232 ports and the TP40V also has a SCSI interface. Software is Tadpole's version of standard AT&T System V.3 Unix - V.4 will be available in the fourth quarter - an optimising compiler for the 68040, support for Wind River Systems' VXWorks real-time development system and optional TCP/IP, NFS and X-Windows applications.

INTEL REVEALS OEM WORKSTATIONS

The Systems arm of Intel Corp in Hillsboro, Oregon, is moving into OEM workstations built around its 80486 and 80386 microprocessors aimed at medical, publishing, financial, government and automation applications, thus competing directly with Sun Microsystems Inc's Sun-386i. To be offered OEM, the MicroSystem Series 4000, 3000 and 1000 are based on i486, 386 DX and 386 SX chips respectively. Each features a high-resolution graphics - 20 megapixels per second - subsystem, Intel Unix V.3.2, X-Windows, Ethernet, TCP/IP and NFS. The Series 4000 Model 25T, runs a 25MHz i486 delivering 12 MIPS. It comes with 8Mb RAM, from 170MB to 1.3Gb disk and eight expansion slots. Also available in a server configuration it is priced at \$14,600. The Series 3000, with 6 MIPS is based on a 25MHz 386DX. It has 8Mb memory, 170Mb to 1.4Gb disk and costs \$11,500 in desktop or desktide configurations. The low-end Series 1000 uses a 16MHz 386 SX, is rated at 3 MIPS, comes with 4Mb memory and from 70Mb to 340Mb disk. It costs \$6,300. All are available now. Additionally there are new intelligent add-on boards for Unix-based 80286, 80386 and 80486 systems. The iMX-PORT/8 AT card has eight serial ports and costs \$800, the iMX-LAN/586 Ethernet card costs \$900 - both are out in March. Intel has shied from offering a complete workstation in the past, mainly for fear of upsetting its microprocessor customers, including IBM, HP and Compaq. Intel's rationale for this departure seems to be the growing importance of the OEM marketplace - it reckons firms are less inclined to buy only at the component level and do their own manufacturing these days.

**DEC EUROPE STRIKES DEAL WITH
LOCUS FOR PC UNIX SOFTWARE...**

In what is strictly a Europe only deal, DEC is to begin packaging and marketing Locus Computing Corp's PC to Unix connectivity software under its own name. PC-Interface and PC Xsight will allow DEC to offer directly a means of connecting MS-DOS-based PCs to its Ultrix platforms - the deal is worth around £5m over three years to Locus. The move marks DEC's first step down the PC-Unix integration road, although it does have a similar arrangement with Locus in the US, and insists that it will not be the last.

**...PLANS R4000-BASED SYSTEMS,
STEERS CLEAR OF ANDF**

At the announcement, DEC's open systems marketing manager in Europe, Jean-Claude Monney, revealed that as well as working on systems based around Mips Computer Systems' R6000 ECL Risc chip technology, the company is also working with Mips on an implementation of the as yet unannounced 32-bit R4000 microprocessor, details of which were let slip by Sony recently at the launch of its R3000-based News workstations, (UX No 261). Monney also said that whilst the company is "very interested" in the submissions to the Open Software Foundation's request for Architecture Neutral Distribution Format - a short list of some 13 contenders is due to be revealed shortly, (UX No 265), DEC is not directly involved in any of them. Monney, also DEC's X/Open and OSF European representative, did not say how peacemaking talks between Unix International and the Open Software Foundation were progressing, but for Locus, which is deeply involved in both groups' distributed computing projects, European general manager John Wilson said "we will see Unix International and the OSF reconciled this year".

TEXAS ADDS 1505 ENTRY MODEL

Texas Instruments added a 1505 model to its 1500 series of 68000 family of Unix computers: the 68030-based box supports as few as eight active users; the line now goes from eight to 256 users. Out March the 1505 is \$12,900 with 4Mb, 180Mb disk and 150Mb cartridge tape unit.

THE X EPIDEMIC

by William Fellows

The rash of X-based hardware and software products either planned, or now being released on to the market, are symptomatic of the computer industry's increasing exposure to the infectious graphical windowing system known as X-Windows. Rapid transmission of the X bug is being driven by the increasing popularity of X-Windows - especially amongst the Unix community - and it is assured to be more than just a passing affliction judging by research from Dataquest, which suggests that the number of workstations running X-Windows is set to rise from around 40,000 now, to over 2.25 million by 1992.

The frontiers of windowing technology were pushed forward at Stanford University in the early eighties, and X-Windows itself began life as the W Windows System in 1982 - a means of connecting terminals across Stanford's campus-wide network computer network. W-Windows was subsequently ported to Unix - it became known as X-Windows in the process - and by 1985 engineers at the Massachusetts Institute of Technology had taken up the mantle and were developing X under the auspices of project Athena. As commercial interest in the possibilities of the system grew, the X Consortium was set up by leading manufacturers and educational bodies at the beginning of 1987 to fund and promote the development of X as an industry standard, (UX No 112). The X-Window system offers a user-friendly graphical windowing environment giving users the ability to view applications running on the same, or different networked Unix systems within windows on the same screen. X divides the work between a server and client, communicating via X protocols, but here conventional distributed computing nomenclature is turned upside-down. In X-Windows the X server resides closest to the user, for example on an X terminal or PC-based X display. The X application - the client - runs on the host system or on the same stand-alone system, where most of the processing is performed. The logic is that the job of a server is to look after, and manage, scarce resources - in this case the resource is the user's attention.

The latest X

X11 Release 4, introduced at the end of last year, is the newest version of X-Windows from MIT. It contains a range of new features, such as SHAPE, which allows the drawing of arbitrarily-shaped windows - before you were restricted to rectangles or squares - and XDMCP, a new session manager allowing individually configured login windows to be set up more easily. In addition to the many bugs which have been fixed, there are new fonts and ICCCM support, as well as a complete XView toolkit which implements the Open Look graphical user interface and SunView application programming interface, and a new Athena widget set. Most importantly for X system manufacturers, the amount of code needed to draw and manipulate windows on screen has been cut in half, reducing dramatically the amount of X server code required, and therefore the amount of memory taken up on server devices.

Terminal explosion

The likely effects of X-Windows and its hardware side-show - X terminals - on the PC market is something of a hot potato with industry analysts at the moment, indeed the Technology Group of US stockbroker Paine Webber has called the X movement "the most important development in desktop computing since the PC". Most seem to think that manufacturers moving into the X terminal marketplace can still make overall revenue gains, despite the loss in sales of some PCs and workstations. X terminals themselves offer a number of end-user benefits, including multiple windows to different systems, multiple fonts, graphics, central administration and security. Both IBM and DEC have X terminals ready for introduction in the near future, which means that most of the major Unix manufacturers have now taken the plunge into X terminal technology over the last year or so, and are now able to offer them as part of a computer solution. However the technology - both hardware and software - is still in its infancy.

At present X terminals are expensive, a minimum of \$1,000 - but more realistically \$2,500 - and upwards, however the market is set to expand rapidly. Although there are probably no more than 25,000 X terminals in use today, Dataquest anticipates a market worth \$1bn by 1993 with an installed base - including PCs running X-servers - creeping near to the one million within three years time. The trade off on X terminals is between memory and cost. A reasonable amount of memory - at least 2Mb - is required to handle application requirements and accommodate the essential networking and communications facilities. However one thing is certain - prices will fall. Firstly the presence of a host of manufacturers competing for a market-share will drive prices down, and secondly, the improved functionality in the basic X software itself should lower the minimum hardware specifications for X terminals, or at least free-up more system space for other facilities.

Far East promise

As well as IBM, DEC and the others, Japanese manufacturers will contribute enormously to the growth of the market. A consortium of 18 Japanese companies is currently developing a standard X terminal called the UWS - Userinterface WorkStation - and other individual X-based hardware offerings from Japan will begin shifting in quantity during the course of the year - C.Itoh Electronics has already pitched in with its CIT-X Network Display Station, (UX No 260). This will be coupled with impressive implementations of X software from the Far East - Sony is already reckoned to have one of the best X implementations yet available.

Blot on the horizon

At the moment X terminals fall into two categories. Dedicated terminals running X servers and extras only, and PC-based workstations running emulation software such as PC-Xsight from Locus, and PC-XView from GSS, or the more powerful XVision from VisionWare. The size of the market for X-Windows based software looks like growing steadily, and this is guaranteed to provide a large target market for software developers. In particular, the push of PCs into the technical environment and increasing Ethernet support should lead to a rapid take-up of PC-Servers running under MS-DOS. The only blot on the horizon according to UK X specialists IXI Ltd, is that different communications methods are sure to inhibit its spread. Although Ethernet and TCP/IP networking will be the major workstation connection, people will be using a whole range of methods, from 9600 baud asynchronous lines to complex compressed protocols on high speed balanced lines - or ISDN - as well as different serial protocols across RS232 connections. So for the moment, most terminals will be used largely as multi-window displays for old software revamped for X.

Lack of software is not bad news

Also, but reckoned by IXI to be less important for its development, is the dearth of application software yet available for X. X terminal manufacturer Network Computing Devices reckons that there are currently around 38 - see table opposite. The good news for users and potential X converts is that at the end of the day no one company has actual control over, or lead in, X development. It means that firms can only justify more expensive X systems and software by adding true value with attractive X-based innovations.

Product Name	Vendor	Availability
Office Automation		
Alis	Applix	now
eXclaim!	Quality Software	Q2, 1990
Lotus1-2-3	Lotus	1990
UniPlexWindows	UniPlex	now
WingZ	Informix	Q1, 1990
Xwrite, Xpaint, Xdraw	Island Graphics	Q2, 1990
WordMARC	MARC Software	now
WordPerfect	WordPerfect	1990
Electronic Publishing		
Elan/Express	Elan Software	now
FrameMaker 1.3-X	Frame Technologies	now
Interleaf TPS	Interleaf Inc	Q1, 1990
Softquad Publishing	Softquad Inc	now
Software Engineering		
Teamwork	Cadre	now
Software thro' Pictures	IDE	now
Saber-C	Saber Software	now
UniPress Emacs	UniPress	now
PC Compatibility		
XDOS	Hunter Systems	now
386Ware	Logicraft	now
OpenDesktop	SCO	now
386/ix	Interactive Systems	now
CAD/CAM		
AutoCAD	AutoDESK	Q1, 1990
Cim Cad, CimlineID	Cimline	now
UniGraphics	McDonnell-Douglas	Q1, 1990
Connectivity		
CAI-Nct	Century Analysis	now
TERM for X	Century Software	now
AI, Expert Systems		
Allegro Common Lisp	Franz Inc	now
Nexpert	Neuron Data	now
Objectworks, Smalltalk	ParcPlace	Q1, 1990
User Interfaces		
Builder Xcessory	Integrated Computer	now
X.desktop	IXI	now
OSF/Motif	OSF	now
Open Look	AT&T	now
Looking Glass	Visix Software	now
Graphics		
PV-Wave	Precision Visuals	now
Data Views	VICorp	now
GRAFki	SCO	now
Template Graphics	Figaro+	now
Database		
Sybase	Sybase	now
Informix	Informix	1990
Oracle	Oracle	1990
Electronic Engineering		
Valid Logic	Valid Software	now
Synopsys	Synopsys Inc	now
Edge	Cadence	1990

MOTOROLA PIPS MIPS IN LATEST SPEC RESULTS

The latest benchmarking figures just released by SPEC - the Systems Performance Evaluation Committee - show that Motorola has usurped Mips from its pole position in the Unix system performance stakes. The 88000 Delta Series Model 8612, using Diab Data's D-CC/88K C compiler, achieved a SPECmark of 17.8, besting Mips Computers' M/2000 machine by 0.2 of a SPECmark. However Mips' RC6280 system based on the new R6000 chipset and rated at 55 MIPS, (UX No 256) - not included in the tests as yet - is sure to regain the top spot when it is eventually benchmarked. Data General and Solbourne weighed in with their first results - Solbourne making a strong showing at fifth place with its latest Series 5 Sparc clone. Most SPEC members have upped the compiler and cache configurations on their respective machines to improve on their previous results, (UX No 252), although the CPU architectures and speeds remain the same. Newcomers to SPEC are Du Pont, Intel, Solbourne and Unisys - bringing membership up to 16 - and SPEC has set up three subcommittees in multiprocessing, commercial processing and I/O to develop benchmarks covering all systems. The suite of benchmark tests - Release 1.0 - is available from SPEC for \$450.

System	SPECmark
Motorola Delta 8612	17.8
Mips Computer M/2000	17.6
Sun SPARCserver 490	17.6
Mips Computer RC3260	17.3
Solbourne Series 5/801	16.3
Mips Computer RC3240	16
Motorola Delta 8864SP (Departmental Computer)	15.2
HP Apollo DN 10010	13.9
Data General AV 6200	12.7
Motorola Delta 8864SP	12.2
Sun SPARCstation 330	11.8
DECsystem 5400	11.3
Data General AV 5010	10.1
Data General AV 310	9.7
DEC VAX 6000/450 (MP)	9.2
Sun SPARCstation 1	8.4
DEC VAX 6000/410	6.8

ISLAND GRAPHICS HAS X-BASED OFFICE SOFTWARE FOR HP USERS

San Rafael, California-based Island Graphics' office publishing software - see opposite - was previewed at UniForum last week, running under OSF/Motif on Hewlett-Packard's Apollo and HP 9000 Series 300 workstations. IslandWrite is a word-processing and desktop publishing package that supports English, French, Italian and German text. It accepts graphics from IslandDraw, an object-orientated illustration application, and IslandPaint, a raster graphics editor. Out in April for HP and Apollo Unix hardware, IslandWrite is \$600, IslandPaint and IslandDraw are bundled together at \$500.

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Outspoken Sun Microsystems founder and vi originator Bill Joy was on good form at this year's UniForum, unafraid as ever to pronounce on the future of the industry: one such pronouncement was that the only two chip architectures he would be on surviving over the next two years were Intel and Sparc: Motorola was dismissed as having only one contract - Apple - shipping significant numbers, although Joy did not go so far as to clarify Sun's own position as regards the new 68040.

- 0 -

And although he admitted that the ubiquitous X Terminals on show would be a successful market area in time, Joy remained dismissive of some of the basic concepts: "X terminals are a return to timesharing", he said - "at Xerox, the definition of a workstation was a machine that didn't get faster at night!".

- 0 -

Sparc International chose UniForum to show everyone that the reason it had been quiet last year was because it was putting its house in order: the consortium re-emerged with a new Chairman - Robert Duncan, a Control Data Corp veteran, and a new Executive Director - Greg Leonard, previously with Fujitsu Microelectronics. The organisation launched Version 2 of its Sparc Application Binary Interface based on Unix System V.4, and showed a portability demonstration on the Unix International stand, between an ICL Unicorn and Sun workstation running a pre-release version of V.4.

- 0 -

Hewlett-Packard Co, Palo Alto is hoping to lose between 800 and 1,000 US employees in an early retirement programme being offered to 2,400 long-service employees. It is on offer to employees that are at least 55 years old and who have 15 or more years of service with the company. It shed 780 of its staff in a similar programme in 1986. Those that accept this time will get half a month's salary for each year of service to a maximum of 12 months' salary and funds accumulated in their accounts under the company's regular retirement plans. The programme is needed, Hewlett says, because of manufacturing efficiencies and widely differing growth rates among product lines.

- 0 -

AT&T Co is planning to phase out its Fairlawn, Virginia microelectronics manufacturing facility over the next 15 months at the cost of 1,000 jobs. The company blames excess capacity in part because of better manufacturing technologies and increased use of software. Nearly all of the products made at the New River Valley Works will be transferred to the base in Dallas.

Sun Microsystems Inc has reported second quarter net profits down 31.5% at \$20.2m on turnover that rose 21.9% at \$595.4m; net profits for the six months fell 49.3% at \$25.4m on turnover that rose 35.5% at \$1,133m; net earnings per share fell 36% to \$0.23 in the quarter, 52% to \$0.30 in the half.

- 0 -

Having recovered from its crash into the buffers at the end of its fiscal 1989 to June, Sun Microsystems Inc now looks as if it is beginning to feel the slowdown in the computer market as a whole: growth in the fiscal second quarter slowed sharply to 22% from 39% in the first, but margins do seem to be improving a little - profits for the second quarter are off 31% compared with a first quarter plunge of 75%; the full figures are in Company

- 0 -

The new broom at Wang Laboratories Inc, president Richard Miller, has used asset sales to cut the company's bank debt by \$267m so that it now stands at about \$308m and could be eliminated by \$250m to \$350m of further asset sales over the next few months: the payroll of 22,500 - against 31,000 in March - may fall further as a result of attrition, but no more lay-offs are expected.

- 0 -

RM/Fortran, an ANSI Fortran-77 compiler for OS/2, claimed to be X/Open and Systems Application Architecture-compliant and IBM Fortran/2-compatible, is now available from Language Processors Inc, Framingham, Massachusetts-based development arm of Liant Software Corp: it supports file sharing in multitasking environments and over networks, contains mainframe extensions from IBM and DEC, an interface to C functions and 16Mb of memory under the protected mode of OS/2; the OS/2 version sells for \$750.

- 0 -

Evans & Sutherland Computer Corp has failed to find a buyer for the assets of its failed supercomputer venture and has closed the unit, laying off most of the 150 staff.

Robert Morris has been found guilty of wilfully releasing the virus program that crippled 6,000 computers on Arpanet and Internet in November 1988 and faces up to five years in gaol and up to \$250,000 in fines: he is out on bail pending the court's decision on a sentence.

- 0 -

John Shields, who resigned as senior vice-president, sales, services, marketing and international at DEC in October, has resurfaced as Prime Computer Inc's president and chief operating officer.

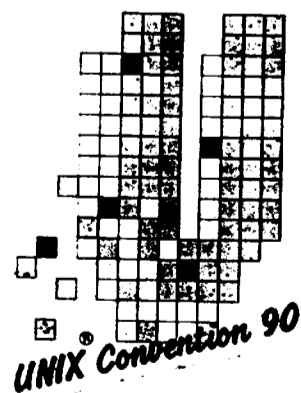
- 0 -

Archie Thomas, veteran of ICL, Plessey and Altos, has emerged as managing director of Trintitec Advanced Systems, which is to distribute Wyse Technology's Series 5000i and 9000i Unix systems launched last week, (UX No 266): Trintitec Advanced Systems is majority-owned by its Trintitec plc parent, the minority held by the management - Trintitec is part of the French Metrologie group.

- 0 -

Sequent Computer Systems Inc saw fourth quarter net up 125.2% to \$5.0m, including a tax credit of \$163,000, on sales up 98.0% to \$47.8m; net for the year ended December 30 was up 146.7% to \$16.0m, including a tax credit of \$2.3m, on turnover up 91.3% to \$145.6m. Net earnings per share rose 85% to \$0.24 in the quarter, 105% to \$0.82 in the year.

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Number 268

CONCURRENT HAS MIPS REAL-TIME MULTI-PROCESSOR

Concurrent Computer Corp has boosted the power of its real-time Unix system range with new hardware based on the MIPS R3000 RISC processor, which the company has been working on for well over a year (UX No 220). Concurrent's series 8000 multi-processors are claimed to achieve a four-fold reduction in context switch times over the current Motorola 68030-based real-time Unix machines from the Masscomp side of the company. The systems use boards bought in from Silicon Graphics, each with two 25MHz R3000 chips and two R3010 floating point co-processors: up to four boards can be added for a top-end, eight CPU configuration. A single CPU version is also available at the bottom end. Around the boards Concurrent has added dual caching, a proprietary 64Mb/sec memory bus and 40Mb/sec I/O bus with support for VMEbus slots. The operating system is RTU Unix Version 6.0, based on Unix System V.3 and including multi-processing support, frequency-based scheduling and disc mirroring, giving a measure of fault-tolerance. X- Windows and OSF/Motif are supported, and the standard databases are being ported. There are three models, with a performance range of from 20-160 MIPS: the single slot, single or dual processor 8300 pedestal model with 8-64Mb memory, starting at £45,000; the rack mounted six to 12 slot 8400, also single or dual processor, from £46,000; and the top-end 8500, supporting up to four dual processor boards and two 64Mb ECC memory boards, with up to 21 VMEbus slots, starting at £75,000. The 8300 and 8500 ship from June, while the 8400 is ready in April. Aimed at real-time transaction processing, signal analysis, simulation, image processing and measurement and control, the series 8000s are positioned as network servers and come in above the Concurrent (Masscomp) 5000 and 6000 Motorola-based systems. With context switching times in the hundred microsecond range, the new systems still achieve only half the real-time performance of Concurrent's proprietary Series 3200 machines running OS/32, but the company anticipates that faster CPUs from MIPS will equal the performance by year end: translation tools between the two ranges are under development.

BLUMENTHAL LEAVES UNISYS WITH WHOLE LOT MORE TO DO

Unisys Corp accompanied announcement of its \$639.3m net loss for 1989 on turnover up 2% at \$10,100m with the news that chairman and creator of the company in its present form Michael Blumenthal is off to become a limited partner at investment bankers Lazard Freres & Co in April; he will retain the title of chairman but will be succeeded as chief executive by president James Unruh. Blumenthal, who became chief executive of Burroughs Corp in 1980, was responsible for buying Memorex Corp and selling it again, and for acquiring Sperry in 1986 to create Unisys, and quickly adopting Sperry's emerging strategy of offering a broad line of Unix machines for the whole company: under Blumenthal, Burroughs had been, after IBM, the least enthusiastic of the majors about Unix. He subsequently acquired Convergent Inc, and for the first couple of years, the momentum behind the combined business gave the impression that the merger was a success and Blumenthal declared as his aim to make Unisys a \$20,000m-a-year company by the early 1990s. Since then it has been stuck on \$10,000m while the nimbler DEC and Hewlett-Packard (including non-computer interests) have sailed past it. Blumenthal leaves Unisys with an enormous \$4,000m burden of debt, 50% of the group's capital, requiring a daunting \$100m a quarter to service. So further asset sales are now required, and defence businesses are such a drug on the market that that side is to be kept. Unisys is now looking at some of the vertical systems houses acquired by Convergent as sale candidates to cut debt by \$600m to \$800m. Inventories were cut \$723m in 1989, exceeding the \$500m target.

DATA GENERAL PLANS FAULT-TOLERANT MODELS IN AViiON FAMILY

Data General Corp has proved itself one of the most resilient companies in the business, coming back from the dead with the MV/8000 in the early 1980s after DEC walked all over it with the VAX-11/780, so no-one should bet against it succeeding in its efforts to do a fault-tolerant version of its AViiON 88000-based Unix box for later this year. It had hoped that its first fault-tolerant computer would be the dual processor version of its proprietary top-end MV/40000, but had to settle for resilience.

NEW BUG IN 80486

Compaq Computer Corp has discovered another bug in the Intel 80486 chip and says that it has caused it further delays in shipping the Deskpro 486. Intel says that the bug affects only computers using the EISA bus and is telling designers of a simple way to program around it.

SUN LAUNCHES SPARC BOARDS FOR OEMS

AND SYSTEM INTEGRATORS

Sun Microsystems is boosting its board-level systems business with the introduction of three Risc-based SPARCengine boards for OEMs and systems integrators. Sun, which already claims to be the third largest supplier of VME board products, has also expanded its documentation, service and support programs for board-level business, and hopes the new products will win it customers working on such products as embedded controllers, cell controllers, manufacturing test stations, medical instrumentation, ruggedised products, peripherals and communication gateways. The three boards use 12.5 and 16 MIPS versions of Sun's SPARC processor, with the low-end SPARCengine 1 claimed to be the lowest cost single-board RISC/UNIX engine available: it includes SBus graphics and I/O expansion, and does not require a backplane. It has 8Mb parity memory (expandable to 16Mb), three SBus expansion slots, SCSI and Ethernet ports and two serial I/O ports, and is priced at £7,250 for single units, available immediately. A Eurocard SPARCengine 1E version is also available for VMEbus and ruggedised applications, costing £8,250, or £7,500 without floating point - ready in April. The 16 MIPS SPARCengine 300 is a triple high 9U VMEbus board for graphics, imaging and heavy I/O applications, with 8Mb memory (expandable off-board to 56Mb), SCSI, Ethernet and four serial I/O ports, costing £16,100 and available now. Customers will have access to Sun's SunOS Unix operating system, the Open Look graphical user interfaces, and the Sun SPARCware applications catalogue, now said to include over 1,500 applications.

OSF PREPARES ITS NEUTRAL DISTRIBUTION FORMAT SHORTLIST THIS WEEK

The Open Software Foundation is due to publish its shortlist of contenders competing for the right to develop Architecture Neutral Distribution Format - ANDF - technology at the end of this week, (UX No 265). The goal of the ambitious ANDF project is to develop a means of allowing shrink wrapped software to run on any Unix system, regardless of processor. There are thought to be three technical approaches to solving the problem (UX No 247); straight encryption, intermediate compiler format and tagged executable codes. Each approach is said to be represented on the shortlist.

ANSI and Multi-bit

Two UK companies which reckon their solutions will figure on the list are Real Time Systems, Douglas, Isle of Man, and Insignia Solutions, High Wycombe, Buckinghamshire. Real Time's submission is based on an intermediate compiler format - a kind of halfway house between the application and the hardware. It is based on an ANSI-compliant C compiler targeting a virtual machine, rather than a particular architecture. However there are two main obstacles that all contenders face in meeting the requirements according to Real Time. The first is that the Foundation has to "decide on the ANSI-ness" of the project, because although it is thought to be technically feasible, to meet the ANSI compiler standard - which the OSF has insisted on as part of the specifications for ANDF - will mean a loss of optimisation in any solution. The other is that developing technology for 16-bit, 32-bit and 64-bit architectures - rather than say just 32-bit processors - means that the project will probably take a lot longer than envisaged. The OSF originally hoped to bring something to market this year, but if the ANSI and multi-bit requirements are rigorously enforced, Real Time believes that the technology is somewhat further off.

Funding and politics

An associated problem for all the smaller companies on the shortlist - which the OSF has not yet addressed - is the question of how development costs are to be funded, and how future marketing rights to the technology will be assigned. Real Time has tendered a joint submission with UniPress software in the US - Real Time is handling the technical side, UniPress, which has distribution rights for ANSI C in the US, the business side - but says that it will not go ahead even with prototype development unless the OSF provides the necessary funding. Insignia Solutions has chosen rather a different tack in its approach, submitting a version of its SoftPC emulation application in a meta format to translate applications for the various architectures. It is also offering an Automatic Application Testing Program which could be used as a test suite for evaluating the submissions - all Insignia's software is tested on it. Funding is less of a problem because Insignia believes that most of the chip manufacturers are keen to get in on the act and will be prepared to bankroll ANDF hopefuls. However, like Real Time, Insignia believes that whilst the ANDF is technically possible, it is the political will of the OSF and its members, and the consortium's future relationship with Unix International, that will make the project a success or failure.

PAUL WAHL SUCCEEDS OLDENBURG AT OSF EUROPE

Following Henning Oldenberg's departure from the Open Software Foundation, Paul Wahl has stepped in as director of European operations: working from European headquarters in Munich, Wahl has been with the Foundation since 1988, and was formerly a vice president at the West German firm mbp Software GmbH.

ONE YEAR ON -

WILL OPEN DESKTOP COME OF AGE?

A year after the bundle of graphical operating system software for 386 and 486-based PCs known as Open Desktop was announced by SCO, DEC, Tandy, Locus and Ingres at UniForum 89, (UX No 220), SCO says that first customer shipments have now begun - Grid Systems Corp and Harris Corp being the first recipients. Open Desktop combines X-Windows, OSF/Motif, SCO Unix V/386 3.2, the Ingres relational database manager, LAN Manager/X client, TCP/IP, NFS, networking services and DOS emulation within a single user environment. There are currently 17 applications that will run under Open Desktop, 60 others are reckoned to be near completion, and SCO says that over 1,100 developers have now committed to bring compatible applications to market. Amongst those available are XVT from XVT Software Inc, Century Software's connectivity package Term, Cloisonne's database templates, the CAD/CAM Advantage application from Cognition, Crosswind Technologies' SynchronizetM, Human Computing Resources' dbXtra, EIFFEL from ISE, Mark V's Adagen, PC-Inmail from Transparent Technology, Vi Corp's Data Views, ClearView and WP/X from Wang and Informix's Wingz technology. A single user copy of Open Desktop costs £895 in the UK now, with Server Upgrades and the Development System costing £1,295 each later this quarter. SCO also says it has begun shipping version 2.0 of its 1-2-3 alike spreadsheet, SCO Professional, and the dBASE III alike SCO FoxBase+, for Sun-3, 386i and Sun Sparc systems. Single user licenses for both are \$700, multi-user configurations go from \$1,300 on the Sun-3 and 386i to \$2,500 on Sparc systems. Additionally in the UK, SCO has announced the availability of Microsoft Word Version 5.0 for systems running SCO Unix V/386 and SCO Xenix 386 release 2.3 at a tag of £750 for an unlimited user licence - French and German versions will follow in the second quarter. But despite the company's optimism, observers are wondering whether or not SCO's experience in the graphical desktop market, its distribution strategy, and the general readiness of the marketplace to accept Unix as a desktop product in competition to OS/2 and MS-DOS, will provide the sort of volumes needed to make Open Desktop a successful standard.

AGE PORTS XSOFTWARE TO AM29000

Advanced Graphics Engineering, or AGE, as it prefers, is to port its Xsoftware X-Windows server to Advanced Micro Devices' Am29000 Risc processor. Already implemented on Texas Instruments' TI 34010 graphics chip, (UX No 244), used in Textronix and Hewlett-Packard X terminals amongst others, Xsoftware allows a manufacturer to offer X-Windows on any computer system, controller or peripheral using the chip, without the associated development costs, and requires only 512Kb of memory to do the job. Xsoftware is also implemented on Opus Systems' Personal Mainframe/8000 workstations, graphics boards from Elsa GmbH, Everex Systems' Step 88000 workstation and Wyse Technology's PC/ATs. Based in San Diego, California, AGE's new chairman and chief operating officer is Peter Shaw, a founder of Megatek Graphics Corp.

LOCKHEED BACKS DOWN - GIVES AT&T GO-AHEAD ON OATS

Lockheed Missiles and Space Co has withdrawn its protest against the US Federal Aviation Administration's award of an \$850m Office Automation Technology and Services - OATS - contract to AT&T, (UX No 264). The terms mean AT&T now gets the go-ahead to provide the Department of Transportation with 40,000 80386-based PCs running an application suite known as Electronic Office. The software includes Microsoft Window, Excel and Word, integrated with Worcester Park, Surrey-based Precision Software's Superbase 4 Windows form design, application development and relational database management system.

NEC LAUNCHES THREE MODEL DEPARTMENTAL ASTRA SERIES

NEC's Boxborough, Massachusetts-based Technologies unit, which promised 68030-based Astra XL Unix systems before the end of 1988, (UX No 209), is now offering the things in three models as departmental computers. The Astra XL/100, XL/200 and XL/300 are built around 25MHz versions of the Motorola chip, each comes with 2Mb memory, expandable to 10Mb on the XL/100, 34Mb on the XL/200 and 66Mb on the XL/300 - cache goes from 8Kb to 16Kb. Disk space available starts at 580Mb at the low end, going to 4Gb at the top. Ethernet, TCP/IP and NFS are included in the price of the things, the eight-user XL/100 is \$9,000, the XL/200 for 32 users is \$14,000 and the 64-user XL/300 starts at \$19,000, all available now.

EXOC INTERFACE PROGRAMMER TO EMBRACE MOTIF AND OPEN LOOK

Lincolnwood, Illinois-based Expert Object Corp - known as Exoc - was previewing a version of its ExoCODE visual interface programming system for OSF/Motif running on a DECstation at UniForum a few weeks back, and has now revealed its intentions to release second generation tools for AT&T's Open Look interface at the beginning of March. ExoCODE allows developers to create Motif or Open Look compliant user interfaces by interactively drawing a prototype via the mouse, and then automatically generating C language calls to the native OSF/Motif or XView toolkits. The advantage, according to Exoc spokesman Barry Bowen, is the generation of graphical user interfaces in around a tenth of the time required by conventional programming. "It can take a programmer up to six months to get up to speed using the native toolkits direct", said Bowen. "With Exoc they are ready to begin within the first week". Generated code can be immediately compiled or customised. The company offers ExoCODE/DXM for DECstations, but plans to port it to other platforms as Motif becomes more widely used - it is priced at \$1,495 for a single user licence. In March, ExoCODE Plus for Open Look will include enhanced panel list items that work around limitations of the XView toolkit, additional capabilities for resizing pop-up windows, pinning menus and font and colour configurations, as well as the HyperMatrix application support toolkit, to speed the integration of the user interface design with the back-end application. Exoc also produces AutoCODE for SunView interfaces on Sun workstations. In the UK, the tools are available through The Desktop Connection in Manchester.

UNIFACE VERSION V WILL SUPPORT 88000 PLATFORM

Amongst the software demonstrated at the Paris launch of Data General's new 88000-based Aviiion systems last month (UX no 267) was the Uniface fourth generation environment developed by Amsterdam-based Uniface BV. A full port to the "Open 88" platform set up by Motorola Risc supporters club 88Open will become available when the next release of Uniface - Version 5 - is launched, currently scheduled for the Spring. Uniface allows the use of any relational database, file management system and CASE tool in any combination, and runs on PCs, VAX/VMS, Ultrix and Unix-based machines. In Europe, Uniface is bundled in with the Sybase relational database as FastBuild, and recently gained top marks in a survey of 4GLs from ButlerBloor Ltd of Hull (UX No 260). Uniface has a UK office in Henley on Thames, Oxfordshire.

...AS COMPUTER POWER GROUP ENHANCES TODAY 4GL

The demise of original Today developers BBJ from Sydney, Australia (UX No 194), put the brakes on the continuing development of the product. But now the new owners of the technology, the giant Computer Power Group (UX No 203) is ready to release Version 3.0 of what it now refers to as the Today application development environment. The company claims that Release 3.0 is the result of \$5.3m investment and 30 man years of development put in over less than 18 months, and includes a number of significant enhancements. These include the integration of expert systems development tools and constructs, a knowledge acquisition facility, new application development, analysis and quality assurance functions, multi-lingual and client tailoring abilities, and support for VAR application development, security and licensing. The software division of Computer Power Group says it has achieved major sales in Australia, the US, Europe and Asia over the past year, and added six more countries to its active distribution list. The company is also a strategic service partner with IBM on its AD/Cycle application development strategy. Today 3.0 is shipping now in Australia and Europe, and runs on VMS, MPE, Unix, Primos and MS-DOS systems, and on Novell, 3Com and Banyan networked systems. It also interfaces to databases including C-ISAM, Informix, Oracle, RMS, RDB, Midas+, KSAM, IMAGE and IMSAM.

FOURGEN LOOKS TO FINANCIAL IMAGING SOFTWARE NEXT QUARTER

FourGen Software has set its sights on large corporate management information systems departments with a new image-based financial development system it is currently working on known as FourGen Corporate - beta releases are due in the second quarter. The package, which runs under X-Windows, has a financial records program linked to a database. An imaging module containing digitised documents, photos and inventory items will allow users anywhere in the world to access, and print out the required view. A financial component will integrate accounting information from a variety of sources, and together with other communication and translation facilities, these will hang off a core general ledger module. FourGen is also developing a set of business analysis templates in conjunction with Uniplex Software, which will enable users to access data stored in the FourGen financial database in the form of Uniplex balance sheets, statements and reports. And the Edmonds, Washington-based firm, which had a large stand and very high profile at the recent UniForum trade show in Washington, has also signed an agreement with Sequent Computer, which is to offer FourGen's existing accounting applications on the Symmetry series of parallel processors.

CHIPCOM'S TRI-CHANNEL NETWORK CONCENTRATOR ELIMINATES NETWORK DOWNTIME

With fault tolerance becoming an increasingly active area of development, Waltham, Massachusetts-based Chipcom Corp has come up with a new family of fault tolerant systems designed to tackle the problem of network downtime. The ONline System Concentrator is described as a modular, multi-media channel platform for all media types and multi-protocols, including support for up to three Ethernet, Token Ring or FDDI networks concurrently. The Concentrator claims to provide the ability to withstand multiple cable, equipment or human errors with no downtime - typical LANs are down around 6% of the time, according to Chipcom. It achieves this by providing redundancy for components such as power supplies and backbone cable links, and allows support for up to 128 unshielded twisted pair connections and 64 fibre connections. Fault tolerance is extended to the desktop with a fault tolerant fibre transceiver. Available from April, the Concentrator has a list price of \$5,210, with a four port Fibre Module costing \$2,110 and the Fiber Transceiver \$1,170. The company says it is working on the development of next generation, multi-channel network management and control systems aimed at mission critical environments for terminals and workstations, incorporating SQL and X-Windows technology, due out in the third quarter of the year.

MICROSOFT'S LAN MANAGER/X IS HERE AT LAST

Microsoft Corp has at last begun shipments of its LAN Manager/X to OEMs (UX No 166), six months later than originally promised. Among the first to receive LM/X, the portable version of the OS/2 LAN Manager operating system which Microsoft has developed in conjunction with Hewlett-Packard, are Hewlett-Packard itself, Groupe Bull, AT&T, The Santa Cruz Operation, Interactive Systems Corp and Tandem. According to Microsoft's general manager of the network business unit will "extend the benefits of Microsoft's distributed client-server computing into key heterogeneous environments such as VMS and Unix. We expect to see final products from our OEM partners beginning this quarter". LM/X was re-written in C over standard interfaces on Unix System V/386 Release 3.2, and is independent of the underlying transport layer and can support a variety of protocols, such as TCP/IP, ISO, NetBEUI and XNS. It provides named pipes as its interprocess communication (IPC) mechanism to support distributed applications across the network, giving application developers increased portability to other operating systems supporting LM/X. OS/2 LAN Manager, and Microsoft Networks for DOS and Xenix clients are also fully supported. Database vendors committed to support the product include Sybase, Informix, Ingres and Oracle, and LM/X will be integrated into the SCO Open DeskTop package. Interactive Systems Corp says it will release its own version during the second quarter of the year, promising the integration of its TCP/IP facilities and the addition of a Unix client capability, permitting transparent access to and from Unix, DOS and OS/2 systems.

NOVELL PLUNGES INTO NET MANAGEMENT SOFTWARE, KIT

Novell Inc, Provo, Utah is moving into network management systems with the launch of NetWare Remote Management Facility, describing it as the first product to provide network managers with full control of remote NetWare 386 servers from a central location. Remote Management Facility is designed to enable customers to install, upgrade, maintain and back up distributed NetWare 386 servers from remote workstations, and includes distributed server console software that enables personal computers to execute console commands through the NetWare internet facility or through asynchronous connections. It will cost \$2,000 from the second quarter. Separately, the company's newly formed LANalyser Products Division introduced the LANtern, claiming it to be the first remote network monitor to use an open standard network management protocol - the SNMP Simple Network Management Protocol, which operates over the Internet Protocol of the TCP/IP protocol suite. Designed for Ethernet networks, it is offered OEM, enabling buyers to add a user interface that enables LANtern-generated network data to appear on their network management consoles. An end-user version incorporating Novell's own network management console software is planned for later this year. The monitor, a combination of hardware and software, continuously monitors vital network statistics and also tracks usage and traffic patterns on the network. LANterns main competitors are Hewlett Packard's LAN Probe and Network General's Sniff Master 1 (UX No 220). It's \$4,500, and can be rack-mounted or used stand-alone.

NEWCOMER PEER PICKS 68302 FOR INGENIOUS INTERNETWORK BOX

A start-up Santa Clara, California company, Peer Networks Inc, has wasted no time in putting Motorola Inc's new 68302 multi-protocol communications microprocessor to good use, claiming that its specialised network computer, which uses the chip, will greatly ease the problem of linking dissimilar computer networks in large companies. The 68302, announced last September (UX No 250), is a communications controller built around a 68000 core, which supports five protocols - HDLC for X25, SDLC for IBM's SNA, DDCMP for DEC's DECnet, plus UART for asynchronous and V110 for transferring data between terminals running at different speeds - any three of them concurrently. The Peer network computer combines multiple 68302s with 68000s - a leap to the 68040 is in the plan - to create a fault-tolerant, secure, expandable, manageable, programmable, and economical communications processor. The machine is designed to glue together disparate computer networks to create one integrated corporate network, and to run network-resident applications such as transaction logging, via a workstation-based network control centre. The machine runs under a subset of Unix which the company calls Unilink, a copy of which runs on each Peer board. It executes binary code modules created under Unix, but eliminates the high Unix overhead. The box is built around a proprietary bus claimed to have sustained performance of 5,000 packets per second per node, and the ports support fractional T-1 1.544Mbps lines and high speed local nets. Each board - which as the name implies, operates on a peer-to-peer basis with all the others - has its own processors, memory, input-output channels and power supply. Boards can be added as the network changes. Peer claims that the design eliminates memory and bus access bottlenecks, and security is taken care of with password control and data encryption. The company, founded by Dr David Chung who designed the machine and was also the designer of the original microcontroller, the Fairchild F8, is privately-funded but will be seeking second round venture funding in mid/year. The Peer network computer is currently in beta test and is planned to be ready for shipment in the second quarter. A typical system would have eight processors and deliver 16 MIPS; the company has not yet set firm pricing, but is thinking in terms of a low-end entry price of \$10,000, rising to about \$78,000. Marketing will be via direct sale, system integrators and OEM sales.

SUN HANDS FUTURE OF SPARC

OVER TO SPARC INTERNATIONAL GROUP

Sun Microsystems Inc is to transfer rights to the Sparc trademark and logo to the Sparc International Inc supporters' club, and has licensed the Sparc technology to the group, which will in future implement and conduct component, systems and software tests to verify compliance with Sparc standard definitions. The trademark agreement defines the control process for the evolution of the Sparc architecture and the Sparc Compliance Definition, which describes a common software and hardware environment that, strictly adhered to, will enable binary compatibility of applications on Sparc systems. It will be complete later this year, and the aim is that buying software for a Sparc-trademarked system will be as easy as buying software for an MS-DOS or Mac personal computer. Version 1.0 of the Definition is based on SunOS 4.03, which will be based on Unix System V.4.0 and the Sparc Application Binary Interface. It says that there are over 1,500 applications for the Sparc now, up from 400 a year ago.

AT&T BELL LABORATORIES' OPTICAL COMPUTING MILESTONE

AT&T Bell Laboratories yesterday demonstrated a prototype of what it claims is the world's first digital optical processor, and described it as a technological milestone on the way to developing a true optical computer.

INTEL'S 20MHz 80386SX ADDS CACHE OPTION, DRAWS LESS POWER

Intel Corp has announced a 20MHz version of the 80386SX 16-bit bus microprocessor which as well as being faster than the only currently available version, the 16MHz, can operate over a wider temperature range and requires less power. The part is accompanied by a new 20MHz cache controller, called the 82385 SX20, and the company claims that the combination not only operates 40% faster than the 16MHz part, but is as fast as full 20MHz 80386 machines on 8-bit and 16-bit software. Reason for the superior environmental performance is that the part is fabricated in a new CHMOS IV process; it draws 305mA at 20MHz against 400mA for the 16MHz version, making it more attractive for laptops. An even lower-power variant draws only 85mA when it idles at 2MHz. The standard version is \$125 for 1,000-up, the super-low-power version is \$135; they are sampling now with volume next quarter. No prices were given for the cache controller.

AIM TECHNOLOGY OFFERS A NETWORK FILE MANAGER FOR SUN'S NETWORK FILE SYSTEM

AIM Technology Inc, Santa Clara, California is offering the AIM Network File Manager for the Sun Network File System, claiming it to be the first product to support the monitoring and managing of Network File System files on Unix networks. It enables users to set response service levels for individual client workstations and monitor the performance to those levels and colour-coded on-line charts and graphs are designed to help the user or network manager to zero in on a problem quickly. Users can identify current and future network performance problems, isolate them quickly and implement sensible solutions, the company claims. Network File Manager works independently or in conjunction with SunNet Manager and its on-line status reports can be accessed via SunNet Manager's pull-down menus, and the system can look after up to 100 nodes regardless of their physical location; the initial release will run on Sun workstations and file servers with SunOS 4.0 up, and on the NETStor server line of network file servers from Zetaco Inc. It costs from \$6,500 depending upon the number of workstations and file servers supported and the initial release will be available in the second quarter.

ICL'S RETAIL INFORMATION SYSTEM UP ON UNIX LINE...

ICL's DRS 6000 Unix machines have spawned a new family of products from ICL Retail Systems UK. The major component of the Open Systems Portfolio family is Epicentre, an executive information system. It acts as a control centre and host to a distributed point-of-sale network. Organisation and presentation of information is done by EIS-EPiC, and the third element of Epicentre is RUHD, the Retail User Help Desk. The Portfolio also includes a range of Unix-based financial, management and personnel applications that have been developed by ICL's Federation of Retail Technology Suppliers. This is a new association of suppliers and systems houses brought together by ICL to develop products for the Open Systems Portfolio. Epicentre combines the file management of ICL's Retail File Manager with the executive information system, EIS-EPiC. Item-level data from point of sale terminals is stored in the database, which also holds master product and price files. EIS-EPiC provides a review book at departmental level which highlights key aspects of trading patterns, and an EIS-EPiC toolkit enables users to tailor and customise the system. Retail File Manager is a software application that automatically controls the collection and distribution of data between Epicentre and remote sites. The cost of an entry-level system, to cover about 50 stores, is £63,000, but ICL says an average system will be around £100,000.

...AS ICL BUYS MEDICAL SOFTWARE

ICL has also bought the assets of Pentagram International Management Services Ltd of Royston, Hertfordshire "as part of its new thrust into the clinician applications area of the Health Service". The company has an Accident & Emergency system that runs under Unix and is built around the Ingres database. It will be added to ICL's MedICL clinical suite. Terms were not disclosed.

DEMAX PROMISES HIGHER THROUGHPUT FOR DEC VAXs

Around half the world's VAX users are loosing out on the full performance potential of their systems, according to a survey carried out by Wimbledon-based Demax Software Ltd. The company approached 100 US and European VAX users and found that over 50% of the systems were spending too much time on memory management activity, operating in Kernel Mode for 40% on average, and sometimes up to 90%. Tuning the systems could result in a 25% increase in performance, said the company, which is offering free performance tuning analysis to system managers. Demax hopes that recipients of the test will go on to buy its Dynamic Load Balancer performance utility said to increase VMS throughput, and priced at £1,200 on the MicroVAX II or £3,000 on the VAX 8900.

ADVANCED MICRO FILLETS 29000 TO CREATE CHEAP 29005

Advanced Micro Devices Inc has pulled the memory management unit and the branch target cache out of the Am29000 RISC to create a low-cost 29005 version for low-end and mid-range applications such as laser printer controllers and scanners. Presently offered only in a 16MHz version, the emasculated 29005, rated at 9 MIPS, offers about half the performance of the entire versions of the part. It is offered at £44.50 for 1,000-up and will be available in volume next quarter.

unigram·x

The weekly information newsletter for the UNIX™ community worldwide

OSF supremo David Tory and AT&T's Robert Kavner were speaking together on a panel at US analyst Esther Dyson's annual PC Forum down in Tuscon, Arizona, last week, and according to one observer the relationship "looked obviously strained".

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Altos Computer Systems Inc, San Jose has long been protected from the chill winds of recession by a tidy little cashpile and no debt: now the company plans to spend some of its cash buying in up to 2m of its 10.8m shares outstanding, an exercise that would cost around \$10.25m at the current share price.

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Ingres Corp has developed a database financial accounting package for the Ministry of Defence in conjunction with Compass Systems, which complies with new accounting practices introduced at the MOD: it is based around the Ingres database and Compass's Cardinal financial software.

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Ryan McFarland Corp and French software developer Distribution Energie Informatique, Lille, have signed a technology agreement to develop a database application that will serve as an interface between RM/Cobol-85 and popular industry databases - it will be available in the second quarter.

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Micro Focus and Unify Corp have announced an interface to integrate their respective technologies: generally available on AT&T 3B2, HP 9000 Series, SCO Xenix, Unisys/CT 386 and NCR Tower 32s this quarter, Embedded SQL/A for Cobol will allow Micro Focus' Cobol development tools to use embedded SQL statements as a gateway into Unify's database.

- o -

Sun Microsystems has donated a SPARC-based Sun 4/280 server to the European Unix systems User Group, which will operate as the international backbone for the group's EUnet Unix network, said to be the largest computer network operating in Europe: EUnet covers 19 countries, 3,100 organisations and 8,000 systems, and has gateways to the US via Usenet, ARPANET and BITNET, and to Australia via ACSNET.

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Ryan-McFarland Corp has set up a strategic relationship partnership with Novell Inc, saying that the Novell NetWare platform is as strategic to the company as its support for MS-DOS and Unix.

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Groupe Bull has announced that it is looking to cut 1,200 jobs in France during 1990 to bring staffing in line with market conditions: the cuts will come mainly in management, administration and support: manufacturing employment levels are not expected to fall much.

Intel Corp says that it is not able to keep up with demand for the 80386 and 80386SX microprocessors, and the parts are on allocation, although it hopes that supply and demand will be in balance by July: the company reckons that 15% of all personal computer shipments last year were 80386 or SX machines.

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Nippon Alliant Computer has introduced its Littleton parent's new multiple Intel 80860 RISC-based FX/2800 with a top speed of 1.1 GFLOPS, offering it in Japan for the yen equivalent of between \$686,200 and \$2.75m.

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The Nippon Pyramid subsidiary of RISC systems builder Pyramid Technology Corp, Mountain View, is marketing its Unix computers to OEM and value-added reseller customers in Japan - Sharp Corp has already tied up a distribution agreement with the firm, which does not plan to do any direct selling: within three years, the company, formed a year ago and run by Nippon Cray's former star salesman, is hoping to be doing between \$20m and \$35m a year.

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Yokogawa-Hewlett-Packard's 1989 figures show sales up 16% on the previous year to almost \$1,000m before the addition of Nippon Apollo Computer's business, and operating profit also recorded double-digit growth: adding in Apollo, computer revenues exceeded instruments business for the first time, the split being 55% to 45%; workstations now make up 60% of the company's computer turnover, and the enlarged company is looking for total business of some \$1,250 for the current year.

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Santa Cruz Operation Inc, based in Santa Cruz, California, says that Microsoft Word 5.0 for Unix systems, which supports workgroups on Unix networks, is now available at \$1,000: it can be used simultaneously by an entire workgroup of 16, 32, or more users working on terminals and has most of the features found in the MS-DOS, OS/2 and Macintosh versions, while adding features that exploit the multi-user, multi-tasking capability of Unix so that workgroups can share documents, style sheets, forms, macros, group edit, as well as share peripherals, including some 180 different printer and hard disk types.

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ICL is to incorporate the Staffware procedure processing system from London-based Financial & Corporate Modelling Consultants Plc into its Officepower Unix office automation system on the DRS range, calling it Powerflow: ICL claims that procedures may be defined by an office manager with little or no training in the fourth generation language: it will use the same style as Officepower and work with the X400 mail protocol; no price was given.

Novell Inc of Provo, Utah, has certified GigaTrend Inc's new Digital Audio Tape back-up system for use under Novell's Advanced NetWare 386: GigaTrend, through its parent, Gigatape GmbH in West Germany, claims to be the leading worldwide supplier of audio tape back-up systems for microcomputer and networks.

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Pyramid Technology Corp, Mountain View, says that it is considering a public offering of approximately 2m shares to raise funds for working capital.

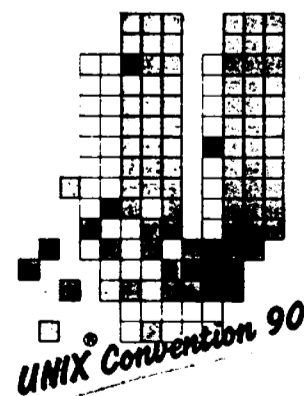
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Adobe Systems Inc, Mountain View, California is offering the Adobe Plus Pack typeface software for NeXT Inc's NeXT Computer System, the machine that includes the first implementation of Display PostScript: the typeface set is \$500.

Most magazines will cover what's happened in the past. Some may even tell you why. But how many will explain what will happen next?

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NCR TO TAKE 10% OF BACK-END DATABASE BUILDER TERADATA

NCR Corp is set to make a statement of direction on its Open Computing platform strategy this Monday, with NCR Chairman and CEO Charles Exley Jr. and President Gil Williamson hosting the event. But the major point of interest is likely to be the company's latest venture into the high performance transaction processing market: it has signed a letter of intent with the leader in high-throughput back-end database machines, Teradata Corp of Los Angeles to exploit their respective skills in parallel processing. NCR will soon need to give its current multi-processor technology a boost: top-end Tower Systems, such as the 850, use a master/slave architecture which is now becoming increasingly unfashionable as most others have opted for shared memory symmetrical multi-processors - an approach endorsed by Unix International at UniForum recently (UX No 267). An NCR spokesman said that NCR would "pull the essence out of the Teradata technology" to produce a range of scalable, general purpose systems using a client/server approach and merchant microprocessors from Intel Corp. "It might take a few years", he added. The agreement is rather more far-reaching than ones that Teradata has signed with other majors, because it involves NCR taking a stake of about 10% in Teradata by buying new shares - but NCR stresses that the investment is simply to cement the relationship and that it has no plans to increase its holding beyond 10%. At current prices, the holding will set the Daytner back about \$40.6m. Fast-growing Teradata had 1989 sales of \$137.4m from its DBC1012 machines, which use an array of Intel 80386 processors to search a database at very high speed. NCR's top-end 9800-XL mainframe is a multiprocessor machine for which fault-tolerant configurations are available, but the joint venture is likely to concentrate the two companies' skills in the design of NCR's next generation of Tower Unix machines.

TORCH CALLS IN THE RECEIVERS AS CATSCO TIGHTENS THE REINS

Torch Technology Ltd's topsy-turvy existence took a turn for the worse this week when the Cambridge-based UK firm went into receivership after its majority shareholder - the Australian firm Catsco, Prahran, Victoria (UX No 149) - refused to provide the company with additional funding. Receivers from KPMG Peat Marwick McLintock hope the firm can be sold as a going concern, though it may be split and products sold off separately if no buyer emerges - some form of partial management buyout has not been entirely ruled out. The company's turnover stands at around £1.5m now - the majority from hardware sales - way down from its peak in the mid-eighties when it did well supplying add-ons for the enormously popular Acorn-designed BBC Microcomputer. There are reckoned to be nine areas of technology which could be bought separately or as a whole. Torch's hardware and software catalogue extends from the Motorola 68010 and 68020-based Triple X and Quad Unix workstations - with an installed base of 800 and 400 respectively - through boards and Apple Macintosh graphics cards to a number of X-Windows based software applications and interfaces. The much troubled company, which has 30 employees, was apparently mid-way through developing a 68030-based board - the QY - when the cash crisis struck. The QY was to - or may yet - form the basis of two new Unix systems, one high-end VME OEM offering and a low-end workstation in the region of £5,500 called the Torchstation, both intended for an April delivery. Several companies - customers of Torch - are said to be interested in the firm though no names have been revealed. Torch says it is "open to offers" and will be placing a "for sale" sign in the Financial Times on Tuesday 13th.

COMPAQ, NOVELL JOIN FORCES ON FAULT-TOLERANT NETS

Novell Inc and Compaq Computer Corp are to join forces to develop enhanced fault-tolerant capabilities for local area networks. The aim is to develop one or more products that take advantage of Novell's system fault tolerance technology and Compaq's multi-processing technology to reach new levels of overall reliability for personal computer networks. The pair will work on hardware and software extensions to the NetWare 386 operating system and Compaq Systempro server to support use of two servers, one redundant, in NetWare networks.

IBM FACTIONS BATTLE TO SCORE POINTS IN RIOS BUILD-UP

As the Unix industry waits to see how IBM will shape-up with its launch this Thursday of the RS6000 (Rios) workstation and its new AIX 3.0 Release (UX No 266), competitors within the company itself are beginning to appear more worried than the likes of Sun, Hewlett-Packard and DEC - the latter is not now rushing out with its own 20-25 MIPS 3D workstation on the 13th as originally expected. Last week, IBM announced new entry-level 9370s with Micro Channel, as well as new AS/400 systems from Rochester, Minnesota, seen as a protective move to offer better price-performance at the low end. So it can hardly be coincidence that Austin nipped in on Monday with a spoiler for the blitz by pre-announcing support for the NeXTStep interface (see below). Meanwhile, it appears that as of last Monday, IBM had still not settled on the pricing for the new machines, another cause of internal squabbling at Big Blue.

NEXTSTEP TO MARRY AIX UNIX, IBM CONFIRMS

IBM has at last confirmed the widespread speculation that it will offer the NeXTStep user interface and applications development environment developed by NeXT Inc for use with its AIX Unix as an alternative to OSF/Motif. It will be offered with AIX on both the forthcoming RISC machines and on the PS/2s, and IBM will support the same application programming interfaces as NextStep, providing compatibility and consistency so that developers can offer applications on both machines, "resulting in a larger market for their efforts," IBM says. Adobe Systems, Informix, Ashton-Tate, Frame Technology, Lotus and WordPerfect were among those rushing to applaud the announcement. But to make Motif an attractive offering in comparison with NeXTStep, IBM needs to offer it with at least the same functionality: NextStep comes with a built-in desktop manager. Although IBM has not said anything, the RiscStation 6000 announcement next week is very likely to include a desktop manager for Motif. Although it has no desktop manager for Motif at present, IBM has signed up the UK, Cambridge-based firm IXI Ltd in an AIX technology development agreement, (UX No 258), and was showing IXI's X.desktop manager for Motif on its systems at last year's Unix Expo show in New York as AIX Desktop.

ASK TO LAUNCH "OPEN"

MANUFACTURING SOFTWARE THIS YEAR

Manufacturing management software house ASK Computer Systems is to broaden its horizons later this year with new software to address the open systems market. The Mountain View, California-based company, best known for its Manman manufacturing information software for DEC VAX and Hewlett-Packard 3000 Series hardware, says it is now completing work on a new relational database independent manufacturing package that will feature an X-Windows interface and client-server architecture. The first modules are likely to appear in a Unix version by the third quarter of the year, with versions for DEC and HP proprietary environments following. ASK has set up a technological agreement with Ingres Corp, and is using Ingres 4GL and development tools to produce the software, allowing easier portability between any machines supporting Ingres or other SQL databases (including DEC's Rdb and HP's Allbase). Functionally, the software will include a greater emphasis on distribution, customer servicing, finance and marketing, as well as the central manufacturing operations modules. ASK UK managing director Graham Page said the company had not made the move before, as it was not convinced that performance would be sufficient for demanding transaction processing applications: beyond DEC and HP's Unix ranges he would not reveal which Unix platforms would be targeted first, saying only that no decision had been made about IBM's AIX so far. The company will offer existing users the chance to migrate with a package of customer credits, migration tools and services, but says it will continue to develop its existing Manman and Mancim packages products independently. ASK will also continue to offer separately its SIM/400 software line for IBM's AS/400, which it acquired through the takeover of Data 3 Systems Inc in mid-1989. With over 3,000 customers worldwide, ASK claims that Manman holds the number two slot in the marketplace after IBM's MAPICS, and says it is HP's largest third party vendor: in 1989 it had a turnover of \$186m. The company has a European headquarters in Switzerland, and a UK office in Milton Keynes.

...AS HP MOVES OPENMFG FROM MPE TO HP-UX

True to its oft-reiterated promise of bringing the functionality that its MPE-based software users enjoy to HP-UX customers - and to make the Unixlike look more attractive to potential users - Hewlett-Packard has introduced HP OpenMFG, a Unix version of its Manufacturing Resource Planning II application for HP 9000 Series 800 systems. It offers manufacturing, financial and sales order management facilities for medium to large manufacturers, and based on SQL it allows data to be accessed from other IT centres in the company. It is being offered in standard and source level formats. The standard version allows high-level changes to be made in the windowing and menus systems, the source level option means that most aspects of the programme can be customised from the application source code. Prices go from £50,000 to £300,000 depending on CPU size, shipments start in the Spring and French and German language versions are set to follow. At the same time, HP has introduced HP Financial Management, a new financial module, together with other enhancements for HP Manufacturing Management II, an MRP II solution, on its proprietary MPE-based Series 3000 systems. HP Financial Management combines transaction processing with on-line management review facilities, profit and loss analysis and financial forecast modeling along with a whole range of accounting features. Available now, HP FM starts at £40,000 going to £100,000 depending on system size - other language versions are to follow. The enhancements to HP MM II include new advanced materials and maintenance management facilities.

PERICOM'S TeemX HELPS TERMINAL TO WORKSTATION MIGRATION

UK systems supplier Pericom Plc has introduced a terminal emulation product for X-Windows users that will allow colour or mono workstations to act as either text or graphics terminals when running X. The product, TeemX, will emulate Tektronix 41xx graphics terminals or DEC VT220 text terminals by converting the command sequences into equivalent X-Windows functions, within any number of windows. This allows existing software to be run alongside X-based software, taking advantage of the device, host and network independence of X. The product is available now for Sun-3 and Sun-4 platforms, with more announcements expected shortly. Milton Keynes-based Pericom, which evolved the product from its TeamTalk terminal emulation software for PCs, says it also plans to support ReGIS, Data General D200, Retrographics and Westward emulations in future versions. In the UK, the package costs from £3,000 for a five user version: the company has a subsidiary operation based in Lawrenceville, New Jersey, and showed TeamX at Uni-Forum in Washington. It also has distributors in France and Singapore.

...AS PHOENIX-MATROX COMBO RUNS VGA PROGRAMS UNDER X

Phoenix Technologies Ltd, Norwood, Massachusetts has joined forces with Matrox Electronic Systems Ltd to provide a means for Unix users to run VGA-compatible MS-DOS applications under the X-Window System on an IBM PS/2 Micro Channel system. The offering couples Phoenix's VP/ix emulator, which enables users to run MS-DOS applications under Unix as a task, with the Matrox PG2-1281 graphics board to turn VGA-compatible MS-DOS applications into X-Window ones. The Matrox board supports a 1,280 by 1,024 non-interlaced display and provides high performance graphics for the PS/2. Using the Texas Instruments TMS34010 signal processor along with Matrox custom gate arrays, it incorporates features designed to accelerate graphics operations commonly encountered with X, such as backing stores, saveunders and graphics contexts. The video emulation software in the new release of VP/ix is claimed to provide 100% VGA compatibility within a window on a host's display, at speeds it says are comparable with native VGA under MS-DOS. Phoenix gave no prices for the products.

DEVELOPERS SHOW AN INTEREST IN WOLFRAM'S MATHEMATICA

Software developers are at last beginning to respond to the initial hype over Stephen Wolfram's "revolutionary" Mathematica software product that so excited IBM and Next Inc when it was first released (UX No 186). Applications built with the package were on display at the first Mathematica users and developers conference in Redwood City, California recently, reports Microbytes Daily, and include online calculus courseware, circuit analysis and structural engineering programs, and even a supercomputer application for applying gravitational theory. Publisher Addison Wesley claims to have sold 40,000 copies of Wolfram's book on Mathematica and is even planning a quarterly journal. As well as IBM and NeXt, Mathematica now also runs on the Macintosh, and on Sun, HP and DEC workstations, although the Notebook facility, which allows calculations, text and graphics to be integrated, works only on NeXT and Macintosh machines, at least until the completion of a Microsoft Windows version currently under development. Wolfram Research, based in Champaign, Illinois, is also working on MathLink, a product that aims to allow Mathematica to exchange data with other software packages, such as a spreadsheet or computer aided design package.

OSF REVEALS CONTENDERS FOR ANDF PROTOTYPING PHASE

The Open Software Foundation duly announced the shortlist of contenders for its ambitious architecture neutral distribution format - ANDF - request for technology last week. The chosen few are Hewlett-Packard, Peritus International Inc, the Royal Signals and Radar Establishment, Siemens AG and National Semiconductor Corp and the University of Virginia which are now set to begin work on prototyping technology that will allow software to run on any Unix system regardless of processor type. The contenders now enter an eight week planning phase with the OSF, after which the rest of the evaluation plan will be revealed.

OMRON RUNS MACH ON 100 MIPS RISC WORKSTATION

Omron Advanced Systems Inc, Cupertino, California - a wholly-owned subsidiary of the Japanese electrical giant - has launched its family of Motorola-based Luna workstations in the US. Rated at 4 MIPS, the entry model runs a 68030 with 8Mb RAM, 250Mb hard disk, Carnegie-Mellon's multi-processing Mach Unix implementation, X-Windows, Motif, TCP/IP and NFS. Aimed at OEMs, it costs \$6,950 for 500 up, out in the second quarter. The Luna/88K runs four 33MHz 88000 Risc processors, is rated at 100 MIPS and will cost around \$50,000. Again it runs the Mach operating system, comes with X-Windows, Motif, TCP/IP and NFS - it will be out at the end of the year. Omron started its US Advanced Systems operation last year, although other members of the Luna series have been available in Japan for the last couple of years.

HEWLETT MAKES TRADE-IN OFFER TO SUN-3 USERS IN UK

In 1988, Hewlett-Packard Ltd offered to take old DEC iron in part-exchange for its own new Unix systems under a six-month programme that ran through the summer. That promotion did well enough that the UK company is trying it again, this time going after Sun Microsystems' Motorola-based Sun-3 base. It is offering up to \$19,000 for a Sun-3 where the user buys an HP9000 Model 345 or 375, or a DN2500, 3500 or 4500 from the Apollo line. All those machines are Motorola-based and Hewlett believes that many Sun users do not want to move to the Sparc. What will Hewlett do with all the old Sun-3s it gets back? Last time around it sold traded in machines to used computer brokers.

IBC HITS EUROPE WITH INTEL MULTI-PROCESSOR

Low profile minicomputer manufacturer Integrated Business Computers Inc, Chatsworth, California, is making its latest XLA and XLC Intel-based systems running SCO Unix, Xenix, Theos or DOS, available to the European marketplace for the first time, through its European distributor, IBC Europe, based at Wigan in Lancashire. The new models use up to four 80386 processors with up to 96Mb main memory, along with four 68000-based slave processors and 8Mb disc cache for offloading serial and disk I/O. Maximum storage is 12Gb, with optional 2Gb tape drives or optical drives, and the system offers 120 ports. The systems, which offer four times the capacity of the company's previous high-end XLM and XLD Ensign models, cost from £7,000 for the 40 user XLA, or from £15,000 for the larger, 250 user XLC. Future plans include Risc-based systems supporting over 300 users, and 80486 and Risc-based systems. Despite its low visibility, IBC claims a current installed base of over 15,000 units, valued at \$200m, and numbers Hewlett-Packard, Intel, NASA and Hughes Aircraft amongst its users.

CRAY RESEARCH "WORKING ON ONE-CHIP IMPLEMENTATION OF CRAY-1 CPU...

These days, the Cray-1, Cray Research Inc's original super-computer and the most powerful machine available in its heyday little more than a decade ago, is regarded as not much more than a museum piece - but hold it! The Cray-1 lives. According to Newsbytes, the Minneapolis company is working on integrating the entire processor of the Cray-1 onto a single chip: the Cray-1 microprocessor is expected to be ready within 18 months and to deliver 160 MFLOPS. But it is likely to be the world's most expensive microcomputer with a price tag of \$1m.

...AS CRAY COMPUTER CORP CONFIRMS INTEREST IN GIGABIT LOGIC PLANT

Cray Research spin-out Cray Computer Corp, Colorado Springs, Colorado has confirmed reports of its interest in Gigabit Logic Inc's GaAs fabrication plant, and says it has reached agreement to pay 1.625m of its own shares - worth \$6.9m at current prices, and return to Gigabit the 200,000 Class A preferred stock - a 13% stake - that Cray Research bought in the company for \$2m. GigaBit has been an important supplier of GaAs circuits for use in development of the Cray-3 computer system. The deal should close this month if the negotiations are successful and if the Internal Revenue Service rules that the use of Cray Computer common stock will not adversely affect its tax-free ruling on the spin-off.

MASPAR JOINS DEC'S DATA-PARALLEL TEAM, OFFERS COMPUTERS CHEAP TO UNIVERSITIES

MasPar Computer Corp, the new Sunnyvale, California company with the massively-parallel MP-1 computer has joined DEC's Data-Parallel Research Initiative, introduced in May 1989 to encourage research into new and improved data-parallel computing applications and distributed super-computing. Under the initiative, which also includes Thinking Machines Corp, members make their machines available at discounted prices to universities and qualified research institutions in the US and Europe to conduct research that will create or optimise massively parallel applications; MasPar's MP-1 integrates DEC's VAXstation 3520 Ultrix workstation as part of the system; the system is available through the initiative at from less than \$100,000.

DATAFLEX 2.3 NOW AVAILABLE FOR RT AND PS/2

DataFlex 2.3b is published and licensed by Data Access Corp and IBM markets the software through the Cooperative Software Program. It is an application development tool for Unix in the AIX environment, as IBM likes to put it, and applications developed with it are transportable across several environments including MS-DOS and OS/2. At its core is a relational database management system that provides transaction processing with online multi-key Indexed Sequential Access Method, ISAM, online multi-key query, a command language, preprogrammed data processing procedures, forms processing system, and a menu system. Like most products of its ilk, it has an applications generation language and applications developed with it are interoperable across heterogeneous systems. Available from February 2, it starts at \$750 for a fouruser runtime licence on the RT, plus \$600 for every additional four users, or you can pay \$12,000 and support unlimited users. The Full Development Utilities, which need a runtime licence too, are \$1,500. A runtime licence on the PS/2 costs \$500 for the first four users, \$400 for every additional four users, or \$6,000 to provide support for an unlimited number of users, and the full development utilities on the PS/2 cost \$1,000.

ROUNDUP

Emulating the flamboyant marketing style it has adopted in the US, **NeXT Computer Inc** and its partners **Businessland (UK) Ltd** of Langley, Bucks have hired the London Palladium for the UK launch of the NeXT machine this Tuesday morning: Steve Jobs himself and Businessland CEO David Norman will host the launch from the Palladium stage, where Barry Manilow is currently in the middle of a two week stint.

For those unfortunate enough not to be invited to the Palladium - and try applying for one on 0753 580100 if you want to go - the NeXT machine will also be demonstrated at London's New Connaught Rooms on February 20th, as part of a one day seminar on object-oriented programming organised by **Objective Computer Systems Ltd**: telephone 01 497 8090.

Sun Microsystems Inc has got itself onto the approved vendor list of the Canadian government, via the Industry Science and Technology Canada and the Ministry of Supply and Service. As a result, Sun says it will automatically be placed on a preferred vendor list as a "category one supplier" on every workstation request for purchase from the government, and is accordingly expanding its software development centre in Montreal and setting up a Canadian manufacturing facility, expected to be operational by the mid-1990s. Sun has also agreed to expand its Canadian procurements for products manufactured in Canada for incorporation into its systems.

Meanwhile, Sun president and chief executive Scott McNealy has made a flying visit to Sun's Scottish manufacturing plant at Linlithgow, West Lothian, which is scheduled for completion in March. He claimed the new plant would be "crucial to Sun's International sales" which now account for over half the company's revenues. The plant will eventually employ some 300 people, and the first Sparcstation 1 workstations should roll off the production line in July.

In an example of the kind of collaborations that are the shape of things to come in the European computer industry, **Philips NV** has a \$40m order from **Ing C Olivetti & Co SpA** for 268,000 colour and monochrome computer displays this year, with follow-on orders expected to be placed thereafter: it is the first time Olivetti has given Philips such an order, but both companies get their top-end Unix processors from **Arix Corp's** Edgcore unit, and observers wonder how much longer Philips will plough on with its painfully patchy computer business before retreating into semiconductors and peripherals that are spin-offs from its television and Compact Disk businesses - if it does put its computer business on the block, Olivetti is likely to be among the first in line to buy it.

Phoenix Technologies Ltd's chairman and vice-chairman have resigned and Neil Colvin, formerly chairman, has been named senior vice-president and chief technical officer of the Norwood, Massachusetts IBM-compatible personal computer BIOS specialist: Colvin will concentrate his efforts on the research of advanced technologies and potential new products; Ron Fisher, previously with rivals **Interactive Systems Corp**, was named president and chief executive on January 29, and was also appointed to the board.

Apple Computer Inc is expected to add a high-end Macintosh IIx model, the xi, next month. **MacWeek** looks for a 33MHz 68030 processor, direct memory access on the SCSI bus, separate input-output processors and a cache card slot to create a box to deliver 60% to 100% better performance than the IIci at some \$10,000.

Replete with the acquisitions of **Rexon Business Machines** and **Fujitsu Microsystems of America**, Santa Ana, California-based **Alpha Microsystems Inc** finds itself with a surplus of employees, and has cut its workforce by about 7%; no numbers on the cuts.

Micro Focus Plc and **Unify Corp** have announced an interface to integrate their respective technologies: generally available on AT&T 3B2, Hewlett-Packard 9000 Series, SCO Xenix, Unisys/CT 386 and NCR Tower/32s this quarter, the new Embedded SQL/A for Cobol will enable the Micro Focus Cobol development tools to use embedded SQL statements as a gateway into Unify's database.

Sun Microsystems Inc has donated a Sparc-based Sun 4/280 server to the **European Unix systems User Group**, which will operate as the international backbone for the group's EUnet Unix network, said to be the largest computer network operating in Europe: EUnet covers 19 countries, 3,100 organisations and 8,000 systems, and has gateways to the US via Usenet, Arpanet and BitNet, and to Australia via ACSNET.

Apricot Computer Systems Division has appointed the **Novell** distributor **Skytech Ltd** as a value added distributor for its VX FTserver, Qi and XEN-S server and personal workstation series: Skytech distributes Novell's NetWare and will supply this with Apricot hardware; the agreement comes after **Novell** and **Compaq Computer Corp** announced plans to develop fault-tolerant capabilities for local area networks using Compaq's multi-processing technology, and suggestions that **Microsoft's** new LAN Manager 2 kits, developed by Compaq, don't have any multi-processing capabilities.

DEC's first fault tolerant VAX will be launched in Paris on February 27th, hears **Computerworld**, along with a new version - 5.4 - of DEC's proprietary VMS operating system environment: the paper says that an entry-level Cirrus One - described as "two Microvax 3800s bolted together", will cost from \$230,000, and will feature DEC's DSSI bus and 32Mb memory on each processor. The announcement may also provide some clues on the progress of DEC's efforts to produce a Posix compliant version of VMS, the paper said.

Meanwhile, the long-awaited symmetrical multi-processing support for **Ultrix** should appear within the next few months, as part of a new Ultrix release supporting larger memory configurations.

But don't hold your breath for 1-2-3 for **Apple Computer Inc's** Macintosh - the **Lotus Development Corp** development bug has struck again, and the company, which first promised the thing as long ago as 1987, now says it may not be ready till 1991.

A collection of amusing computer anecdotes - "IT's a funny thing" - was compiled last year by industry specialist **Roger Frampton**, now executive director of **UniForum UK**, and raised around £11,000 for the **Great Ormond Street Children's Hospital**: now it's been re-published by **Robert Hale Ltd** and will be on sale at bookshops, priced £4.95, with all royalties still going to the hospital. Telephone the publisher on 01 251 2661.

Telecoms and Communications

NOW MIPS RISCS INVADE NORTHERN TELECOM EXCHANGES

As well as causing a revolution in the Unix world and consternation to proprietary minimakers, RISC technology is beginning to cross over into telecommunications, and Northern Telecom Ltd has switched to the MIPS Computer Systems Inc RISC processor for its latest rural telephone exchange, the DMS-10 400E; the DMS-10 family of digital switches was introduced in 1977, and the new RISC processor has successfully completed field trials, the company says. Use of the new CPU is designed to enable telephone service operators to offer a wider range of add-on services to their customers. Upgrading to a 400E involves removing 11 line cards and replacing them with three new line cards - and it is necessary to upgrade software to the 404 generic stream. The new processor increases processing speed, expands memory sixfold, and increases the maximum number of lines on the small exchange from 10,800 to 12,000. Previous Northern Telecom exchanges have been based in the Motorola 68000 family. The company says it has already received orders for 100 of the new processors.

...AS GEC PLESSEY PICKS 88000 FOR NEXT GENERATION SYSTEM X

Thumbing its nose twice over at Siemens AG, the company that is in the process of becoming its 40% shareholder, GEC Plessey Telecommunications Ltd has announced plans for the next generation System X public telephone exchange, creating a direct competitor for Siemens' EWSD switch, and has spurned the MIPS Computer Systems Inc RISC chip - which Siemens is to fabricate for Europe - in favour of Motorola Inc's 88000. Giving Motorola one of its biggest design wins yet for the 88000, GEC Plessey has announced that it is rewriting the software that runs on the GEC Mark II processor in the object-oriented C++ derivative of C for the 88000. The current version of the Mark II is a 32-bit machine built of Advanced Micro Devices Am2901 bit-slice microprocessors. The new generation System X - System X New Enhanced Architecture - is also planned to embrace the Stromberg-Carlson DCO built in the US and marketed as a rural exchange. The new exchanges will be modular, using vendor-independent standards where possible, and modules will be linked by a 100Mbps Fibre Distributed Data Interface fibre-optic local area network backplane. As well as supporting ISDN, it is being designed to become the core of the emerging Intelligent Network concept, which uses databases distributed throughout the network to implement and control switching and services. It is also being designed to handle new switching modes such as Asynchronous Transfer Mode as well as the present time and space switching.

...AND OPTS FOR CHORUS SYSTEMES' CHORUS DISTRIBUTED UNIX

If GEC Plessey's decision to use the 88000 RISC is a fillip for Motorola Inc, the choice of operating environment is the biggest payday yet for a start-up French company, Chorus Systemes SA. The C++ code on the System X New Enhanced Architecture is to run under the Unix-derived Chorus portable, distributed real-time operating system, so that the new System X will conform to the System V Interface Definition. Chorus Systemes was founded in 1986 by Hubert Zimmermann, regarded in France as the father of the Open Systems Interconnection seven-layer model. With backing from France Telecom and Inria, the French state research laboratory, Chorus has spent the first two years of its life refining the operating system, a by-product of the Cyclades project, by adding real-time and distributed processing capabilities. By last summer, Chorus still had only 30 employees, but was talking in terms of taking 10% of a much-expanded Unix market by 1993, with large telecommunications companies and operators its prime target.

ERICSSON, TANDEM AND NOW CROSSPOINT JOIN TELECOMS SOFTWARE RUSH TO UNIX

Unix is rapidly becoming the sine qua non of telecommunications administration software, latest developments including L M Ericsson Telefon AB's new telecoms management software, for which Sun Microsystems workstations are recommended, although any suitable Unix machine can be used, and Tandem Telecommunications' new software family for phone companies, which runs on the company's Integrity S-2 Unix system as well as the proprietary NonStops. Now Crosspoint Systems Inc, Mountain View, California manufacturer of Automated Test Access Systems for Network Management has joined forces with the Richardson, Texas-based Chrysler Corp subsidiary Electrospace Systems Inc to bring a new Unix system for network operators to market. The Nomad software is designed to run on DEC, Sun Microsystems and similar workstations in a multivendor environment using Unix or a Unixlike.

BT GOES TO SUN AND ICL FOR SPARC-BASED SYSTEMS

British Telecommunications Plc appears to be standardising its computer operations around Sun Microsystems' Sparc Risc processor, and has given Sun a worldwide agreement for Sparc-based workstations and servers both for internal use and resale. The deal is expected to be worth £7m in year one, and follows a major order for ICL's new Sparc-based DRS 6000 Series machines last week (reported briefly in some editions of UX No 268). Telecom is paying £2m for 12 DRS 6000 Level 50s for use in its 10 Network Administration Centres dotted around the UK, where they will be used to support the new itemised billing programme. They will enhance the District Data Collectors, which store and pass data from digital exchanges to the billing and other computers. BT currently has its own series of 68030-based M6000 supermicros running Unix that it both uses internally and sells on to its customers (UX No 214).

SIEMENS SEES SCOPE FOR FUTURE CO-OPERATIVE PROCESSING

Siemens Data Systems Group has announced the Siemens Cooperative Processing Environment - or SCOPE - which it deems to be analogous with IBM's Systems Application Architecture approach. The aim is to enable users to link together systems that combine the company's personal computers, Sinix MX Unix range, IN line of Pick systems from its Intertechnique Informatique affiliate, and the 7.500 series of 370-like - but not compatible - mainframes. As well as TCP/IP, IBM 3270, DEC VT100-VT220, X25, X400, Ethernet, Token Ring and FDDI protocols, Siemens is promising full communications with IBM MVS and CICS, with co-existence of its systems in SNA networks, and comparable communication with ICL systems. The company is offering Sun Microsystems' Network File System on its BS2000 mainframes as well as Unix systems, PC-DFS on MS-DOS micros, and R.COM spool remote printing for IBM mainframes - all the sort of things that most of the majors are talking of. But with nothing of actual substance either announced or previewed in terms of new applications or software to back this up, SCOPE appears to be no more than a public commitment by Siemens to incorporate and support communications, connectivity, distributed computing and transaction processing standards as and when they emerge. SCOPE, as Siemens' UK marketing manager David Cliffe admitted, is an exercise in consultation and marketing, aimed at bringing users attention to the various options that are, or will be available in the future to interconnect hardware and software in all sorts of ways. It looks more like the first step on the road to becoming a systems integrator. On matters of more substance, however, Siemens was a lot more reticent - unlike its wavering Open Software Foundation bedfellows DEC and Hewlett-Packard, which recently firmed up their respective commitments to the OSF/1 operating system, Siemens remains shy, the company says it has not yet made up its mind which Unix road to follow, and was conspicuous by its absence at the recent OSF/1 "snapshot" meeting at UniForum. The UK Data Systems Group is aiming to be a £500m a year outfit by 1995, and says it will look for joint ventures and acquisitions to help achieve it.

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Following the addition to its range of Motorola-based Unix systems, (UX No 267), Texas Instruments is to introduce a new series of workstations based on Intel CISC architecture. Known as the Workstation Series, the first model - the System 386/33 - uses a 33MHz version of the 80386, is rated at eight MIPS and runs Unix, Xenix or MS-DOS. Memory goes from 2Mb to 36Mb, disk space runs to 640Mb, no prices were given.

Following Unigram's probe into the mysteries of the ANSI C standard back in December, (UX No 262), we can now reveal that after six years of development it will be available by June, and will be known as X3.159-1989 - this now paves the way for a European C compiler validation service.

Evans & Sutherland Computer Corp received \$21.8m in orders from Rediffusion Simulation Ltd, the Crawley, Sussex company now owned by General Motors Corp's Hughes Aircraft Co in the fourth quarter.

MIPS Computer Systems Inc has a new Federal Marketing programme to win a slice of the \$15,000m a year federal systems and software market, supporting specialist vendors.

Lotus Development Corp was due in court last week to make its case that Paperback Software International of Berkeley, California, and Mosaic Software of Cambridge, Massachusetts copied 1-2-3 too closely.

Apple Computer Inc has filed a motion asking the California court to dismiss Xerox Corp's suit over the Macintosh graphical user interface on grounds that Xerox failed to lay claim to the technology in a timely fashion: the motion is to be heard by the judge next month.

And Apple Computer Inc's \$175m pact to supply Macs to the US Air Force as subcontractor to Honeywell Inc (UX No 246) is in doubt following a decision by the General Accounting Office that the Macintosh does not meet a key Air Force specification.

Oracle Corp, Belmont, California has expanded its Financials applications with the launch of Oracle Personnel - already used by the company in-house. It is initially offered on Sequent, DEC/VAX, Data General, Hewlett HP3000 and HP9000, Pyramid and Sun.

Milpitas, California based Logic Modeling Systems Inc has added both DEC's DECstation range and computers from Mips Computer Systems Inc to its list of supported platforms for its LM1000 networked hardware modeling system for the design of VLSI devices: other platforms supported include Hewlett-Packard/Apollo and Sun workstations.

The weekly information newsletter for the UNIX™ community worldwide Convex Computer Corp saw fourth quarter net up 68.2% to \$4.0m on sales up 52% to \$46.7m; net for the year to December 31 was up 100% to \$11.4m on turnover up 50% to \$158.6m. Net income per share was at \$0.19 in the quarter, \$0.60 in the year.

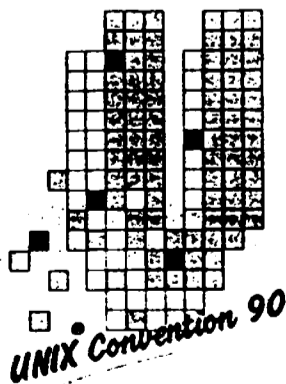
X/Open has agreed to co-operate with the X.400 Application Program Interface Association on the joint development of interfaces for X.400 messaging and X.500 electronic directory standards for eventual submission to the IEEE: the APIA produced its first X.400 Gateway API specification for X.400 last June.

Harris Corp became the first member of X/Open's user council to host an X/Open technical managers meeting down in Fort Lauderdale, Florida last month, setting the technical agenda for X/Open in 1990, determining the activities of the various working groups.

Most magazines will cover what's happened in the past. Some may even tell you why. But how many will explain what will happen next?

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Mips Computer Systems Inc has broken through the \$100 million barrier for its fiscal year ending December 31 1989: the company achieved revenues of \$101,862,000 compared with \$39,383,000 in 1988, and income of \$6,996,000 compared with a loss last time of \$2,982,000.

Nixdorf Computer in the UK is to supply a 1,000 user system for the Royal Air Force Supply Control Centre at Harrogate, as its part in a consortium led by SD-Scicon, Secure Information Systems Ltd and Pilkington Communications: Nixdorf will supply 28 secure Targon /31 systems connected via fibre optic network for local processing, and two Targon /35s as communications gateways to RAF mainframes.

Other major orders in the UK last week included a £2.2m order for 150 NCR Towers and 150 PCs to Bristol and West Building Society, and a £1m order, also for NCR Towers from the Metropolitan Borough of Rochdale: Intergraph Corp also celebrated a £1m for a computer-aided engineering system from British Rail.

Ingres Limited in the UK has won an order from Air Europe for an airline application on the fast-growing airline's existing Hewlett-Packard Unix machines: Air Europe will develop a fleet planning system to be networked across HP and Wyse terminals throughout the company.

UniPress Software, Edison, New Jersey, is to begin marketing VisionWare's PC-Connect, SQL-Connect and XVision DOS/Unix PC integration applications in the US.

Unify Corp's Accell/SQL application development system is now available running under the Open Look graphical user interface - Accell/SQL can front-end the Oracle, Sybase, Informix and Unify 2000 databases.

The 1990 European Unix systems User Group technical conference and exhibition will be held from 22nd-26th October in Nice, France.

And the UK Unix Users Group has a workshop on Unix systems administration at the Institute of Education in London this Wednesday - 14th Feb - cost is £60 for members, £80 for non-members, or £100 on the door, contact Mick Farmer on 071 631 6351.

CONTACTS

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IBM SURPRISES INDUSTRY

WITH LOW-COST ENTRY POINT FOR RS/6000 SERIES

IBM has finally steeled itself to unveil its new Unix workstation and servers - the RISC System/6000 family - aimed at cracking the lucrative engineering and scientific workstation market as well as - at least in the UK - commercial Unix solutions. As widely previewed, the family consists of five workstations and five servers using IBM's second generation ROMP Risc processor as the basis of its new computer architecture, dubbed POWER - that's Performance Optimisation With Enhanced Risc. But the surprise was the inclusion of a low-end system, without monitor but including 20MHz CPU, 8Mb memory, and 120Mb disk for \$7,475 - giving customers a good entry-level price, and giving IBM systems comparable in price with rivals Sun and DEC, but with significantly more power. The machines run AIX Version 3, which IBM claims is an easy to use and robust Unix System V.3 implementation, incorporating features such as C2 level security and support for real-time operation. The performance range is from 27 VAX MIPS and 7.4 MFLOPS to 41 MIPS and 13 MFLOPS - all are uniprocessors. Workstation models are the entry-level POWERstation 320 and 520 (both using the same engine), followed by the 34.5 MIPS, 10.9 MFLOPS Model 530 and the 41 MIPS, 13 MFLOPS Model 540. The Model 730 workstation is aimed at high performance graphics, incorporating technology licensed from Silicon Graphics Inc, and uses the Model 530 engine. The POWER-server range has the same numbering as the four basic workstations, with an additional rack-mounted system using the 530 engine as the Model 930. The enhanced Micro Channel bus has an I/O throughput of up to 40Mb/sec, and IBM has also included new high-speed SCSI adaptors and disk drives. UK prices start at £6,300 for the low-end workstation, rising to £78,500 for the Model 540 in single user configurations, or from £22,000 for 16 user POWERserver Model 320 up to £151,200 for 128 user Model 930 with 96Mb memory. IBM also introduced an Xstation 120 X terminal, costing from £1,700. The 120, 320, 520 and 530 models ship in June, the 540 and 930 in September, and the 730 graphics workstation in the fourth quarter.

FUTUREBUS+ GAINS MOMENTUM AS 150 COMPANIES GIVE BACKING

The VMEbus International Trade Association, a consortium of over 150 firms - which includes most of the Unix based workstation and minicomputer community - has given its backing to the newly drafted Futurebus+ specification, likely to make it the standard bus architecture for future generations of systems. Futurebus+ should eventually lead to the creation of exceptionally powerful computers - up to 100 times faster than today's VME bus based machines - for industry and business, by replacing custom designs used in most computers so that they will cost far less, yet be able to do much more work. VITA has already developed a bridge specification to Futurebus+ for the VME bus, and a group of manufacturers including Intel are understood to have a similar bridge for the Multibus-2. As there are no fees or licenses attached, the bridges will mean that 680X0 and 80X86 developers could implement the Futurebus+ specification in board and system designs, overcoming the perennial problem of proprietary bus compatibility that has dogged the industry for years. All that is now left wanting is the bus silicon itself - cache, protocol, interface, message passer and command interpreter chips. Companies currently doing the work are thought to include National Semiconductor, Signetics, Ferranti and Plessey, as well as Hughes Aircraft which is understood to have a prototype bridge board already in place. With the enormous possibilities that the Futurebus+ brings, the RISC chip manufacturers are now queuing up to bring their designs into line. Norsk Data's Dolphin subsidiary says Futurebus+ will be an integral part of its 1,000 MIPS, ECL Motorola 88000 processor - thought to be close to the beta testing stage in Europe - Intergraph has been working hard to get the Clipper into Futurebus+ shape and others are working on the Sparc and Mips chips. In addition DEC's research is thought to be particularly advanced, indeed Futurebus+ could appear in the next VAX releases. Unix will be the first operating system to run with Futurebus+-based systems, likely to be followed by Apple's MacOS.

MATSUSHITA TO SHIP

64-BIT SPARC 3RD QUARTER

Matsushita Electric Industrial Co announced at the San Francisco International Solid State Computer Conference that its 64-bit implementation of Sun Microsystems' Sparc Risc processor was now nearing completion: it expects to start shipping samples of the chip to its Longmont, Colorado affiliate Solbourne Computer Inc in the third quarter of the year. Solbourne should be ready with workstations using the new chip by the end of the year. Matsushita is claiming 40 MIPS and 20 MFLOPS from the part.

INTEL BACKS MULTIFLOW WITH \$4m,

TAKES TRACE COMPILER

Intel Corp is racing around snapping up technical software and compilers, and its latest port of call is the very-long instruction word specialist Multiflow Computer Inc, Branford, Connecticut. Intel has signed for access to Multiflow's Trace Scheduling compilers, which it would like to use with future Intel microprocessors. It is sealing the deal with a \$4m equity investment and engineering funding, which will be very welcome to Multiflow, which has been strapped for cash for the past couple of years (UX No 232). "We are exploring a number of approaches to keep the performance of the iAPX-86 and 80860 microprocessors on the leading edge" Intel said. It wants to use Multiflow's Trace Scheduling compiler to research the benefits of instruction-level parallelism, a component of the PAX Parallel Architecture Extended standard for the 80860 chip it has been developing with Alliant (UX No 254). Multiflow uses proprietary chip technology for its Trace series of computers, and is currently working on a 64-bit ECL Trace/400, due to go out to beta test during the Summer (UX No 265).

APPLE GIANT A/UX CONTRACT IN DOUBT

Apple Computer Inc's \$164m A/UX contract for 10,000 Unix-based Macs from the US Air Force via Honeywell Federal Systems, won last year (UX No 246) is now seriously in doubt, following the General Accounting Office sustaining objections from rivals Martin Marietta Corp that A/UX does not meet the Air Force multi-tasking requirements.

RS/6000 EXCEEDS EXPECTATIONS - BUT CAN THE IBM EMPIRE SURVIVE THE PERESTROIKA ?

By Tim Palmer

Chairman Akers' rebellious republic down in the south-west has clearly wrung more concessions out of the Armonk Politburo than the hardliners will be happy with in the launch of the RISC System/6000, and as a result, the family has a **much** better chance of commercial success than seemed likely from any of the pre-announcement publicity and speculation. In every aspect except one, the line is exactly as all the pre-announcement leaks had led us to believe, but the one departure from the prepared script is crucial, and all the signs are that it was a very last-minute inclusion. That departure is of course the inclusion of an entry model at just \$7,500.

Unix Fundamentalists

The entry price of a line like the RS/6000 is one of the most critical features, and with a bottom model that low, the line is vastly more competitive with the offerings from Sun Microsystems, DEC and Hewlett-Packard Co. Its inclusion will have done nothing to endear the already alienated Minnesota republic - keeper of the AS/400 conscience - to its Texas siblings, and will not have gone down well in the enclave of the Mother Republic in New York State that looks after the 9370: although staged a week ahead as a preemptive strike against the RS/6000, the introduction of the 9371s already looks like a hollow and empty threat. And within the Texas Republic, the low-end model threatens ethnic strife between the Unix Fundamentalists and the PS/2ians, whose PS/2 Model 70 486 icon has been thoroughly vandalised by the pricing on the RS/6000 Powerstation 320. The latter, which can be configured as a multi-user system, also leaves the AS/Entry System 36 configurations looking mortally wounded. Strikingly, the *New York Times* last Monday, and the *Wall Street Journal* on the day of the launch on Thursday came out with big preview features on the new machines, and both suggested an entry price of \$15,000 to \$18,000, and highlighted this as a crucial competitive weakness against the super-competitive non-believing world outside the Armonk Empire. "The most important thing is the entry-level price-point", International Data Corp's Vicki Brown told the *Wall Street Journal*, believing it to be \$15,000. This week's *Computer Systems News* did not believe that there would be a low-end model before 1991, and the previous week, the *New York Times* suggested that the expected lack of a low-end model would discourage software developers from writing for the new machines, in the belief that unit sales would be comparatively low, and that the size of the market for their software would thus be limited.

Knock-out blow

There is no question of the RS/6000s delivering a knock-out blow to the competition, but Sun, DEC et al are going to have to fight rather harder than they expected. Of course they all have their plans in place to meet the challenge of the RS/6000s. Sun is preparing a \$5,000 Sparcstation entry for the summer, and overall plans to outdo IBM in price-performance. MIPS Computer Systems Inc is preparing to double its price-performance, and looks for the price-per-MIPS of RISC-based machines to fall 50% every 12 to 18 months.

DEC will come out with DECstations with a version of the MIPS processor that powers its 18 MIPS model with a faster clock speed, and its forthcoming symmetrical multi-processing version of Ultrix will allow it to build a server with up to four of the MIPS processors. Hewlett-Packard is ready with a cheaper, faster version of the HP9000 Model 800, and also has its 50MHz 68030 and its 68040 machines up its sleeve - indeed the arrival of IBM as a serious contender on the market looks more likely to expand the market faster than would otherwise have happened than to knock big holes in the profit-and-loss accounts of its competitors. So, IBM has passed the first test with flying colours, scoring far more marks than any of the advance publicity had suggested - but it is only the first test. Can the Texas Republic throw off the yoke of IBM's centrally-planned economy sufficiently to meet the next big test - that of renewing the product line with major improvements every six months, completely obsolete it every 18 months? That is what its competitors are doing and that is what IBM has so far failed to do with the PS/2 - that line is doing much too well for IBM to want to shave margins and give anything away there: instead it holds a generous price umbrella over Compaq Computer Corp. But the Unix Fundamentalists will have to gain internal autonomy and disband the Armonkist party in their midst to keep their machines competitive - something they emphatically failed to do with the benighted RT.

Rebellious republic

The fact that they hold the chairman in such disrespect that they take his very face in vain and use it in a ray tracing demonstration that gradually builds up his physiognomy and then plays around with it underlines the extent to which Armonk has lost control of its rebellious republic. But Akers knows that the hardliners and the dread army of the old Data Processing Division sales force have not been purged and are just waiting for an opportunity to depose him and restore the old order. By giving the Austin faction its head, he runs the grave risk that the new line will, like bad money, drive out the good, replacing the high-quality earnings IBM makes from its proprietary systems with low-quality earnings from an vast base of machines sold on desperately thin margins. They're already wondering on IBM's Central Committee how long it will be before Chairman Akers has to send in the troops and quell the revolt on its southern border.

HP DETAILS ITS 90 MHz CMOS PA CHIP

Along with a paper on Matsushita's 64-bit Sparc implementation, attendees at the San Francisco ISSCC Conference held this week have been hearing details of a new high speed version of Hewlett-Packard's CMOS Precision Architecture RISC chip - 48MHz versions of which, rated at between 50 and 60 MIPS and 12-16 MFLOPS, have already featured in the announcement of top-end HP 3000 Series machines detailed at the beginning of the year (though not available until year-end). The new part will run at up to 90MHz under typical conditions, implements HP's existing set of 140 instructions, and will be used, like its NMOS predecessor, in workstations and technical and commercial multi-user systems, where sustained performance is required. HP claims to achieve performance comparable with many ECL implementations by including features such as a 3ns 32-bit adder, low skew on-chip clock buffers, and cycling off-chip caches using industry standard SRAMS at the operating frequency. The chip includes an integer fetch and execute unit, instruction and data translation lookahead buffers (each with two way 64 entries), a control unit for the off-chip instruction and data writeback caches, full multiprocessing support hardware, a performance analysis and tuning interface, and tightly coupled co-processor interface. Costs were reduced by using standard cell control blocks, library based datapath and programmed logic arrays, and autorouting, with full custom design limited to the arithmetic logic unit, clocks and input/output circuits. The CPU uses a 64-bit virtual address to drive data to the two-way instruction and data caches, which are configurable up to 2Mb each: the instruction cache is 32 bits wide (plus parity) each way, while the data cache is 64 bits wide each way (plus error-correcting code). Only 32-bits of the data cache are sent to the CPU, while all 64-bits are sent to the floating point unit, allowing single cycle execution of double word floating point load/store instructions. The chip has a five stage pipeline: instruction fetch, operand read, execute, memory access, and register write. HP claims that the chip has now been successfully fabricated, booted multiple operating systems on first silicon, and runs existing software from previous implementations of the architecture.

COMMODORE STARTS SYSTEMS MARKETING GROUP FOR UNIX

Putting IBM's near year-long delays for the RS/6000 Series into perspective, Commodore Business Machines is still to officially launch its first Unix offering, despite first planning a Zilog-based model in 1984 (UX No 5), a 68020 machine in 1988 (UX No 174), and a 68030 machine in 1989 (UX No 257) - and in January the West Chester, Pennsylvania-based company was noted amongst the supporters of the 68040 (UX No 266). Now Commodore looks as if it might be taking things a bit more seriously, and has established a Systems Marketing Group under the control of Paul Calkin, a former Unisys Corp executive. The primary focus of the systems group, says Commodore, will be the release and marketing of Commodore Unix-based products. Calkin has ten years worth of Unix sales and marketing experience as a team leader for Sperry/Unisys launches from 1983 to 1987. Commodore has become increasingly interested in the business, government and education markets since the appointment in April last year of president and chief operating officer Harold Copperman: its current computer lines include the multi-tasking AmigaDOS-based Amiga 2000 and 2500 systems, and MS-DOS compatible Colt, Select and Professional Series III lines.

DEC ADDS OS/2 PCs TO ITS NETWORK APPLICATION SUPPORT - UNIX AND MAC ON THE WAY

DEC is still convinced that OS/2 will be an important part of the desktop marketplace in the 1990s, and last week it added full support for OS/2 clients under the Personal Computing Systems Architecture component of its Network Applications Support environment. Based on DECnet and Microsoft Corp's LAN Manager, PCSA client for OS/2 allows OS/2 systems to act as clients to VAX systems, or others supporting LAN Manager application programming interfaces. And in the future, DEC intends to offer its own OS/2 server system, allowing it to compete head on with local area network vendors such as Novell and 3Com at the low end of the networking market, but with capabilities to upgrade to the VAX. Also introduced was an Ethernet Controller for Micro Channel Architecture PCs, and an upgraded version of the PC LAN/Server 3100 system, incorporating version 3.0 of VMS Services for PC integration, said to offer at least 70% more performance than previous models. Although MS-DOS and OS/2 are the only environments supported under Network Applications Support so far, DEC is working on the integration of Macintosh and Unix as well: the Mac version is still under development under a joint agreement with Apple Computer set up two years ago (UX No 163), and DEC says it is currently evaluating Hewlett-Packard and Microsoft's Lan Manager under Unix - both should be the subject of announcements later this year. Available in June, the OS/2 client software will cost around £150, while the MCA Ethernet adaptor will cost £400. The PC LAN/Server 3100 remains at the same price, from £9,000.

RAMTEC CELEBRATES RETURN TO PROFIT WITH NEW IMAGE PROCESSING SYSTEM

San Jose-based Ramtec Corporation - which emerged from Chapter 11 at the end of last year after a year of financial troubles - has released a new product which it hopes will "significantly strengthen its future sales base". The Ramtec Millennium imaging subsystem has been designed to accelerate the processing and visual display of technical and scientific data on Unix workstations, turning them into image processing systems for jobs such as remote sensing, geophysical, medical and other image-oriented applications. Connected to the workstation via VME bus or SCSI link, the Millennium offloads image processing and visualisation from the host machine with support for floating point performance and large memory capacity demanded by such applications. Floating point calculations are rated at 80 MFLOPS and the system has 16Mb of local memory and 30-megabit-per-second local buses. Millennium uses the 10 MIPS TMS34020 graphics processor and the 40 MFLOPS TMS34082 floating point processor launched by Texas Instruments back in November 1988, and also has a 20-bit memory video board. Software includes the Imaging Kernel System software developed by the University of Lowell, Massachusetts, compliant with the ANSI Programmer's Imaging Kernel (PIK) graphics standard, and the X-Window System at accelerated performance levels. Beta testing in March, and set to be in production by April, Millennium costs \$26,000 in a stand-alone, seven slot chassis with SCSI interface, or \$21,000 for a three board set that plugs into a VME backplane - prices are for single quantities.

IBM BEGINS ITS MAJOR UNIX PUSH FOR THE SECOND TIME AROUND

IBM appeared to downplay the potential of the new RS/6000 machines in the business market at its US launches, but in the UK, business opportunities were given equal footing with scientific and technical applications - IBM no doubt remembered the reception for the ill-favoured RT (which, incidentally will cease to be available from IBM from May 15th): it was initially touted in the UK as a technical workstation to the sound of widespread indifference. Only when the clamour of business software developers and users became too loud to ignore did IBM change its tune and admit that, yes, it could be used as a business machine. After that, the RT, or 6150, enjoyed more success in the UK than anywhere else. This time round, IBM did not dare to underplay the machine to the commercial marketplace.

Few surprises in AIX 3.0

The introduction of the version 3.0 of the AIX operating system for the POWERsystems proved to be the least surprising feature of the whole event - as it was one of the few parts of the announcement that was set in concrete beforehand. However we now know that with two million lines of code more than AT&T's System V Unix, AIX 3.0 is big. New features include C2 level security branding, automatic disk mirroring, a memory mapped file system for remote access, some enhanced multi-processing features, an on-line manual called InfoExplorer, X.25, TCP/IP, NFS and NCS, as well as a full range of IBM communications protocols. Although it is Posix compliant, AIX 3.0 - hailed by IBM as an open system - doesn't yet conform to other open or industry standards such as X/Open's XPG portability guide 3, AT&T Unix V.2 or BSD 4.3 - although it stressed that future versions will.

A choice of interface

There are no less than three interfaces offered on the operating system licensed separately. First is Steve Jobs' NeXTStep - dubbed the AIX Graphic User Environment/6000. Second and third are IXI Ltd's X.desktop manager and Silicon Graphics GL interface which are bundled together in the AIXwindows Environment/6000, which also includes OSF/Motif, X-Windows, Stepstone Corp's Objective-C compiler, Display Postscript and a graphics library which is compatible with the GL interface.

1,500 new RS/6000 applications by year-end

IBM expects there to be 380 applications ported to the new Power platform by the second quarter, 800 by the third quarter and a grand total of 1500 by the end of the year - these don't include applications already running on current editions of AIX, which IBM says it assumes will come over because porting is easy. CASE packages include Systematica's VSF and IDE's Software thru Pictures. Saber C, Glockenspiel's C++ and Ada from Alsys are amongst the languages; electronic design applications include Workview from ViewLogic and Cimlinc, and Frame Technology's publishing software will figure on it, as will Uniplex, Applix, Q-Office, Informix and Tetra's Tetraplan. Information Builders Inc previewed the Focus 4GL on the new systems at the West Coast launch, held at the California Masonic Memorial Temple Auditorium.

OSI communications in the pipeline

As far as SAA interoperability is concerned IBM says OSI communications protocols will be offered as they emerge - though no timescale was offered - and it will allow AIX and SAA users to share distributed relational database information. In addition it is to put NFS into the OS/2 and OS/400 environments, and will introduce X-Windows as an interoperability option on SAA systems. AIX 3.0 will be able to exchange mail with the OfficeVision via SAA, but there are no plans to bring OfficeVision over to AIX wholesale.

<< Analyst Viewpoint >>

Unigram.X asked three leading US analysts to give their own impressions of IBM's RS/6000 launch. Their responses follow.

B is for Business, by Harley Hahn

Harley Hahn is president of Harley Hahn Consultants, is currently engaged in revising the Peter Norton books Inside the IBM PC and PS/2 and the Peter Norton DOS Guide, and is the author of the forthcoming Peter Norton Unix Book, to be published later this year by Brady Books, a subsidiary of Simon & Schuster. He is also the author of a report on the RS/6000 Series - see back page.

With the recent announcement of the new RS/6000 family and the Xstation X-Terminal, IBM has raised the ante in the high stakes Unix card game. At every price point, IBM has offered machines designed to match their competition but with far more performance. IBM is deliberate about its positioning of the new systems. They are primarily targeting the technical market of software developers, engineers and scientists. The other big chunk of the market - multi-user business systems - is a secondary objective.

Why is IBM approaching the marketplace in this manner? There are three important reasons. First, IBM expects that the business market will develop on its own, just as it did for the RT. The technical market, on the other hand, will take more of a push, especially after IBM's problems with the RT's image as a less than adequate workstation. Second, IBM cannot do everything at once. They have chosen, at this time, to start with the demanding technical users. And third, there is a certain amount of snobbishness within the academic and scientific community. Many of those users do not want to buy a "business" machine. However, don't be misled - these systems are good workstations and servers, but they are also cost-effective multi-user commercial machines. I predict a lot of opportunity for value-added resellers and for commercial software developers. IBM will be opening over 25 centers around the world where developers can get assistance in porting their programs to the new computers. Remember, the "B" in IBM still stands for "business".

In recent months, there has been speculation about how IBM is positioning the RS/6000 with respect to other IBM systems. There have been rumours that the announcement date and the prices have been affected by internal bickering between advocates of one system or another. But from what I have seen, there have been no limitations placed on the design or marketing of the machine to protect existing IBM product lines. You may find it hard to believe, but IBM honestly feels that the RS/6000 does not directly compete with AS/400s, PS/2s or 370s, but with other Unix vendors. What has been discussed internally is the importance of the new system to IBM. In recent years, earnings have been flat, and there has been a vast amount of pressure from the stock market for an increase both in revenue and profit. The RS/6000 represents one of IBM's key strategies for the 1990s: open systems. It is aiming for the RS/6000 to boost its profitability by 1991 or 1992. By 1993, IBM plans to be the worldwide leader in the Unix market.

Whether this happens remains to be seen. In my opinion, the long-term success of the new computers will depend mostly on the growth of the world economy and the effects of the 1992 economic unification. Put simply, the RS/6000s are good computers: if the economy does well, IBM will move a lot of product. So how can we characterise IBM's sizable plunge into the world Unix market from a virtual standing start? When you're in a high stakes card game and the other fellow holds all the aces, there's only one thing to do: kick over the table.

<< Analyst Viewpoint >>

The Positioning Problem, by Judith S. Hurwitz

Judith S. Hurwitz is vice President of Patricia Seybold's Office Computing Group in Boston, Massachusetts. She is Editor-in-Chief of Unix in the Office, a monthly research report on commercial Unix applications and developments.

IBM finally announced its long-awaited Unix workstation and server family after much delay and much speculation. Was it worth the wait? Absolutely. IBM has done an incredible job of designing an architecture that will take the company into the 1990s. First, unlike many other RISC CPUs, it consists of several different chips that have been integrated into a system. IBM has particularly excelled in providing industry leading floating point performance. IBM has also eclipsed RISC performance, moving beyond the single instruction per cycle to as many as four instructions per cycle. This is, therefore, superscaler performance.

So why the bottom line? IBM is in the RISC race this time. But the RISC market is very much like the semiconductor market of the late 1970s and early 1980s - it is a cut throat business where a vendor is on top only for a matter of moments. IBM seems ready and willing to play in this game. The company has learned some hard lessons with its first entry into the RISC marketplace back in 1986, when it failed to capture anyone's attention. The fact that IBM has a credible platform is the first step towards it becoming a major player in Unix. I believe that they have the corporate backing and the pieces in place to make that happen.

IBM's first goal is to gain credibility in the developer community. Therefore, it will go to great lengths to provide hardware discounts (as low as \$6,500) to developers. At first, it will be content to have thousands of ports of existing Unix-based applications. IBM's real goal is to be the preferred platform for these developers - the platform on which they do their initial development.

IBM sees the numerical intensive market as a natural, given the floating point performance combined with the high performance graphics it offers. It is also the easier market for IBM to position itself in. Since IBM has a very minor role in numeric intensive industries (visualisation, process control and the like), there is no problem positioning the RS/6000 against its SAA platforms. A more difficult task will be positioning the RS/6000 alongside the AS/4000 and the high-end of the PS/2. In the short run there are more applications available on the AS/400 for the small and medium business market, but in time, those software developers will find in the RS/6000 an attractive platform in terms of price/performance. The same scenario will follow for the high-end PS/2s running AIX.

IBM's greatest opportunity and challenge with the RS/6000 will be in the commercial Unix sector. It is well positioned to gain the attention of MIS organisations that already have a base of IBM SAA equipment, wishing to implement some Unix system. They trust IBM. The added features of AIX 3 are bound to attract commercial customers, including an easy-to-install operating system and device drivers, and a file system that does not have to be rebuilt if something goes wrong - features that IBM and other proprietary vendors have provided for 20 years, that are finally coming to Unix.

The next year will be a critical period for IBM as it brings these systems to market. It will have to prove the stability of its operating system and tools, and its ability to lure thousands of developers to provide applications to attract a brand new group of customers.

IBM Loves Unix, by Amy Wohl

Amy D Wohl is president of Wohl Associates, a consulting firm in Bala Cynwyd, Pennsylvania. She comments on the computer industry and edits The Wohl Report on End-User Computing when not offering advice to clients on marketing and technology strategy.

IBM saved its Valentine's greetings to the computer industry for February 15th: its RS/6000 announcement. Unlike the less than popular RT, the RS/6000 is a price/performance stealer. In a market where nothing succeeds like speed, it is sure to garner lots of attention.

IBM has aimed for the high end Unix workstation and server market with dazzling performance and seductive options - at competitive but high prices. These are the weak spots. If you offer price/performance by holding price and raising performance, you can be countered in the short run by those who hold performance and drop price - that will be the market shareholders' obvious short-term strategy. Longer-term, of course, they'll try to counter IBM's 4 instructions per cycle architecture with faster schemes of their own devising, but in the short term it will be what they have in the market and on the shelf. IBM seems to think the competition won't react - but they will!

Marketing is likely to be a problem area too. When Sun sells, it sells Unix. Noone has to decide what to sell the customer. When an IBM sales rep calls on an account it requires pastoral counselling. What shall it be: a nice AS/400? A zippy 9370? A low-priced PS/2 network? Or something chic in Unix? IBM seems warmer now to Unix than ever before, but its big sales force is used to lots of direction and support. It will need to be told when to sell Unix and when to offer something else, and IBM seems to be struggling with the decision.

Another big (giant?) issue is software. Sun, for instance, has over 1,500 SPARC applications shipping. IBM offered 150 RS/6000 software commitments on February 15th. These are expected to ship by the third quarter, and IBM contemplates 1,000 or more packages by year end - but depending on third parties is always risky. Their priorities - and resource capabilities - can change quickly. IBM needs to quickly sign up more software developers, especially major Unix developers and vertical application developers; it needs to provide vast amounts of hardware and technical support to porting developers; and it needs to follow market trends with dedication. IBM proclaims its strong commitment to standards - now it will need to follow up.

Is NeXTStep really an alternative commitment to Motif, or just a "by the way" ? IBM says nice things about NeXTstep when Mr Jobs is in the room, but much less when he's not around. We suspect they intend to let the market decide - and the number of NeXTStep demos at the announcement (one out of about 40-odd systems) could be a hint.

Watch customer reaction to the IBM Unix announcements; this will be the best way to see how these and other mysteries might be resolved, and whether IBM is destined to enjoy a large and prosperous future in the Unix market.

FUTUREBUS+ - LAST OF THE BACKPLANE BUSES

by William Fellows

The Futurebus+ (see front page) began life back in the 1970s as an IEEE project to develop specifications for a high performance non-proprietary bus architecture. By 1978 the IEEE P896 committee was working on the task, and an initial 32-bit specification drafted, now superseded by a fully-scalable design that can handle word-lengths of up to 256 bits. After many years in technological backwaters, support for Futurebus+ really took off last year when the US Navy announced that the bus would be a mandatory requirement for its computer purchases after 1991 (UX No 234). With the lure of millions of dollars worth of business - it is reckoned the total Futurebus+ market will be worth \$50,000m-up by 2000 - this carrot has drawn the major manufacturers towards Futurebus+ and pushed it to centre stage via their participation in the VMEbus International Trade Association - a consortium of 150 computer and semiconductor manufacturers - which is now backing the Futurebus+. Companies reported to be working towards Futurebus+ implementations are DEC, Unisys, Siemens, Norsk Data and IBM. Member companies include DEC, Sun Microsystems, National Semiconductor, Motorola, Unisys, Cetia, CompControl, Dawn VME, DY-4, Eltec, Force, Heurikon, Ironics, Micro Memory, Mupac, Performance Technologies and the European Spirit Consortium (see below).

Distributed implications

First Futurebus+ backplane boards are expected by the end of this year, with full systems emerging onto the market over the next couple of years. Futurebus+ has wide-ranging implications for the expansion of distributed computing and fault-tolerant solutions, global memory architecture and improved cache memory. Technological developments that have made the Futurebus+ possible are a new backplane medium devised by National Semiconductor known as Backplane Transceiver Logic, the Metral two millimetre, high signal line density connector system unveiled by AT&T and Du Pont in October of last year, together with vastly improved handshaking techniques. The specification can use a 256-bit wide word delivered through parallel single bit pathways. Each of these pathways is expected to switch via silicon components at around 25 nano seconds, delivering 40 to 60 million transfers of these 256 bit words each second. That's equivalent to a serial throughput of 12Gb per second. The first implementations are expected to use just 64 bit wide datapaths, making them about a quarter of that speed, but once Gallium Arsenide components are introduced - towards the end of next year - then the full 256-bit systems will yield a full 25.6Gbps transfers, faster than the internal bus speeds on modern mainframes. Whilst all this sounds impressive, it may be up to three years before Futurebus+ becomes competitive with existing VME solutions in terms of price/performance ratios because of the need to produce new gate arrays and the like, but it is much needed as these existing bus structure are being outstripped by the power and speed of even current generation processor technology.

Physical possibilities

However Bob Squirrel of GMT, Leatherhead, Surrey, who has been at the forefront Futurebus+ research in the UK says that whilst he believes that industry implications of Futurebus+ are "mind-boggling", it will be "the last of the backplane buses" by virtue of the fact that it pushes the physical possibilities of backplane technology to the limits. Indeed a future generation bus technology is already under development, known as the SCI - Scalable Coherent Interface - bus, a ring connection actually built into the system rather than a backplane as such - Norsk Data is already working on just such a bus - the good news is that Futurebus+ has been designed to integrate with it.

FIRST 68040-BASED SPIRIT WORKSTATION "OUT EARLY NEXT YEAR"

The first version of the European Spirit workstation, (UX No 239), is due to be released at the beginning of next year, according to technical coordinator Martin De Lange, who is also managing director of Dutch software house Associated Computer Experts BV, Amsterdam. Based on an implementation of the Futurebus+ - though the silicon source for the bus is not disclosed - and initially running a 68040 chipset, the Spirit is rated at 50 MIPS, with ACE's multi-processing implementation of AT&T Unix. Queen Mary College, London, is designing a 3D graphical user interface for the Spirit, which should be ready in the second half of the year. As other Futurebus+-compliant chip designs begin to emerge it should mean that Spirit is freed from the constraints of one particular processor architecture. The consortium developing Spirit - which includes British Aerospace, Kontron Elektronik GmbH, ACE, Caption SA of Rennes, University of Tunigen, University of Sussex and QMC - expects that RISC chips such as the Motorola 88000 and Sun Microsystems' SPARC will become available for use in the workstation. A second, 1,000 MIPS version of the Spirit will be launched by the end of 1992. It will include extensive parallel features and may run Paris-based Chorus Systemes' as yet unreleased distributed, multi-processing multi-threaded Unix, a kind of European version of Carnegie-Mellon's Mach implementation (UX No 269).

VISIX WINS SOLBOURNE AS PRESSURE MOUNTS IN DESKTOP MANAGER WARS

Not to be outdone by its rivals IXI Ltd's scoop on winning the desktop manager contract for IBM's RS/6000 systems, Visix Software has rushed out with an announcement that it has signed a strategic marketing agreement - although it is not a bundling arrangement - with Solbourne Computer Inc, Longmont, Colorado. Visix, of Arlington, Virginia, markets the Looking Glass desktop manager and Directory Shell, generally pitched as a more expensive product than IXI's X.desktop product. The two companies are locked in battle to win the remaining contracts for hardware manufacturers looking to bundle in an X-Windows-based graphical user interface with their systems. But according to Visix vice president of sales George Hoyem, Cambridge, UK-based IXI are not playing fair. "They are giving away the software in an effort to drive us out of the market", said Hoyem, who claimed that IXI had "given away" its source code for between \$50-100,000 to some large companies, with no follow-on royalty streams - which according to Hoyem is "like committing suicide". IXI's Ray Anderson denied that X.desktop software had been sold on that basis - he claimed that the company has been consistently profitable for the last two years, and does not have major development costs to pay off. IXI claims NCR amongst its customers as well as IBM, and has another large contract in the pipeline; it is also continuing to talk to Solbourne. Hoyem said the IBM decision was "a big disappointment, but a public relations problem rather than a deal problem". He claimed that, having spent up to \$50m obtaining NeXTStep from Steve Jobs, IBM simply ran out of budget for the desktop manager component. "IBM has been begging us to port to the RS/6000 - I'm confident we'll make more money out of IBM than IXI", he said. Meanwhile, Visix is confident that it will remain a major player, despite the competition. Hoyem claimed that Data General recently closed a \$20m deal with Texas on the strength of Looking Glass, and that General Electric has chosen the product as its standard user interface, with a deal from Ford currently under negotiation. The company would not comment on rumours that Motorola Computer Systems, tipped to re-organise its computer operations to concentrate heavily on workstations, file servers and X terminals in March (UX No 267), would also be taking Looking Glass.

DEC ADDS FAST GRAPHICS CPU ON VAXSTATION 3100

DEC has enhanced its VAXstation 3100 family with a new graphics co-processor to create four new 3100 SPX models claimed to deliver up to 10 times the vector graphics performance of previous VAXstation 3100 colour and grey-scale stations - and they come with a new 19" colour monitor using Sony Corp's Trinitron technology to give improved presentation and the ability to display more information. The SPX graphics co-processor is optimised for the X-Window System, the basis of DECwindows, and supports 1,024 by 864 and 1,280 by 1,024 pixel colour and grey-scale displays in 15", 16" and 19" sizes. Prices start at £13,850 for the Model 30, and upgrading existing DECstation 3100s with the SPX co-processor is £2,888, with UK deliveries starting April.

PAFEC ADDS IMAGINER THREE-DIMENSIONAL MODELLER FOR VMS, UNIX

Pafec Ltd, Nottingham-based engineering software house, has launched Pafec Imager, a computer system for three dimensional modelling which offers integration of 3D wire frame, facet and solid models whilst incorporating two-dimensional design in one package which can be tailored to individual product needs using the company's Horses kernel computer-aided software engineering tool and utilities. Using the system it is not necessary to transfer to two-dimensional mode to create drawings and two-dimensional views are updated with the three-dimensional model. Modification of the system can be carried out by the client, or Pafec, to meet design specifications required in many applications including architecture, construction and scientific industries. By using three-dimensional designs the product is easier to visualise, the computer-aided techniques enable design to be adapted more quickly to changes in specifications, and faster completion of the designs results in increased productivity. The product runs on many workstations including DEC VAX under VMS or Unix and on Silicon Graphics, Sun and Apollo Unix stations. Horses, an integral part of Imager, was developed to enable new applications to be developed efficiently without complex programming. The system is available via distributors and the basic core system starts at around £10,000. Pafec, an acronym for Program for Finite Element Calculations, was formed in 1976 by researchers at Nottingham University where they were involved in finite element analysis for industry, in the late 1970s the company moved into two-dimensional and then three dimensional applications from design to architecture with an increasing specialisation in the field of engineering analysis.

NOW UNISYS PUTS ITS MAPPER GENERATOR UP UNDER BTOS ON CONVERGENT LINE

Unisys Corp has made Mapper, its fourth generation computer aided software engineering product that first appeared on the Sperry 1100 mainframes, available on the BTOS range of Convergent workstations. The company says that Mapper is specifically designed for inexperienced users and enables them to build reporting and inquiry applications. It can be used to store and access information, and to create or modify reports. It combines entire or sections of reports into a single master, and has a hypothetical analysis facility to predict future trends. Functions may be integrated into run procedures, and data is displayed graphically in various colours and styles. Applications developed under Mapper on U-Series Unix machines are portable to BTOS Mapper, and there is also a personal computer version, PMS. The complete development system, BTOS Mapper, costs £2,500, and the run-time version is £700. Unisys has also added an enhanced version of OSI/FTAM 1.0 software for the BTOS range. This file transfer and access method enables users to transfer and access information on other computers using the Corporation for Open Systems File Transfer and Access Method. Connection can be via Ethernet, and local or wide area networks. It costs £1,130 for a multi-user licence.

NOW CHIPS & TECH HAS

MULTIPROCESSOR ASSEMBLY KITS

Having taken the dominant position in the market for the building block chip sets that make designing MS-DOS and OS/2 personal computers easy, Chips & Technologies Inc, San Jose is moving up-market with a multi-processor architecture designed to support up to six reduced or complex instruction set microprocessors, and to facilitate building machines that combine high computer performance with good input-output transaction throughput. Called the Multi-Processor Architecture EXTension System Platform, or M/PAX, the symmetrical multi-processor architecture supports two to six processors - the first version of the chips is for the 80486, but others are planned. Raw performance can be increased by adding more and faster microprocessors, input-output by adding channels. As well as being processor-, the architecture is bus-independent and combines VLSI hardware, integrated software, and design support. The first generation M/PAX product - the CS9239 - enables up to six 80486 microprocessors to run concurrently for close to 70 MIPS performance. It is currently sampling to beta sites, broad sampling will start in April, with volume set for July. In 100-up quantities, a four processor CS9239 is \$960; dual and uniprocessor versions are \$480 and \$275 respectively. A four processor implementation set has two 92C392 System Control Units, two 92C393 DMA Controllers, four 92C397 Cache Controllers, four 92C930 Cache Directory Comparators, and 16 92C395 Processor Data and DMA Data Switches and ECC Logic devices.

NCR ANSWERS IBM'S SAA WITH OPEN COOPERATIVE ARCHITECTURE

Co-operative integration products and schemas to link heterogeneous computers are all the rage these days, even if, like IBM's Systems Application Architecture, they do often look like a counterpane beautifully laid over an un-made bed. NCR Corp is right up there and will come out with a new suite of software called Cooperation next quarter designed to tie its proprietary machines in with Unix, MS-DOS, OS/2 systems and other major proprietary systems from the likes of DEC and IBM. Ultimately, the planned offerings appear to be designed to move its proprietary users over to Unix, but NCR said it will continue to invest in improvements to its proprietary operating systems customers while designing ways to link those older computer systems to Cooperation. NCR calls its implementation of the client-server model Open Cooperative Computing Architecture, which comprises Human Interface, Application Environment, Cooperative Services, Communication Services and Base Platform Layers.

DATA GENERAL LAUNCHES PORTABLE NETWORK ON AVIIONS

Data General Corp has announced its promised implementation of Novell Inc's Portable NetWare for its Motorola 88000-based AViiON RISC systems, claiming it to be the first implementation offered on a RISC machine. NetWare for AViiON Systems will be supported by Oracle Corp's relational database, and with it, the company announced the Netwise RPC Tool for remote procedure calls from Netwise Inc, Boulder, Colorado as part of the software developers kit for AViiON personal computer networks, which enables developers to build client-server applications. Data General also announced NetWare for its proprietary Eclipse MV minis, which means that they and the AViiON servers will support Apple Macintosh, MS-DOS, MS-Windows 386 and OS/2 clients. The Marlborough minimaker also added Native NetWare on its Dasher 386 personal computer workstations and says it plans to support both OS/2 LAN Manager and LAN Manager/X. NetWare for AViiON is \$6,550 for one to 64 users on an AViiON 400 and is on 90 days delivery. The Software Developers Kit for AViiON networks is \$9,935 for one to four users. The Eclipse version will be out in the second half and has not been priced.

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The RS/6000 POWERserver 540 uses the recently announced 4Mb memory technology from Vermont, and all the RS/6000 models will accommodate the chip in future.

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AIX 3.0 integrates portions of Unix System V.3, Berkley 4.3 and some Mach characteristics.

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Nicholas Donofrio, IBM VP and President of Advanced Workstations Division, said at the launch "We've really just begun. The real measure of what we are capable of will be shown a year or two from now. This is a very competitive market, and we're in this for the long haul; to do better, to listen to our customers. We're very proud of what we've done."

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IBM senior vice president George Conrades said "IBM is viewing the launch as a new business". IBM has shipped some 350 units to business partners and customers, and has passed around hundreds internally to get IBM people acquainted with them. "We were a powerful force in the PC revolution, and I can assure you, we intend to be a powerful force in the Unix workstation market," said Conrades.

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Initially, database offerings for the new machine come from Sybase, Informix, Oracle, Ingres. Access to DB2 inasmuch as they can do it. Of course, with SAA, there is an intent implied for SQL relational database. Is Unix now a part of SAA, or is it sitting beside it as the queen of the Blue Kingdom to SAA's king?

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At the New York press event, only Sun and DEC were compared to the new systems - they drew back a wall to review the PS/6000s and similarly configured Sparc and DECstation machines running the same application - then drew it back again when the RS had finished and the other two were still grinding away, saying "you don't want to see any more of those". Where was HP? George Conrades went tight lipped: "HP is very well respected. We only used the highest performing machines in our benchmarks."

Ramp up for the new machines should take 90 to 120 days: IBM added that DEC and Sun were only shipping in the 6000 units in the first year they offered their RISC machines, and that they expect to do better than that; the aim is for IBM to be a, if not the, market leader by 1992 or 1993.

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In the UK, two new porting centres in Chiswick and Warwick have been established, enabling third party software vendors to port their applications to AIX systems.

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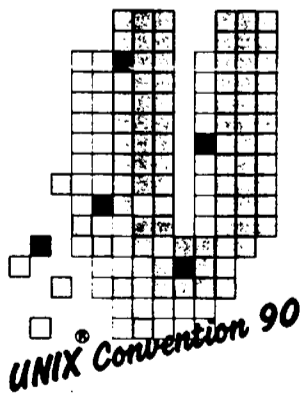
As well as being offered through the established IBM agent and dealer network, the whole POWERsystem range will be available from VARs, a newly formed distribution channel composed of Value Added Remarketers - 47 have already been signed up - each of whom is reckoned to have a background of offering Unix solutions.

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A report introducing and explaining IBM's new RS/6000 Series machines called Understanding the RS/6000 has been produced by the First Group: written by Harley Hahn and Sam Albert, the report is aimed at executives, analysts and end-users and costs \$495 - telephone 800 444 2030 in the US or 914 245 0891 elsewhere for more details.

<< RS/6000 SHORTS >>

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The nine chip ROMP II processor set at the heart of the new machines is a highly pipelined CMOS design as described in full back in October of last year (UX No 254) it comes in 20, 25 and 30MHz versions with more cache added to the top-end models.

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And IBM's new 4-megabit chip in the memory subsystem of the POWERserver 540 gives the machine up to 256Mb of real memory.

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The high performance and low-pricing of IBM's new POWERsystem family puts it in the lead over offerings from Sun Microsystems and DEC currently available, leading IBM to hope that it will at last gain a significant share of sales in this market: a fully configured entry-level, 27 MIPS Model 320 with 19" colour monitor costs £14,700, around the same as a 12.5 MIPS SparcStation 1.

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But by the same token, the aggressive pricing makes some of IBM's own pricing look distinctly uncompetitive: with RS/600 prices starting around £6,500, who will now buy a PS/2 Model 70 486 running AIX and costing around £10,000?

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According to IBM, there will be no pressure from AS/400 users looking to move over to the new machines, and the company said it had no plans to offer porting tools to help them do so: AS/400 is still the best platform for business users wanting ease of use and highly integrated database facilities said IBM's director of AIX applications, Jerry Latta, who added that things might eventually change as ease of use features became available on AIX.

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The ray tracing demonstration of a gradually built-up image of John Akers duly appeared at the IBM launch in London yesterday, held at the British Academy of Film and Television Arts in Piccadilly: but despite the much vaunted speed of the new workstation, it took around 17 minutes to run - much faster however, than on the old 6150 model, which would have needed around 24 hours according to an IBM demonstrator.

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MOTOROLA TO CHALLENGE IBM IN MAJOR SYSTEMS LAUNCH - MARCH 5TH

Motorola Inc, which was top of the SpecMark performance tree with its Delta 8612 before IBM launched the RS/6000, hopes to be the first to respond to the IBM machines, and to reassume performance leadership on March 5. On that day the company plans to launch a string of 88000 RISC-based workstations and servers that the company claims will match the RS/6000s in overall performance, offer higher resolution graphics, and come in at prices 35% lower than IBM's. Motorola also plans a \$30m advertising campaign with the launch to put itself on the computer map, as predicted (UX No 267): it plans to hold a lavish event at New York's Rockefeller Centre, and is putting pressure on its software partners, such as Insignia Solutions, to ready new software in time for the event.

SILICON GRAPHICS BOOSTS GRAPHICS WITH POWERVISION

Silicon Graphics Inc, Mountain View, California has upped the ante in the super-high performance graphics market with the launch of Iris Powervision, a family of new graphics "super-computers" in its Iris Power Series. It claims the new graphics architecture in the Powervision system, is the first to unify interactive geometric processing and image processing, while maintaining full binary compatibility with the rest of its line. Powervision is claimed to up the three-dimensional graphics performance of its high-end systems two to 10 times, with performance of 1m polygons per second, 1m anti-aliased vectors per second, and 1.5m anti-aliased points per second. Features include real-time anti-aliasing of polygons, vectors and points; real-time texture mapping; real-time special effects for fog, motion-blur and full scene progressive anti-aliasing; and a suite of imaging functions. Aimed at image processing, visual simulation, molecular design, animation and creative graphics, Powervision is offered from June as a complete system or field upgrade to the existing Power Series product line. Powervision system prices begin at \$94,900 for the Iris 4D/210VGX with a single MIPS RISC processor rates at 20 MIPS, 8Mb memory and the graphics subsystem; it can grow to eight processors. The price to upgrade from a GTX system is \$40,000. At the same time, Silicon Graphics has cut prices on its Iris Power Series. All Power Series GTX graphics systems fall up to 21%, server systems up to 36% and memory by up 50% to 67%, with the 4D-210 GTX falling to \$74,900 and the Power Series 4D-210S server cut to \$34,900. IBM licensed low-end Personal Iris 4D/20 graphics for the RS/6000. At the same time the company has added a new member to its Personal Iris 3D graphics workstation family, the mid-range 4D/85GT which comes in at \$49,900. Rated at 13 MIPS and 1.5 MFLOPS and capable of 55,000 polygons per second, it comes with six expansion slots. The machine will be launched in the UK at the CAD/CAM '90 show in Birmingham at the end of March.

TERADATA TO BUY SHAREBASE, FORMERLY BRITTON-LEE

Teradata Corp, the rapidly-growing Los Angeles company whose DBC 1012 back-end database systems are star performers in some of IBM's more recurring nightmares, has signed a letter of intent to acquire one of the pioneers of back-end database systems, the Los Gatos, California-based ShareBase Corp company still much better known under its original name of Britton Lee Inc. Teradata plans to issue new shares to exchange for all the ShareBase out at a rate equivalent to 60 cents a share, valuing the firm at \$6m. ShareBase was last on a roll way back in the early 1980s when it picked up some of the assets of the Insac British government software fiasco for a song, but the rise of the all-software relational database vendors tended to price its hardware-software systems out of the market. Teradata reckons the ShareBase products and technology provide it with a unique opportunity to enhance its client-server architecture. Loss-making ShareBase employs 150 and its sales had shrunk to \$29m in 1989. NCR Corp said at the beginning of the month it would take 10% of Teradata to cement a joint development agreement (UX No 269).

MAJOR JOBS CUTS PLAN LIKELY AT DEC: LOSS POSSIBLE

A major voluntary retirement programme intended to slim down its 125,900 payroll by up to 8,000 is in prospect at Digital Equipment Corp as the company faces up to the real possibility of a loss for its fiscal third quarter to March 31 because of the ravaged state of the US computer market. In the second quarter to December 31, the company saw profits slump 44% to \$155m on turnover flat at \$3,185m. President and founder Ken Olsen won't rule out a loss for the period, telling the Wall Street Journal it could happen and noting that the difference between a profit and a loss is a very small shift in a very large number - that number being the \$3,000m-plus of business the company does each quarter. And if the company does resort to major incentives to cut its workforce, the associated cost could lead to the company making a loss for the year.

IBM OFFERS AIX VIADUCT TO LINK RS/6000 TO AS/400

IBM has been quick to come out with a bridge between the new RS/6000 Unix boxes and the AS/400, launching the AIX Viaduct for AS/400 2.0, which enables RS/6000 users to integrate their AIX applications with AS/400 databases and access information resident on the AS/400; the new release includes operation in asynchronous mode, links OS/400 and AIX via SQL, implements LU6.2 APPC and arrives third quarter in the US at \$250 for the Unix end and \$5,000 on a baby AS/400, \$13,750 on a 70.

...SERVER PS/2 MODEL 80s THIS QUARTER

Having bitten the bullet and come out with its first servers in the shape of the RS/6000 Unix boxes, IBM is expected to follow up with server models under the PS/2 Model 80 label. Computer Reseller News looks for a 25MHz 80486-based tower unit an 80386 system upgradeable to the 80486, with faster SCSI drives and accelerated Micro Channel. The launch is expected this quarter and is seen as the IBM response to the Compaq Computer Corp Systempro servers launched at the end of 1989.

...TARGETS COBOL APPLICATIONS FOR RS/6000

Micro Focus Plc, gearing up to get its shares traded on Wall Street in American Depository Receipt form - it is understood that the company does not plan to raise any new money - plays a star role on the new IBM RS/6000 Unix machines. IBM's AIX VS Cobol Compiler/6000 and AIX VS Cobol Run Time Environment/6000 are based on the Micro Focus VS Cobol environment and are source-code compatible with AIX/RT VS Cobol, AIX PS/2 VS Cobol, and IBM Cobol/2 for the PS/2, all of which are from Micro Focus. The new compiler, available in the second quarter, generates both intermediate interpreted code for portability and native machine code for where highest performance is required, and the run-time version executes both. It also conforms to the Systems Application Architecture Common Programming Interface, so that existing SAA-conformant Cobol applications can be transferred to the Unix machines with little or no modification. The compiler is also designed to facilitate migration of programs written for IBM 370-type mainframes in OS/VS Cobol and in VS Cobol II.

GOUPIL "INTERESTED IN APRICOT"

Industry sources were suggesting that French computer manufacturer SMT Goupil, which recently took a 69% stake in fellow French vendor Normerel SA (UX No 265) - is now showing an interest in the UK's Apricot Computers Plc of Birmingham. Apricot made it clear back in January that it was looking for a partner to contribute to the technology and marketing of hardware on a worldwide basis.

SPECMARK WIPEOUT:**IBM RS/6000 TOTALS ITS RIVALS**

The companies tired of IBM attacking their machines with proprietary benchmarks that they couldn't reproduce that set up the Systems Performance Evaluation Cooperative have been given a nasty jolt by the first set of independent benchmarks from the Cooperative on the new IBM RS/6000 Unix machines. Running the first Spec Benchmark, which takes the geometric mean of the time to complete a suite of engineering and scientific routines - all primarily compute-intensive, with no measure of input-output or multi-tasking, the smallest of the new IBM machines come out over four Specmarks ahead of their nearest rival. Recorded Specmarks go from 34.7 on the 30MHz RS/6000 Model 540, 28.9 on the 25MHz Models 930, 730 and 530, and 22.3 on the 20MHz 520 and 320. Nearest competitor is the 88100-based Motorola Delta 8612 with 33MHz 88000 processor, at 17.8, and the MIPS Computer Systems M/2000 and Sun Microsystems Sparcserver 490 at 17.6 apiece. A five processor DEC VAX 6000 450 under VMS comes in at 9.2 - but the nature of the benchmark is such that a uniprocessor DEC VX 6000 Model 410 comes in at 6.8. IBM may also be preparing to benchmark its PS/2 and AS/400 systems in the same way, as several of the US trade press publications have copies of the SPEC Benchmark suite - it is available to anyone for \$450 - and according to IBM's John Laskowski, big blue would rather do the benchmarking itself than have the hacks do the job. IBM has also tested the new Risc machines against its proprietary RAMP-C - Registered Approach for Measuring Performance - Cobol benchmark, it says that conservative tests put a Model 540 at about the mid-way mark of the AS/400 performance range. IBM technical analysis - page 5.

**MEMORY OF DUBLIN
CALLS IN THE RECEIVERS**

Only a couple of months ago computer system reseller Memory Computer Systems was split into two separate companies following an aborted management buyout at the Irish end of the operation by two directors, (UX No 261). Last week, Dublin-based Memory plc went into receivership when its creditors called time on the proceedings. Financial difficulties arising from the buyout are thought to be the cause. Summers and Associates of Dublin - appointed as receivers by ABM Bank, Dublin, one of the creditors - is "anxious to sell the company as quickly as possible", and negotiations are already underway to sell the firm either as a going concern or by splitting up Memory's ten Irish subsidiaries and disposing of them separately. "Up for sale" signs will be posted in the press today. None of this affects the UK Memory Computer Systems in Potters Bar, Hertfordshire, or its concerns in Northern Ireland.

HEURIKON PLANS NEW FUTUREBUS+ RANGE

Heurikon Corp, Madison, Wisconsin, says it will be offering a range of Futurebus+ solutions for VME and Multibus-2 system builders, developers and users via its Corebus expansion module which it is currently developing to accommodate to Futurebus+ specifications. It also has plans to work with Japan's TRON consortium on bus technology, details of which will be released shortly. GMT Electronic Systems Ltd, Leatherhead, Surrey is currently offering Heurikon's VMEbus CPU board in the UK, based on a 50MHz version of Motorola's 68040 microprocessor. Built around the Corebus expansion card, the HK68/V4F comes with 2Mb or 8Mb DRAM, dual 4Kb on-chip cache, has a transfer speed of 40Mb per second with bus snooping and is rated at 13.5 MIPS and 3.6 MFLOPS. It comes with 2 RS-232C serial ports - Ethernet and SCSI modules are available - Unix, OS-9, VRTX-32 and VxWorks are supported, no prices given.

**TRIDENT HAS X FOR
TOUCHSCREEN APPLICATIONS**

Touchscreen and X-Windows technology have been brought together in a new hardware and software Xtouch package from by Trident Systems, Fairfax, Virginia. The software allows developers to write touchscreen applications for X-Windows running under Unix, VMS or SunOS - in addition programs written for mouse input will run as touchscreen applications, and mouse and touchscreen operations can be accepted concurrently. The touchscreen itself gives users the same capability for dragging and activating windows and icons as they would have if using a mouse. It has a pressure sensing ability with user-defined thresholds, sensitive enough to distinguish between the different operations. The screen is made of transparent glass and has no conductive surface in between the user and the images on the display - the glass carries inaudible acoustic waves on its surface - and as such is reckoned to be particularly applicable for rugged use in factories, public information systems or vending machines. A 13" touchscreen and software starts at \$1095, a 19" version is \$1,300.

**LYNWOOD REACHES GOVERNMENT
SALES WITH UNIX WORKSTATIONS**

UK Government and defence supplier Lynwood Scientific Developments Ltd, Alton, Hants, has three new monochrome terminals available immediately, with colour versions under development. The K300 is designed specifically for text and graphics, the K464 offers multiple Tandem emulation and the K300 CAT is a secure, controlled access terminal - no prices were given. Lynwood launched a series of Unix workstations back in May of last year, (UX No 230), and says it has sold over a thousand into government and defence sites since their introduction, whilst the first commercial order - with a large insurance company - is waiting to be completed. Work is also underway with Motorola on the development of a 68040 version of the Open 30, 68030-based workstations, though no date for a new system has been disclosed. A member of the Hunting Electronics Group, Lynwood's managing director is David Prior, formerly with Prime Computer, who was appointed last summer.

**AUSSIE OSIRIS HAS NEW
NAT-SEMI-BASED DISPLAY TERMINALS**

Australian systems manufacturer Osiris Technology, Chatswood, Sydney, has a new range of GraphicServer intelligent graphics terminal boxes built around National Semiconductor's imaging processors. They run OpenScript, software developed by Osiris which controls all terminal operations. It combines proprietary - although Display PostScript and Sun NEWS compatible - software with an Open Look-compatible window manager. The terminals can connect up to any system that is Ethernet-compatible, and can also be configured as X terminals if required. An eight-plane colour version uses a 30MHz 32GX32 processor, is rated at 8 MIPS and costs A\$9,500 without a monitor - a monochrome option runs the 32CG16. As well as Ethernet, both come with 4Mb RAM, 1Mb video RAM, TCP/IP, a Telenet-based terminal emulator, two serial ports and parallel printer and SCSI ports. Osiris has been selling National Semiconductor-based computer systems down under for around six years, and like Nat-Semi itself, is now putting more emphasis on imaging and peripherals. Attachable to any computers supporting TCP/IP, the terminals can be used connected to non-Unix systems, including mainframes. The company is keen to talk to international resellers and OEMS, and will be exhibiting at the forthcoming CeBit Hannover Fair between 21-28 March.

DAVIN FILES PATENTS FOR BAT 64-BIT, 8-BYTE PARALLEL PROCESSOR

Irvine, California-based Davin Computer Corp, formed in 1986 by Computer Automation Inc founder David Methvin to build low cost, superhigh performance 64bit minicomputers (UX No 60), was showing its long delayed BAT 6420 last week at the Systems/USA trade show held in San Jose. Despite funding difficulties that have put the brakes on both development and marketing efforts the BAT machine was previewed as long ago as July 1987 (UX No 135), and made the news again last year as Davin went public by reversing itself into Shifrin Corp (UX No 221) Methvin is confident that this time his company is ready to approach interested OEMs with what is still leading edge technology. According to Methvin, the BAT 6420 contains the first new complex instruction set computer processor to appear on the market for fifteen years. "CISC has had a bad press of late, but the RISC people are comparing their chips with old technology". The Davin full 64bit chip provides the equivalent of 32 MIPS peak performance in a single processor configuration, and uses over 750 variable length instructions in its 112bit microcode engine, so that instruction fetch, procedure call and runtime operations are reduced by a factor of eight or more. There is an optional 64bit floating point coprocessor, a 50 Mb/sec "Bat Bus" communications channel for the connection of fast peripherals, and a choice of operating system: Unix System V or Davin's own DARTS real-time system. The result is a low price tag of \$13,670 for single quantities, down to \$9,982 for quantities of 100.

Patents pending

Davin has been granted patents on two of its applications relating to the design of the machine, and that patents are still pending on the remaining two. Methvin reckons that one of the patents could have important implications for the computer industry. Parallel byte processing in a single processor is applicable to all 32-bit commercial computers, says Davin - he says that on his company's own machines, described as eight byte parallel processors, performance is boosted up to 15 times in some byte processing tasks that are common in many applications. The second patent covers the Automatic Data Channels built into all Davin processors and Methvin says that while most minicomputers can handle only 10 or 20 personal computer connections transmitting data files at the same time, Davin's current computers can handle over 200 simultaneous personal computer transmissions at 38.4Kbps asynchronous data rates, and that future models will push the number close to 1,000 personal computer and/or modem connections. Up to 2,048 terminals can be directly connected via Davin's Batnet system.

Davin has now registered an offering with the US Securities & Exchange Commission to raise funds to enable it to begin full production and marketing of its machines, a process that should be completed within a few weeks. The money will enable the company to launch the next iteration of the BAT computer the 6430 within a few months, and will go towards the development of Fortran, and eventually Cobol and Ada compilers, and the porting of a database to the systems. Main market areas are expected to be transaction processing applications such as luggage handling and factory automation, as well as communications, data processing and realtime applications.

STARDENT ADDS VISUALISATION TO NEW UNIX RELEASE

Stardent Computer Inc has a new release of its Stellix implementation of Unix System V for its 1000 and 2000 Series systems that includes the second release of its Application Visualisation System. Bundled in with the operating system, AVS comes free with all Stardent 2000 Series systems. Also included in Stellix Release 2.1 is Stardent's Traversal compiler technology optimised for multiple processors, support for NTSC and PAL video output boards, and an implementation of the NQS Network Queuing System for batch queue management. At the same time, Stardent has boosted its Stardent 2000 hardware with a faster I/O system, including Ethernet, SCSI and six RS 232 serial ports as standard; eight further ports are available as an option. Existing customers will receive updates over the next two months. The Series 1000 and 2000 systems come from the Stellar side of the business: the company intends to eventually fully integrate the Stellar and Ardent lines.

INTERACTIVE SIGNS UP FOR MENTAT'S PORTABLE STREAMS

Interactive Systems Corp, Santa Monica, California, has signed an agreement with Mentet Inc of Camarillo, California, for its Portable Streams environment, already chosen by the Open Software Foundation as a component of the OSF/1 operating system (UX No 259). Interactive will produce a stand-alone product, and a version that is bundled in with its TCP/IP and OSI transport protocol technology. The stand-alone product will allow systems integrators and manufacturers to port Unix Streams-based networking software to non-Unix operating systems. Available now under an early access program, general availability should be by the end of the first quarter. Mentat has also been working with Xerox Corp on implementations of the Xerox XNS protocols for Unix System V.3 (UX No 206).

SYBASE SHIPS FIRST SECURE DATABASE

Sybase Inc is now ready for production shipments of its first multilevel secure relational database management system, designed to meet the B1 level of security specified by the National Computer Security Center's "Orange Book". Announced in September 1988 (UX No 200), the Sybase Secure SQL Server system has been in beta test since March 1989, and is now shipping on its first platform DEC VAX computers running under Ultrix. Also shipping is a new Secure SQL Toolset from Sybase, designed for the building of multilevel secure applications under VMS or Ultrix. Early customers include TRW, Mitre and the Military Airlift Command, using both tools for financial and personnel systems, military message systems and command and control. Pricing is from \$42,000 to \$250,000, depending on CPU size for the SQL Server, and from \$2,400 to \$115,000 for the Toolset.

TGV OFFERS NFS CONNECTIVITY FOR VAX VMS SYSTEMS

TGV Inc, Santa Cruz, California, will begin shipments of its MultiNet NFS Client for VMS software from next month, allowing users of VAX computers running VMS to access files stored on Unixbased Network File System servers. MultiNet offers both server and client NFS capabilities for full connectivity between VAX/VMS systems and any other computer supporting NFS. The product was first demonstrated at the Interop '89 exhibition last October: it costs \$480 per license for a VAX station.

APPLE COMPUTER HOPEFUL OF SAVING AIR FORCE PACT AFTER HONEYWELL EXPLAINS A/UX

Apple Computer Inc is hopeful of saving its flagship US Air Force contract for Macintoshes despite the advice of the General Accounting Office that the tender should be offered again (UX No 270). Apple says that key technical capabilities of the Macintosh were not well understood by the General Accounting Office when it sustained Martin Marietta Corp's protest of the pact. It says that the ability to run off-the-shelf Macintosh applications under Apple's A/UX Unix was an important issue, and Honeywell Federal Systems Inc, which won the contract bidding Macs, says that the Office erroneously believed that the Macintosh Operating System as well as A/UX had to be loaded when running Macintosh applications. In fact, the Macintosh Operating System has no place in the Honeywell solution. The contract, awarded to Honeywell in August for the Worldwide Military Command and Control System Information System Workstation Segment was the first major government contract to involve Macintoshes and was also seen as a major boost for Apple's credibility in the Unix market.

MAI BASIC FOUR INTEGRATED BOSS-UNIX ON ITS 80386 LINE

MAI Basic Four Inc has introduced its BOSS/VX Dual Universe operating system for its low-end GPx Series 40 machines, which are built around the 80386. BOSS/VX supports both proprietary Basic Four applications and ones written for Unix System V, and incorporates a shared file system that enables users to access and interchange data between applications under the System V and Business Basic environments. An optional C Programming utility enables users to create, maintain, regenerate and debug code in C that will be portable to other System V environments. BOSS/VX conforms to the AT&T System V Interface Definition.

DATAPOINT FRANCE DECLARES WAR ON IBM FOR SYSTEM/36 BUSINESS

Datapoint Corp has declared war on IBM in the System/36 arena, and its weapon in the battle is Vista-36, an emulation of the System/36 multi-user environment that is claimed to be MS-DOS-compatible. It runs on a dual processor 80386 machine and is designed to provide an upgrade path for System/36 users without the need to go in for a costly conversion to the AS/400 native mode. Launched yesterday in France, Vista-36 is claimed to be 25% cheaper than the IBM alternative, with a 16-station system costing the equivalent of \$133,000 over five years, including maintenance. It uses diskless MS-DOS workstations as the terminals, and the Vista Operating Environment is claimed to be fully compatible with the 36 System Support Program. It includes a mirror disk facility for security and upgrading from System/36 is claimed to take 30% of the time it takes to go to the AS/400. It also supports graphical applications. Datapoint reckons that in France, there are 20,000 System/36s, and that 15% of users are looking for an alternative to AS/400.

COMPUTER POWER GETS \$8.25m UNDER AUSTRALIAN SCHEME TO ENHANCE TODAY

National Australia Bank is funding further development of Computer Power Group Pty Ltd's Today Advanced Development Environment to the tune of \$8.25m - SAus11m. The investment is the first to be made by the bank under the new Research and Development Syndication initiative introduced by the Australian government last September, which gives big tax breaks for such investments. The bank gets a direct equity investment in the enhanced product and the cash will be invested in development over three years. Computer Power has already spent \$3m on enhancing Today since it acquired it in 1988, and wants it to play a major role in the IBM AD/Cycle software development environment. In the development plan are the addition of industry-standard user interfaces, expert system features, and Distributed Architecture Processing capabilities.

JOBS PROMISES COLOUR NEXT COMPUTER AT UK LAUNCH

Colour versions of the NeXT Computer System will be out later this year, confirmed NeXT Inc president Steve Jobs at the lavish UK launch of the system by Businessland at the London Palladium yesterday. Jobs said that his company had delayed the introduction of colour machines in order to develop a full 32-bits per pixel colour version rather than the small screen 8-bit systems, as used by the Macintosh. NeXT will offer a plug-in board including a custom chip as graphics accelerator. Colour will be used for desktop publishing applications and photo-realistic rendering for the computer-aided design market, and NeXT will also support the RenderMan three-dimensional photo-realistic graphics software from its sister company Pixar Corp. Real-time compressed video capabilities will also be available "within a year", said Jobs. Other software in the pipeline includes combined financial analysis and spreadsheet technology by the second half of the year, and the Wingz graphical spreadsheet should ship "within the next few weeks". Jobs said that IBM's endorsement of the NeXTStep graphical development environment would be an added spur for software developers to use the NeXT machine, which uses the Berkeley Unix-compliant Mach operating system - but said there were no plans to license NeXTStep to other developers. Businessland UK has NeXT machines available for shipment immediately: a basic system is £6,500 for the 12" black cube with 8Mb memory, MegaPixel display, keyboard, mouse, 256Mb optical drive, 40Mb accelerator drive and NeXT's bundled software. The same configuration but with 330Mb drive costs £9,000, and a network system with no optical drive is £5,000. Educational establishments get 20% discount, but Businessland will also concentrate the sales effort on software developers and on users in government.

DATA GENERAL'S SOFTWARE UNIT SHUTS DOWN UNDER

Data General Corp has closed its Applications Software Development Centre in Sydney, Australia after failing to find an equity partner for the project. The centre was engaged in the development of geographic information systems software and spent much of last year looking for an equity partner to share the cost. According to Newsbytes, most of the staff have been relocated within Data General or placed with other companies. The company is thought to have cut its payroll in Australia by 25% to 237 last year.

All in the Instructions?

Mike Faden reports on IBM's technical overview of the new RS/6000 AIX line.

RISC instruction sets have been getting bigger and bigger, a fact that RISC proponents have justified by denying the validity of the term that has been such a powerful marketing tool. The performance gains provided by technologies labeled RISC, they say, are not dependent solely on reducing the number of instructions, but on a collection of hardware and software techniques newly discovered or, more often, simply made affordable to those without Cray-sized budgets. Along with a streamlined instruction set and simplified architecture, compiler technology, the extensive use of registers, cheaper cache and most recently increased parallelism are playing their part; meanwhile, particularly for commercial applications, RISC suppliers have often chosen to add instructions; Hewlett-Packard's Precision Architecture, which the company is relying on for both technical and business applications, has one of the largest instruction sets among current RISCs.

It's hard to get much further from the original Reduced Instruction Set idea than the processor in IBM's new System/6000 RIOS computers, for it has, according to UK technical staff, 184 instructions, over 60 more than its 6150 ROMP predecessor, and closer in number to a VAX than to earlier stripped down RISC designs. Discussions of such basics were strangely absent in a technical briefing on the systems in London last week, one reason being that several thousand pages of technical rationale covering each aspect of the design are currently en route to the UK from the RIOS designers. Currently, the instruction set is spread over five chips and includes those required for IEEE floating point functions. And an IBMer pointed out that some of the new instructions are aimed specifically at speeding the string manipulation essential for business applications. What was that about confining the machines to scientific applications?

Price/performance

Still, whatever the nature of the design, it's the price/performance and the performance range that count, and few appear to be able to find serious fault on either count. Besides the dramatic but perhaps misleading SPEC benchmark results quoted here and elsewhere - current SPEC benchmarks focus only on CPU performance - other evidence from both IBM and others has left most persuaded that the machines are leading edge, if not revolutionary.

So what gives the design its speed? Mainly increased parallelism, according to the manufacturer; caching, pipelining, 128-bit (in the high end systems) or 64-bit (at the low end) internal data paths and intelligent compilers combine to feed the various processor components with up to four instructions per cycle. And in keeping with the latest fad in RISC arguments, there was a detailed discussion of how pipeline delays and disruption leads to the loss of only a few, rather than a few hundred, machine cycles.

The bigger System/6000 servers are said to be able to handle close to 12 Gb of disk storage, but still rely on the modest SCSI interface (four of them, with 12.5ms access time disk drives) to get this volume of information in and out of the system. For a glimpse of a more intriguing future, however, IBM plans to implement two fibre optic serial I/O "channels", each capable of more than 100 megabits per second - not themselves FDDI compatible, although IBM is committed to provide FDDI. These could be used for very fast communications between machines, allowing them to be combined into processing complexes of immense power - or, perhaps, for the connection of very fast disks not dissimilar to those used with 3090 mainframes?

Industrial strength?

As for the operating system; IBM has devoted as much time congratulating itself on producing a commercial grade operating system in AIX 3.0 as it has admiring its hardware, so it's a little unfortunate that most current publicity centres on the instability of pre-release versions. There's also a strange contrast between IBM's current emphasis on the fact that this version was specifically designed for the RIOS processor, and the emphasis not so long ago when AIX 3.0 was being offered to the Open Software Foundation as a processor independent operating system.

We seem to remember anti-OSF propaganda claiming that the virtual storage system was hardware dependent, and indeed AIX 3.0 features hardware assisted virtual storage which appears to bring with it many benefits. A new memory mapped file system removes the need to explicitly declare files that can be paged in and out of memory; now AIX does it all for you just like a real operating system. Other enhancements include the ability to map large files onto logical volumes across several disks, mirroring and logging for recovery, and facilities to make it easier to allocate more space to files when necessary.

Among the vast range of other additions - IBM says it has added some two million lines of code to the underlying "standard components" - are the expected real time extensions and C2 security, a focus on program management with dynamic loading and sharing of modules and runtime binding, and the now familiar mass of communications and networking facilities. This time, SNMP network management - agent only - joins the standard TCP/IP, while other software includes version 4.0 of Sun's NFS and the first appearance of Apollo's Network Computing System with RPC and NIDL compiler to assist in creating distributed applications. Despite the fact that the world is hardly crawling with 6150s, IBM has gone to considerable trouble to provide compatibility with the now-defunct machine, implying that all AIX 2.0 programming interfaces including the graphics library are supported and even claiming to have modified NFS to preserve some consistency with the proprietary Distributed Services equivalent, which never made it in the market and is being phased out (UX No 265).

We'll have to wait until the machines are out in quantity to see many of the systems' real strengths and weaknesses, but the product line does appear to have some strange characteristics, including the apparent gap in graphics performance between the 90-100k 2D vectors per second of the mid-range and the close to 1 million per second of the top end Silicon Graphics based hardware which is not due till the end of the year - a gap for Sun Microsystems and others to exploit. And needless to say, the aggressively low entry points are unlikely to represent the prices of the systems that users buy: just about everything is extra including the Ethernet adapter. And despite the falling cost of memory it was a little disturbing to hear IBMers say that a key design goal was "to use a lot of memory", although we're sure they didn't mean it quite like that.

And yes, the AIX 3 operating system is by accounts buggy and unstable, but the systems are months away from general release and some observers have suggested that the software is no worse than one would expect for a system at this stage of its release schedule; however one can't help wonder what the effect of such an operating system will be on the real porting schedules of the third party application developers on whom IBM largely relies. Perhaps the last word should go to Allister Mannion, technical director of distributor TIS which has done some evaluation work on the machines; although TIS distributes the rival MIPS machines, other companies in its parent Misys group are IBM resellers. Although the price-performance is very impressive, he commented that it is "not a quantum leap" and that how they will look against the competition depends very much on the time to market. The machines represent the "final endorsement" of the market; but "I don't see them as an enormous threat to the established Unix market. I'm more pleased than worried".

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UNIX IS A PRIORITY IN EASTERN BLOC, SAYS BULL'S MORANGE

by Mauren O'Gara

Now all but inaccessible there, Unix is the Eastern Bloc's number one priority, according to Gerard Bloch-Morange, assistant to the president of Bull International SA and the man who is coordinating Groupe Bull's affairs with its brand new joint venture in Hungary. Unix ... because it's a world standard ... and networking, he says, top the Bloc's shopping list, an itch the French aim to scratch in the long term. Last month, Bull's chairman Francis Lorenz in company with French president Françoise Mitterand travelled to Hungary to sign the papers allowing Bull to set up a joint venture with Videoton. Morange describes Videoton as a sizeable Hungarian electronics concern that did \$400m last year off of its 3000-man computer side, 80% of it deriving from sales to the Soviet Union. That accord has now blossomed into a 49% Bull-controlled holding company called simply Societe Franco-Hungroise d'Informatique, The Franco-Hungarian Computer Company. An operating company formed out of the pieces of Videoton's existing computer operations will follow.

Path to Russia

Bull is hoping this entity will vault it into the nascent and potentially lucrative Eastern European markets, particularly East Germany, Czechoslovakia and Hungary itself - but primarily Russia where Videoton is said to have a special position. According to the Frenchman, Videoton is one of perhaps two or three companies with a sales and service apparatus servicing the Soviet Union where it's already installed about 1,000 systems. It has permanent offices in places like Moscow, Kiev and Leningrad and even makes maintenance calls in Siberia. With this kind of springboard, Bull figures the joint venture could be doing \$100m in revenues in five years, a projection Morange rates as "very optimistic". As an entity, Morange noted, Videoton - like most things behind the Iron Curtain - is about 40 years old and divided into three main activities. One arm is dedicated to consumer electronics like TVs and hi-fi. Another does professional electronics like radio communications. The third manufactures and sells minicomputers along with peripherals such as terminals and printers. For the last two or three years it has also assembled some micros out of Asian-made parts.

Historic roots

Bull's new relationship with Videoton has historic roots. Under an old technology exchange, Videoton's minicomputers are based on Bull's old Mitra line, adapted to Eastern markets and usually used in industrial and manufacturing settings.

Right now, Bull and Videoton are still in the planning phase. Morange says it will be June before they have a business plan and it will take a year of detailed discussions before the joint venture is full-blown and operating on a regular basis. To reach that goal, they figure they'll look over what Videoton is currently doing and jointly decide what to move over to the joint venture. Videoton will keep some of its computer operations out of the French deal and discontinue others that conflict with Bull's merchandise. Bull in turn will purchase direct sales where it can, Morange said. It's intended that the new company will assemble new products from Bull's current product line. And Bull may subcontract some assembly work such as monitors or terminal concentrators that it's already giving to third parties to Videoton to do for it, buying back the end result. On the table as far as new products go are Bull's proprietary GCOS 7 minicomputers, its Unix machines and Zenith's PCs.

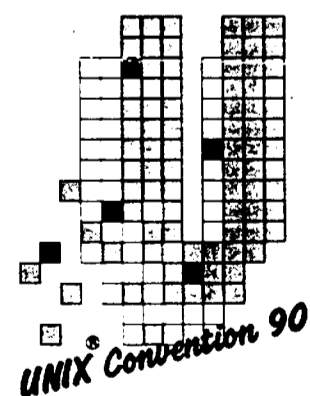
Bootlegged Unix

One of the most serious hurdles to overcome is the pitiful state of Videoton's production facilities and the way its manufacturing is organised. On the other hand, Morange reports that both the Hungarians and the Russians have a high degree of technical sophistication and competence. In fact, Bull technicians have noticed that Videoton already has either a jerry-built or bootlegged Unix-like system that Morange says Videoton will stop selling, because it's very buggy and out-of-date. Bull, of course, hopes to be able to substitute its own Unix systems but currently the US-dominated Cocom organisation in Paris that rides hard on what the rest of the world can export to the East still forbids the sale of Unix and any hardware above the AT to Comecon countries (see below). Rumours of a rift in Paris, however, say that preliminary meetings held there 10 days ago indicate Cocom could shortly alter its stance. An official decision is expected in June and it is now believed that Cocom will then sanction the sale of this now-forbidden gear to at least Hungary, Poland and Czechoslovakia - an expectation that may explain why DEC recently formalised a joint venture of its own in Hungary. Bull estimates the joint venture exercise will cost the partners a maximum of \$100m over two years. At least that's what's currently proposed. Morange allows "it could be less, it could be more" and it does not necessarily mean \$50m apiece in cash. It could be the equivalent in technology. Once it's set up and functioning however, there's still the problem of penetrating the market with its different perceptions about what is needed and the varying nature of the local economic systems.

COCOM AGREES TO RELAX EXPORT RESTRICTIONS - BUT ONLY TO THE BEST OF THE GOOD GUYS

The CoCom meeting in Paris broke up last week with the US getting its way on relaxation of export controls on computers, telecommunications equipment and machine tools to the Comecon countries. Despite scepticism on the part of the Europeans, led by the West Germans and the French that such a regime could be made to work, the relaxation is being made dependent on democratic reforms, so that export rules will be more liberal with regard to Hungary, Poland and Czechoslovakia, US sources told Agence France Presse. The new list of restricted exports is to be ready for publication by May. The 17 members of CoCom also agreed to cut by a third the time it takes to get export approvals granted. No relaxation of exports to the Soviet Union was agreed, but it is likely to find it easier to get what it wants through the beneficiaries of the new regime.

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APPLE READY TO BOOST UNIX LINE ON MARCH 19TH

Details of Apple Computers' expected upgrade of its A/UX Unix line (UX No 269) are now coming to light, and Macintosh News hears that March 19th has been earmarked for the announcements. The company is set to launch a high-end Apple IIXi, featuring a 40MHz 68030 CPU, and using Advanced Micro Devices AMD29000 RISC processor as a graphics accelerator. Also on offer will be Release 2.0 of A/UX, Apple's Unix implementation, which is rumoured to take up to 3Mb of memory (UX No 263). Unlike earlier versions of A/UX, 2.0 will support 32-bit Quickdraw and MultiFinder, and will allow cut and paste operations between Macintosh, Unix and X-Windows-based applications. Apple is expected to offer new 24-bit video cards, and IIXi board upgrades for the II and IIX.

ORACLE GETS AIR FORCE FUNDING FOR SECURE DATABASE

Oracle Corp, Belmont, California has funding from Uncle Sam to master the techniques needed to create a multi-level secure database management system. The two-year project, in which Oracle is partnered by SRI International and Gemini Computers, has \$1.7m funding from the US Air Force Rome Development Centre and the system will be based on a model developed from the SeaView SEcure dAta VIEWS project to develop a secure relational database management system for Department of Defense applications. Oracle will provide technical assistance and its high security database product as a part of the project. The original SeaView three-year study was completed in January 1989 and resulted in a security policy, model, implementation specification and demonstration system designed to meet the Orange Book Trusted Computer System Evaluation Criteria developed by the National Computer Security Center to incorporate four levels of security, from D - minimal to A, verified. The follow-on project will add SeaView functionality to a trusted Oracle system already being developed by Oracle and being implemented to run under Gemini Computer's Gemsos A1-targeted secure operating system.

MICROSOFT "TO END EFFORTS TO UPGRADE MS-DOS USERS TO OS/2, PITCHES AT UNIX"

Microsoft Corp is attempting to reposition its OS/2 multi-tasking operating system by billing it as an alternative to Unix, instead of a successor to MS-DOS, reports Computerwoche. Since last year, when OS/2 was promoted under the slogan "Better DOS than DOS", Microsoft has had to come to terms with the fact that, as senior vice-president for systems Steve Ballmer acknowledges, "no great migration from MS-DOS to OS/2 is in sight". The problem is, however, that the notion of direct competition between OS/2 and Unix does not appear that plausible: Christian Wedell of Microsoft Deutschland reckons that the two systems are aimed at entirely different markets, with Unix taking precedence in the technical field while OS/2 is geared more towards commercial applications - only in the US market, where Unix has made fewer in-roads, does Wedell lend any credence at all to the idea. Meanwhile any question of a Unix-OS/2 showdown is completely pooh-poohed by that other OS/2 backer, IBM: IBM Deutschland simply retorted to the suggestion with: "OS/2 is so successful that we don't even have to advertise".

MADGE CHALLENGES SODERBLOM TOKEN RING PATENT

Madge Networks Inc, San Jose wants a US Federal District Court to say that Olof Soderblom's token ring patent is invalid, insisting that it does not apply to Madge's token ring technology on the basis that the US Patent Office refused Soderblom a patent on closed-transmission loop token-passing technology - the basis of token ring local nets. The case has enormous implications because Madge says its networks are compatible with the IBM Token-Ring Network, and IBM has signed with the licensor, Wilhelmiijn Holdings, for rights to use the Soderblom patent. Sun Microsystems, Fibronics and Stratus are amongst others who paid up (UX No 213), and Hewlett-Packard settled for Apollo in June 1989 (UX No 236), paying a "substantial" sum of money.

NCR SIGNS FOR HP'S NEW WAVE

NCR Corp is the latest company to license the Hewlett-Packard Co New Wave object-oriented environment on undisclosed terms, and is likely to use it as part of its forthcoming Open Cooperative Computing software announcements, scheduled for the second half of the year (see page 5). Data General Corp and Canon Inc have already licensed New Wave.

INFORMIX TWO BECOME ONE

Informix Software Inc has moved to absorb its Innovative Software Inc acquisition, and has merged the company, which became the Workstation Products division responsible for the Wingz spreadsheet, into its core Advanced Products database division. The marketing units were also merged, and the database and Wingz product lines are to be merged.

HEWLETT PITCHES SEQUOIA

KIT AT TELECOMMUNICATIONS

The prospectus for Sequoia Systems Inc's initial public offering of shares lifts the veil on Hewlett-Packard Co's plans for the fault-tolerant Unix machines it has signed to buy from the Marlborough, Massachusetts company. According to the prospectus, Hewlett has acquired exclusive rights to market the Sequoia Series 300 machines and successors to the telecommunications industry - the key market already targeted by Tandem Computers Inc for its new MIPS Computer Systems Inc RISC-based Integrity S-2 fault tolerant Unix machines - for the next eight years. Hewlett has committed to a minimum 22 systems, worth \$6m all told, for the 12 months to March 31 1991, and the exclusivity of the agreement is contingent on minimum purchase commitments being met thereafter. If it takes more than \$50m of the machines over a 12 month period, Hewlett buys the right to build a proportion of its requirement under licence in the succeeding 12 months. It gets the same right if Sequoia fails to meet delivery commitments for two successive quarters, files for bankruptcy, or if Hewlett acquires more than 30% of Sequoia's shares. Hewlett also has the right to develop its own machines based on Sequoia's technology but must transfer any patentable improvements it may make to Sequoia at no charge.

RISC AND THE ROAD TO SHRINK-WRAPPED SOFTWARE

by William Fellows

Whilst Unix International and the Open Software Foundation are locked in a dogfight for ultimate control of the Unix skies, the groundswell of Unix system and software development continues unabated on terra firma. As they bid to establish their respective microprocessor architectures as the most popular amongst the Unix fraternity - and grab maximum market share along the way - the Risc chip developers are fighting tooth and nail to ensure there is as much compatibility between systems built around their processor architectures via ambitious software projects. One means of achieving much of this in one go is to develop an ABI - Application Binary Interface - a set of rules for hardware and software builders to follow when developing for a specified CPU and its operating system - see box below.

Most of the major Unix system manufacturers have now committed themselves to developing computers based on one or other of the various Risc processors. Currently on offer are the i860 and i960 from Intel, Mips Computer Systems' R Series, Motorola's 88000, Sun Microsystems' SPARC, Hewlett-Packard's PA Risc, Intergraph's Clipper, Advanced Micro Devices' Am29000 Series and IBM's new POWER. Many of the Risc designs are second sourced to other semiconductor vendors which fabricate the parts, but it is Intel, Mips, Motorola and Sun that are currently slugging it out to get their designs established as market leaders.

Scalable Processor ARChitecture

Sun and ICL have already developed an ABI for systems built on Sun's Sparc processor running Unix V.4, and Sun is moving its SunOS Unix operating system - which still contains many BSD variants - towards full compliance with the AT&T flavour. As a bridge between the widely used SunOS version 4.0.3 and Unix V.4, the company releases SunOS 4.1 in April. This version is source code compatible with System V.4 - so applications written on SunOS 4.1 for System V.4 only require recompilation on a System V.4-based computer to run. It is also binary compatible with SunOS 4.0.3, meaning all SunOS 4.0.3-based applications will run under SunOS 4.1 without modification. A future version of SunOS will be fully compliant with Unix V.4, though Sun isn't prepared to put a timescale on this.

Supporters club takes charge

Meanwhile Sun's supporters club Sparc International, which incorporates Sparc processor, system and software developers, has been quietly revamping its operation over the last few months, and at last month's UniForum show positioned itself at the centre of the Sparc community by licensing Sparc technology from Sun as well as taking over the Sparc trademark and logo. With this the club takes on the testing and branding of Sparc-compliant systems and software via the Sparc Compliance Definition, Version 1 of which is based on SunOS 4.0.3 and is out later this year. Version 2 will be based on Unix V.4 and the Sparc ABI, but will have to wait until there is a fully V.4-compliant version of SunOS. Furthermore, whilst Sun retains ownership of the Sparc itself, Sparc International is now charged with the task of directing the technical evolution of the chip, much the same way as Unix International is plotting the course for Unix to follow whilst actual development is left up to AT&T's Unix Software Operation. There are estimated to be 1,500 applications currently available for Sparc systems, and over 100,000 Sparc microprocessor sets have shipped, of which there are presently 10 versions announced, ranging from an 18MHz CMOS part to an 80MHz ECL implementation. Former Fujitsu employee Greg Leonard becomes the consortium's executive director, and Robert Duncan, ex-chief executive officer of Enterlogica Inc has been appointed chairman of the board of directors.

Motorola opts for BCS

Motorola has chosen a similar course for its 88000 Risc processor - it has a supporters club called the 88open consortium - although the company retains overall control of both the microprocessor architecture and its future direction. 88open has opted to develop an 88000 Binary Compatibility Standard - more or less the same as an ABI, but at a lower level - covering single and multi-processing 88000 systems with Unix V.4-based operating software, and has opened several testing centres where system and software developers can go to get their products evaluated. One is in San Jose, California; in Europe they are located at Data General's offices in Frankfurt, West Germany; in Oslo, Norway at Norsk Data's Dolphin subsidiary and at Motorola's own offices in Maidenhead, Berkshire.

System manufacturers which have, or are currently developing 88000 machines include Motorola itself, Data General, Tektronix, Unisys, Sanyo, NCR and Opus Systems. Currently only Opus Systems has 88open certified hardware, however Tektronix and Data General are said to be close with their systems, whilst Motorola is a little further off. 88open also has a specific software project called the Software Initiative, which brings together all software houses developing for the part - it reckons there are over 200 members of the initiative, and 100 applications now available.

ABI with everything for Intel

Intel currently has two Risc offerings, the 80860 and 80960 - or i860 and i960 - but no formal supporters club. An ABI for the i860 running Unix V.4 has been developed by Intel - the company is responsible for all processor development and evolution, as well as the testing of system and software compliance. The i860 ABI has effectively been rolled into the PAX - Parallel Architecture Extension - standard which Intel and Alliant have been developing for single, parallel and multi-processor i860-based systems. It combines the ABI with an Application Programming Interface - API - and compiler and graphics technology, and there are reckoned to be at least 50 software companies now working on compliant products. Apart from Alliant, i860 system developers include Altos, Stardent, Stratus, Olivetti, Meiko, Real World Graphics, Tadpole and Multiflow. Intel is also working on an ABI for multi-processor 386, 486 and i860 systems based on Unix System V.4 in conjunction with AT&T and Olivetti amongst others, however the late arrival of System V.4 has delayed the project according to Intel. The i960 doesn't really fit into the systems picture at all, it lacks a memory management unit - MMU - and as such is aimed specifically at embedded solutions.

Mips disciples develop headache cure

Mips Computer Systems' R Series of Risc processors has been taken up by a host of major Unix players - DEC, Siemens/Nixdorf, Sony, Bull, NEC and Pyramid amongst them - its ABI for the chips running Unix System V.4 is being developed in conjunction with AT&T and is on track for an April delivery. However there are a couple of headaches that have yet to be completely cured. Firstly byte-ordering changes DEC has made in its implementation of the processor on the Ultrix-based DECstations has caused problems for developers, and shrink-wrapped software that results from the ABI will not be delivered into the hands of DECstation users because Ultrix is incompatible with Unix System V.4. To try and circumvent the problem a Mips Application Interface has been developed that will provide source code compatibility for software on any Mip-based platform via a set of specifications for compilers and user interfaces. Mips customers can already get advanced copies of the finished MAI, but it will not be published in the public domain until the ABI is completed - the two will then be distributed together.

Application Binary Interface

An ABI guarantees that software will run on any system with a specified CPU and operating system without the need to recompile the programming code. The more software developers that write to that ABI, the more shrink wrapped applications are available across the hardware, making those platforms that much more attractive to customers and developers. The concept is borrowed from the personal computer world where boxes with the Intel x86 instruction set and Microsoft's MS-DOS are all capable of running a wide variety of software distributed in a binary format.

MOTOROLA CISC AND RISC LAUNCH IS NEW YORK ONLY

It seems that Motorola's rollout today (Monday) is strictly a New York affair - strange as it claims over 50% of its profit from computer systems is down to European sales, and even IBM, which Motorola reckons it will be besting in performance with the new machines, got its act together and held a joint UK-US bash for the launch of the RS/6000 a couple of weeks ago, (UX No 270). Motorola's plans include CISC as well as 88000 RISC-based offerings in the range, from workstations through to multi-user systems and servers. The 88000 boxes all comply with 88open's Binary Compatibility Standard - see page 2 - which means a range of software is already available for them. There is also expected to be a whole host of applications bundled in. Insignia Solutions' soft PC DOS-emulation product is being offered across the range and IXI's X.desktop version 2.0 - which supports multiple languages - will be on the 88000-based systems in Europe after a deal struck with Motorola Computer Systems Europe. Motorola plans a \$30m advertising campaign with the launch to put itself on the computer map, and has invested heavily in manufacturing automation in an effort to become one of the lowest-cost producers in the business, cutting the time to build a complete system to five days from a one-time 30 weeks.

LYNX HAS ROM DEVELOPMENT KIT FOR REAL-TIME UNIX-ALIKE

Dr. Inder Singh's Lynx Real-Time Systems Inc, Campbell, California, has introduced a version of its real-time LynxOS Unix-compatible operating system which includes a ROM development kit, for designers who need to develop real-time applications embedded in Read-Only-Memory. In self-contained environments such as aerospace and robotics where no hard disk or local area network connections are available, there is no means to load applications, therefore they must be stored in ROM. Standard Unix - unlike LynxOS - cannot operate out of ROM without a disk or LAN connection, and at 1Mb or more is unsuitable for ROM-based systems in any case. Singh says that programming for ROM applications has in the past been problematic because they require specialised development tools running on proprietary operating systems. He claims this version of LynxOS will allow program development, testing and debugging to be done on a Unix computer before subjecting applications to the rigorous test of a ROM-based system. The LynxOS kernel requires 130Kb to 160Kb of memory for code and initialised data and can be put into ROM while leaving room for applications code. A ROM-based development kit for LynxOS/386, which includes several development utilities and a two-system user licence costs \$3,000. A version for the 68030 is available for \$5,000.

POINT 4 UPGRADES UNIX LINE TO MIPS R3000

Point 4 Data Corporation, which came out with its first line of Unix-based reduced instruction set computers last May (UX No 231), has now introduced a new high-end model, the Mark 2500. Using the Mips R3000 CPU and R3010 floating point unit with 64 Kbyte instruction and data caches, the new system can be variously configured to support from 32 to 132 users. System memory is expandable from 8 to 48 Mb. The machine is rated at 18 MIPS, and runs RISC/os, Point 4's Unix implementation. With 8Mb memory, 376 Mb SCSI disk (expandable to 3.1 Gb), 150 Mb tape streamer, four serial ports, Ethernet controller and 32 serial port multiplexer, the unit costs \$55,000, and is available immediately. Point 4 still sells proprietary systems running the Iris operating system, derived from Data General's Nova system. It is based in Tustin, California.

ARIX SETS 68040s FOR YEAR END - HOLDS RISC PLANS

Arix Corp's promised dual Motorola 68040 upgrade boards for its System 90 Series of 68020-based multi-processors, (UX No 265), will not be available until the end of the year according to David Bethel of Arix UK. Although the company has completed all the requisite development work using an internal design tool known as SPAM - the boards are in production now - the silicon itself is still lacking. Motorola rates the 68040 at around 20 MIPS, Arix claims the dual-processor implementation will boost System 90 machines up to 30 MIPS performance from the present 4 MIPS at the low end. The systems will be dearer, but no prices have been fixed yet. Trying to unravel the mysteries of Arix's RISC strategy is more of a headache. The company's oft-repeated commitment to the SPARC has yet to be concretised with a product, and it seems to be waiting to see how successful Sun's SPARC processor becomes before taking the plunge. Arix says that although the hardware development of a SPARC system is complete, it is now having to work on a reliable implementation of Unix V.4 for the SPARC, as it reckons that ICL and Sun's reference port of System V.4 for the SPARC is "not a solid system yet". And hedging his bets, Bethel says that the firm will be promoting 68040 solutions above SPARC systems, which in any case will not be out until the middle of next year.

ISS OFFERS NFS SERVER PLATFORM FOR ICL SERIES 39 MAINFRAMES

Industry Standard Software of Hanley in Stoke on Trent has implemented Sun Microsystems' Network File System on ICL Series 39 mainframes - widely used for UK local government installations. The move will allow Unix workstations and servers - such as ICL's own Unix machines including the new DRS 6000 line - to have transparent access to data and files held on the mainframe, which acts as a server. Using PC-NFS, PC users can also be connected. ICL itself does not provide NFS for this purpose, but instead suggests its more limited SNA-like IPA 3 protocol. The NFS Server Platform for VME comes in three parts: the mainframe end is leased at £3,750 per annum; the gateway protocol converter costs £1,500, and at the PC end an Ethernet board and (for users without PC/NFS) OSLAN software, for £1,245. It is delivered with a configuration and menu-driven administration system. The product is a result of work with Oxfordshire-based Network Designers Ltd (UX No 233).

EMERALD TECHNOLOGY HANDSHAKE LINKS IBM RS/6000 TO AS/400

Quick off the mark, Emerald Technology Inc, Bothell, Washington reckons it's the first with a bridge between IBM's new RS/6000s and the AS/400. The company's Handshake product line provides 5250 terminal emulation and file transfer for Unix minis and micros by linking IBM's Systems Application Architecture with Unix systems. Emerald has been granted IBM Business Partner status, which authorises it to market Handshake as an approved link between the IBM systems. It costs \$2,340 to \$5,400, depending on configuration. Handshake-Express offers file transfer between Unix processor and IBM mid-range system, eliminating the need for complicated network definition or additional application software. It is \$1,050 to \$1,600, depending on the configuration.

BOWERS SHIPS APPLE USER INTERFACE GENERATOR FOR A/UX

Concord, Massachusetts-based Bowers Development Corp is now shipping version 1.0 of AppMaker, an application generator for Apple's A/UX Unixlike operating system. AppMaker automatically programs Macintosh user interface menus, windows and alerts for an application when the user points and clicks to arrange elements of the interface on the screen, then it generates the required C code. A MacOS version began shipping last April, both it and the A/UX version are \$300.

ALL SYSTEMS GO FOR UNIX ACROSS EUROPE

For Western capital, social and political revolution in Eastern Europe is lifting the floodgates to new markets and economic opportunities on an unprecedented scale. The information technology industry by its nature has always been quick to recognize potential in and take advantage of new markets, especially in the advanced industrial nations. Over the last few weeks Unigram.X has monitored the progress made by some of the first to turn their attentions eastwards.

UniWare and Lfa look to the East with GKI

The latest to do so - and in a prime geographical position - is West Berlin-based Unix software specialist UniWare GmbH. In conjunction with East Berlin-based VEB Leitzentrum für Anwendungsforschung - or Lfa - it is setting up a joint software development and marketing firm which will offer open systems products and services in both East and West Europe. VEB is the East German equivalent of a public limited company, and it will be up and running by the end of this month according to UniWare's Nico Klauke. Known as GKI - or Gesellschaft für offene Kommunikationen und Informationssysteme mbH, the new company's first presentation will be on the UniWare stand at the forthcoming CeBit Hannover Fair. Although under present CoCom rules Unix cannot legally be sold into the Eastern Bloc, UniWare, like other hopefuls, (UX No 271), reckons that CoCom's regulations will have to be altered in the near future - see below.

Unix on cannibalised hardware

The jointly-owned GKI will be headquartered in East Berlin with offices in Leipzig and Schwerin, having limited liability according to the laws of East Germany. Headed jointly - and with equal voting rights - by Lfa's Helmut Grutzbach and UniWare's Hennig Wilke, it will develop and market new UniWare applications and training services for Eastern Europe - Klauke reckons there are around 7,000 Unix systems in East Germany, mostly cannibalised from ancient Western hardware - as well as for the European Community countries. UniWare will supply most of the software and marketing experience, Lfa the development and resources.

East German Unix users group comes to life

VEB Leitzentrum für Anwendungsforschung Lfa, with 600 employees - 420 of whom are involved directly in software development - operates out of offices in East Berlin, Karl-Marx-Stadt, Leipzig and Schwerin. It offers CAD/CAM, communications, software design, data processing and office automation solutions, as well as training and maintenance to governmental data processing departments across East Germany, where its software is used in economic and administrative tasks. Under its roof a Unix users and system developers group has been established - the Entwickler und Anwendergemeinschaft Unix-kompatibler Systeme, EAG - led by Helmut Grutzbach. Lfa is the Unix software subsidiary of parent company KDV which has 12,000 employees throughout East Germany, second in size only to VED Kombinat Robotron, the largest and best known computer manufacturing outfit in the Republic.

Reunification may leap-frog CoCom rules

Klauke insists that a fuller picture of GKI's future and the relationship of East Germany's information technology industry with CoCom will not become clear until after the Democratic Republic's general election on March 18, which will raise the phoenix of a reunited Germany. Under the West German constitution every district of East Germany can apply for annexation to the Federal Republic. If this happens, districts formerly in the Democratic Republic that become part of West Germany will fall under CoCom's rules governing Western European nations, thereby lifting current restrictions on the import and export of technology to East Germany. We hope to have a full report on the kind of Unix systems and software currently used throughout Eastern Europe in Unigram.X over the next couple of weeks.

SPAIN'S THRIVING UNIX MARKET FORECAST TO GROW ANOTHER 41% THIS YEAR

Systems running under Unix are experiencing major growth in the Spanish computer market according to a report by Spanish research and consulting company ECIE; 12,512 Unix systems were installed in 1989, a rise of 42% on the 1988 figure of 8,811. The 1988 figure alone represented 40% of the total installed base of 21,753 Unix installations: that base was valued at \$506m at the beginning of 1989. Unix now accounts for 12% of multi-user installations, and 41% growth is expected for 1990, dropping to 36% in 1991, 29% in 1992 and 25% in 1993. The main growth is forecast to be in small systems and workstations in local area networks, particularly between 1991 and 1994. AT&T, Bull, DEC, Data General and Siemens have already announced their intentions to launch personal computer local area network products for Unix. Of the Unix base, 54.8% is accounted for by personal computers, followed by small and medium systems. The report identified only one mainframe Unix installation, an M-series machine installed by Fujitsu Espana SA in 1988. At present Unisys Corp is the market leader, with 44.6% of the total Unix machines, due to the success of its PC/IT and PW2 personal computers. Some 12% of the market is held by Spanish TSI, with the company's base also concentrated towards small systems. In third place is Hewlett-Packard Co - but it comes out top of the tree in terms of value of its installed base. NCR is fourth in line both by number of systems installed and by value. The list continues with Siemens, Olivetti, DEC, Nixdorf, Philips, Control Data and Fujitsu. Interestingly IBM does not hold any of the top positions, but although the company was dubious to trust open standards initially it is now trying to get into the open market. Main users of Unix are service companies, businesses, distributors and public administration. The Spanish Central Government is giving special priority to Unix following the example of the European Community which supports open systems development for better communication and integration of the various organisations within the Community. Over the last few years Unix has been a necessary requirement for many public contracts in Spain. ECIE predicts the growth of Unix in Spain to be above the European average over the next few years.

NCR SEES OPEN SYSTEMS FUTURE IN COOPERATIVE COMPUTING - CHOOSES NEW WAVE FROM HEWLETT-PACKARD

NCR Corp chief executive officer Charles Exley Jnr, president Gil Williamson and senior vice president R Elton White made a flying visit to the UK last week, brandishing hot-off-the press copies of NCR's 1989 annual report and carrying the message of the company's new Open Cooperative Computing strategy, revealed a few weeks back in the US (UX No 270).

According to Exley, the "disappointing" one percent decline in revenues this year to \$5,956m, was due both to a continued weak market demand (especially in the US) and to the adverse effect of exchange rate changes on international business. Meanwhile, he said, earnings per share rose to a new record of \$5.38, due to the company re-purchasing 9.4m shares - and in December NCR announced an authorisation paving the way for another \$15m shares of common stock purchases over the next two years. This said Exley, was financed by improved asset utilisation, with asset turnover reaching a high for the decade, and rates of return on equity and assets strong. Research and development spending was increased by 7 percent, now standing at an all-time high of 7.5 percent of revenue.

Tower Growth

In terms of products, the major growth areas were NCR's industry specific terminal systems for retail and financial users, and the Unix-based Tower series of mid-range, multi-user systems, which now contribute the largest slice - \$850m - of overall revenue. Major declines were seen in revenue from large systems and communications processors. General purpose workstations business - including PCs running DOS and OS/2 - suffered a 19% decline, attributed to a narrow product offering during the early part of 1989, but since then the company has introduced its i486-based MCA machine, along with more 80386 and 286 offerings. These figures were reflected in organisational changes last year that resulted in the formation of two main company groups - the Integrated Systems Group for end-user systems, and the General Purpose Product Group for general purpose development platforms for NCR, third parties and customers. And in November, NCR improved its distribution channels for low-end products by signing an international agreement with Businessland Inc.

New Wave

Although at first sight the Open Cooperative Computing announcement appears as nebulous as the many similarly named initiatives from other hardware vendors launched of late, NCR does appear to have some fairly solid intentions under the banner, with the first announcements due during the second half of the year. For a start, NCR has a better foundation of open computing experience than many of its competitors: it has been vigorously selling Unix machines for the past decade, while encouraging migration from its proprietary lines and ramping up PC and OS/2 lines. Open Cooperative Computing will use a layered software approach using standard interfaces wherever possible - Presentation Manager and Motif at the user interface level down to DOS, OS/2 and Unix at the operating system, and including the database standard SQL. This year will see the launch of the Cooperation software package, likely to be based on Hewlett-Packard's NewWave Office software, following NCR's announcement last week of a licensing deal with Hewlett-Packard on undisclosed terms. The software, according to Gil Williamson, would be the first from NCR not tied to the hardware, and would include collaborative services, office services and workgroup computing, running on top of a client-server distributed computing model - a description tying in with the HP product. This is likely to be DOS and OS/2 initially, with Unix support available next year. Independent software vendors are currently working with NCR to integrate their products within the architecture. Meanwhile, proprietary NCR users will have the opportunity to connect or migrate to open systems. A "Unix slice" is already offered on NCR's top-end V Series machines, allowing file transfers between the two environments, and similar strategies are underway with the I Series and fault tolerant systems.

And the Unix-based Tower systems also have a re-vamp in the pipeline, following NCR's technology deal with Teradata Inc (UX No 269) will continue to offer users power increases", said Exley "but feel that in the 1990s, the whole nature of the computing market will change towards microprocessor-based systems. We will provide the software tools to allow users to implement or re-implement their systems onto the new generation".

ULTRACOMP'S TRADA-UNIX GIVES UNIX USERS ACCESS TO TRADANET EDI

Crowthorne, Berkshire-based ICL systems house Ultracomp Ltd has signed a agreement with International Network Services Ltd to develop a range of communications software known as Trada-Unix, which will allow Unix users to access the Tradanet electronic data interchange - EDI - service operated by INS. Tradanet lets traders exchange commercial documents via computer regardless of communications protocol. With a menu-driven interface, Trada-Unix has auto-dialling features and a batch interface that allows other applications to control it, so that it can be integrated with existing software systems. Ultracomp has been going nine years and is looking for a turnover of £4m in 1990.

In Brief

ProTech Computer Group Inc of Batavia, Illinois, has released ProTech System V Release 3.2 claimed to be the most advanced version of Unix System V available for VAX processors, supporting QBus, Unibus and Massbus equipped VAX processors: it runs on 86XX, MicroVAX and the 11/7XX series of VAX systems.

In conjunction with a consortium led by SD-Scicon, which also included Secure Information Systems Ltd and Pilkington Communications Systems Ltd, Nixdorf has won a big order from the RAF supply control centre in Harrogate for 28 Targon/31 secure Unix multi-processors, two Targon/35s for use as mainframe gateways, 500 terminals and 300 printers which are to be installed in a 1,000 user network.

AI Ltd, Watford, Hertfordshire is to begin shipping release 2.5 of its Qunitus Prolog development environment for Sun workstation users this quarter, in addition it will be the first version of QP available on DEC and Intergraph's Risc-based systems - QP 2.5 has a new Gnu Emacs interface and communications package.

Alliant Computer Systems and BIOSYM Technologies Inc, San Diego, California, are to develop and market a parallel processing version of BIOSYM's Discover computational chemistry software for Alliant's FX Series of parallel supercomputers.

Cimline's computer intergrated manufacturing software is now available on Solbourne's Sparc-based Series 4 and Series 5 workstations.

Hewlett-Packard's new manufacturing package for Unix - OpenMFG, (UX No 269) - is written in the Progress 4GL and is available exclusively from West Midlands-based software house Larpo im.

Nearly a year after its merger with Apollo Computers, **Hewlett-Packard** has announced a a single CASE environment across all its workstation platforms - HP CASEdge: it includes the SoftBench tool supporting Ada, C, Pascal and Fortran, which is integrated with Apollo's DSEE.

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Electronic News hears that the raw cost of silicon on the RS/6000 motherboard adds up to \$2,700, meaning that margins on low-end machines must be extremely tight: IBM is currently working on a single-chip version of the line which will be slower, but cheaper than current entry-level systems.

Meanwhile, Computer Systems News reports that the largest response to the RS/6000 has come from business resellers, rather than the scientific VARs IBM US was hoping to attract.

Intel Scientific Computers is now offering a bridge between its parent's iPSC/860 parallel supercomputer and VAX/VMS, called VMSlink. It consists of VAX-resident software that gives VMS application users Ethernet access to the processing power of the iPSC/860. VMSlink is out now priced at £13,500.

Proving that it is still at the forefront of standards development efforts, a snapshot of the IEEE's forthcoming standard for shell command language and applications and utilities portability - Project P1003.2 - is now available in the form of a white paper from UniForum's technical committee, price is \$3: the proposed standard is now going to a ballot.

Graffcom Systems' Lotus 1-2-3-compatible Quintet spreadsheet is now available on ICL's new Sparc-based DRS 6000 systems allowing transfer of worksheets from PCs on to the Unix boxes.

Also on the DRS 6000 front, the Liant Group's London-based Liant Software Ltd subsidiary - formerly Ryan McFarland Ltd - is handing over porting and distribution of its RM/COBOL-85 compiler on the new ICL systems to software house Control-C in a three-year agreement - the compiler and run-time package will be available from the second quarter.

Sea-Change Ltd, York, has ported its Application Development Tools environment, containing 250,000 lines of C code, to the new IBM RS/6000 family: Application Generator starts at £1,250, Programmer's Toll is £1,500 and Template source code is £3,000.

IXI Ltd has reached a worldwide agreement with Opus Systems which will be offering X.desktop on its 88000-based workstation products.

Meanwhile IXI's much troubled neighbour in Cambridge, Torch Technology, is reckoned to have up to seven offers on the table for its business, either for the whole or parts. IXI says it is "interested in both options", but a deal on any of the offers is reckoned to be three or four weeks off. Torch went into receivership a couple of weeks ago, (UX No 269), when Australian backers Catsco put the brakes on additional funding. Torch employees are still being paid and have been given another month's grace in their jobs.

Pegasus plc's international division known as Osprey Software Ltd, which was set up last year and is jointly owned by Pegasus and the Italian ESA Group, has been rolled into Sphinx's own international division and will operate out of Sphinx's Maidenhead, Berkshire office under Martin Ruda. Since Pegasus bought Sphinx last April, (UX No 224), their respective international operations have been separately run, the new operation will sell both Pegasus and Sphinx products.

Informix Software Inc has signed the Top Log SA subsidiary of Metrologie International SA to a \$10m two-year agreement under which it will distribute the company's entire Unix software product line in the UK, West Germany and Benelux, and on an exclusive basis apart from Informix in France and Spain.

Informix Software Inc says its Informix-Net now delivers client-server processing to Informix database users on Unix servers on Novell NetWare local area networks.

The City rumour mill is churning overtime again at STC Plc in what has all the signs of a cynical ramp, with Sun Microsystems Inc the latest unlikely candidate put into the frame to take a 25% stake in ICL - for what sounds a rather cheap £250m: as Sun constantly has to go to the market for more cash to fuel its soaraway growth, it doesn't seem likely to be able to find that kind of money; a little less unlikely is the suggestion that Northern Telecom Ltd has failed to find enough synergy in the relationship with STC and may want to sell its 27% stake - trouble is the shares are still trading at less than the Canadian paid for the investment, but Northern Telecom is another company always hungry for cash, so it may not feel that it can justify sitting on its holding in the British company.

TeleVideo Systems Inc, San Jose credits cost reductions resulting from returning computer manufacture to the UK for cuts of up to 20% in its personal computers: 80386SX boxes now start at \$1,900; a 25MHz 4Mb 80386 box now starts at \$4,800.

The appointment of former Olivetti number two, Vittorio Levi as heir apparent at Nokia Data Systems is seen as a declaration by Nokia Oy that it has no intention of selling the business: Levi is talking of strategic alliances with a chip manufacturer or other computer companies, but says any pact will fall short of a merger.

Hewlett-Packard Co has begun shipping the HP Vectra 486 PC to customers worldwide and claims to be the first "established" vendor to offer a personal computer based on the 80486 and the Extended Industry Standard Architecture bus, and says it believes EISA is a superior alternative to IBM's Micro Channel Architecture, "which also provides extra performance but requires customers to make additional hardware purchases"; Hewlett says the box supports up to 64 users in a local-area network, and costs from \$10,500 with 2Mb and a 1.2Mb floppy to \$19,500 with a 670Mb hard disk.

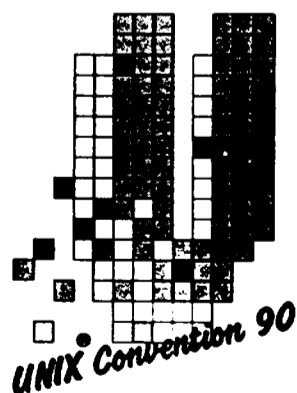
Four companies are said to be in the bidding for Hoskyns Group Plc at about £400m: Nynex Corp has publicly declared its interest in putting Hoskyns alongside its BIS acquisition, and AT&T Co is believed to want to add the company to its Istel Ltd buy - but will either of those want it to retain its London quotation? A long list of others that may well be interested includes Cap Gemini Sogeti SA and BellSouth Corp; the price is likely to put it out of reach of UK firms.

Cray Computer Corp, based in the old Inmos International plant in Colorado Springs, Colorado, says that it has licked all the problems in building its forthcoming supercomputers in Gallium Arsenide, and that it will be able to put the chips to be used in the machine into volume production and repair the supercomputers in the field.

IBM has used the same CMOS technology it utilised in the development of the RS/6000 processor as the basis for a five chip implementation of its basic 370 mainframe architecture: the Boblingen laboratory designed set can be driven at up to 50MHz for up to 30 MIPS performance, and could be used in a low-end or mid-range 370 or 9370.

88open US 503 682 5703. Altos UK 753 23024
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369 8175 Cimline US 312 228 7300. Cimline
UK 602 256255. Emerald Technology US 206
485 8200. H-P US 408 447 1155. H-P UK 340
773199. Hughes LAN Systems US 415 966 7300
IXI Ltd UK 223 462131. IXI US 617 494 6514.
Informix UK 0784 240444. Informix US 913
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IBM PREPARED TO LICENSE RS/6000 RISC ON CASE-BY-CASE BASIS...

IBM says that it is prepared to license the design of the RISC processor in its RS/6000 Unix machines to individual companies that want to enter negotiations for rights to it - but it has no intention of making it generally available as Sun Microsystems Inc has done with the Sparc. It seems unlikely that many companies will be interested because IBM's licensing terms tend to be very demanding - Cypress Semiconductor Corp has ended negotiations to buy a licence to make IBM's 4M-bit memory chip because, it says, it wasn't prepared to meet the \$50m price IBM asked - "there was one zero too many".

OPEN SOFTWARE FOUNDATION IS FRAYING AT THE EDGES

In the last few months, eight members of the Open Software Foundation have failed to renew their membership in the organisation. The only one apparently anxious to trumpet its defection, however, is Toshiba America, which continues to retain its membership in the rival Unix International organisation. Toshiba vice-president Don Anderson said the firm allowed its membership to lapse because it failed to see any advantage in continuing to pay its \$25,000 subscription fee. "OSF's only argument to continuing membership is being part of the Request for Technology process. But members don't have any influence. The OSF staff make all the decisions anyway - and blatantly say so. And if a company wants to influence the process it can do so without being a member". Toshiba, which has opted to use Sun Microsystems' Sparc processor, was one of the companies endorsing Unix System V.4 at its roll-out by Unix International in New York in October. The Foundation, which now claims 185 members, declined to name the firms that have dropped out, quoting a "management decision" to protect their identities. An spokeswoman indicated that erstwhile members Apollo and Lachman Associates, both recently acquired, were in addition to the eight defectors. Hewlett-Packard, she noted, nobly continues to honour Apollo's major \$4.5m a year commitment as a founder member. But the delays in getting OSF/1 out the door are straining the organisation, which has cancelled plans for a distributed database Request For Technology, and with members having to invest in their own Unix developments to stay competitive in the meantime, the Foundation is in danger of further cuts.

MOTOROLA TAKES RISC INTO "COMMODITY BUSINESS" WITH MULTI-PERSONALS

Motorola's General Systems Sector president and general manager Ed Staiano promised to "drive mid-range computers into a commodity business" last week at the company's grand unveiling of its new 88000-based MultiPersonal Computer line, writes Maureen O'Gara. Staiano said that Motorola has been preparing for such a move for four years, conditioning its manufacturing muscles to turn out scads of cheap high-performance systems and knock the competition for a loop. Last week's introduction is only the beginning of a grandiose design to push its way into the computer business, Staiano said, implying that the next 12 to 18 months would see additional assaults. Motorola has built its strategic thinking on the notion that only about five companies can survive the "commoditisation" process and remain really sizeable entities. It is Motorola's intention, Staiano readily admits, to be one of those survivors. The company has positioned its boxes exclusively as commercial machines, an arena where applications software is particularly crucial. It may therefore be necessary, Staiano admitted privately, for Motorola to invest in software houses over the long term as it did recently with the board company Interphase and last week with Network Computing Devices Inc. Staiano denied that the announcement would cause bad feelings from its OEM customers such as Data General Corp, saying they were supportive because of the boost to the marketplace. Full details, page 2.

COMPAQ, BUSINESSLAND KISS AND MAKE UP

In what looks like bad news for NCR Corp and NetFrame Systems Inc, Compaq Computer Corp and Businessland Inc have now settled their differences and the San Jose company-owned retail computer chain is to put Compaq's computers back on its shelves - including the new Systempro servers that compete with NetFrame's servers. Early last year, Businessland decided to major on IBM's PS/2 line and got such big discounts that it was able to pay much better commissions on the things than on Compaq boxes. It demanded special terms from Compaq, but the latter insists that it will not favour one reseller over another and withdrew its machines in April - a move that had little effect on Compaq's sales, but hurt Businessland. NCR was signed last autumn to fill the gap left by Compaq, but must now compete with it.

...AS COMPAQ INVESTS IN 80386 CHIP CLONER NEXGEN

Already backed by Ing C Olivetti & Co SpA and Chips & Technologies Inc, Nexgen Microsystems Inc, San Jose, California looks increasingly like a serious competitor for Intel Corp with its eight chip emulation of the 80386 architecture following Compaq Computer Corp' decision to join the ranks of investors in the firm last week. Nexgen confirmed that Compaq Computer Corp has made the equity investment in it, in the belief that "Nexgen is working on some interesting technologies, which could be important in the future". Nexgen's Superscalar technology "will deliver raw performance better than advanced RISC processors" while maintaining complete compatibility with iAPX-86 applications". Compaq's initial \$5m to \$10m investment brings equity finance to over \$25m. Compaq has made no secret of the fact that it is unhappy at being single sourced on the microprocessors at the heart of all its machines, and that Intel has moved into the systems business in competition with its customers. The eight chip set is fully software- but not pin-compatible with the 80386 and 80486: it applies RISC techniques to the creation of a set that emulates the Intel CPU, cache controller and maths co-processor, and a single processor is rated at about 25 MIPS; the company's systems will cost \$10,000 to \$50,000 for a fully-configured four processor model. Original investors in Nexgen also include Yamaha Corp and Mitsui & Co (UX No 221).

MOTOROLA MAJORS ON X, TAKES 10% OF NETWORK COMPUTING DEVICES

Motorola Computer Inc duly introduced its new MultiPersonal Computer line in New York last Monday at the plush Rainbow Room atop New York's Rockefeller Centre, claiming to bring the advantages of technical workstations, including high-resolution graphics, to the commercial market. A key part of the launch was an endorsement of X-station developer Network Computing Devices of Mountain View, California, involving a major OEM deal with NCD, and the signing of a letter of intent for Motorola to take a 10% equity stake in the privately held company. There are three models in the new MC88000 RISC-based range, including the 20MHz MPC-100, 25MHz MPC-200, and dual processor 25MHz MPC-300, with a claimed performance range of from 27 to 67.2 MIPS. Each comes standard with three Network Display Stations, sourced from Network Computing Devices and available in 16" or 19" mono or 17" colour versions. The low-end machine will support up to six active, 10 casual stations, while the top-end dual processor can handle up to 32 active, 66 casual stations. From the X-stations, users can access software on the host system or network with full high resolution X-Window-based graphics, or MS-DOS software using the CGA, VGA and EGA standards via the SoftPC emulator from Insignia Software. The result, says Motorola, is pricing one third to half the price per seat of rival commercial workstation systems - that's \$907 per MIPS compared with \$1,328 per MIPS for the recently launched IBM PowerServer workstations. Using Unix System V.3, the VME-based machines come standard with TCP/IP, NetBIOS, NFS, OSI, SMB and AppleTalk protocols over Ethernet, Token Ring and soon the high speed FDDI topology. Other bundled software includes the Uniplex II Plus office automation package and trial version of Framemaker desktop publishing, OSF/Motif and the Looking Glass desktop manager from Visix Software Inc, as well as an ASCII to X-Window utility to aid the transition to graphics-based interfaces. Prices start at \$24,000 for the MPC-100 - about \$8,000 per seat for a three user system. This falls to \$6,600 a seat for a 16-user MPC-300, which starts at \$60,000.

Motorola US and Europe split over interface

Our story mentioning that IXI Ltd's X.Desktop was to be licensed by Motorola in Europe caused quite a stir back in the States, as Visix Software has a worldwide deal with Motorola Inc for its Looking Glass product. It turns out that despite a press release announcing a licensing deal, IXI does not have an official agreement, but is offering the software through the 88Open Software Initiative. Motorola in Europe is keen to offer X.Desktop, with product marketing manager Dave Tanner saying that the product offers support for internationalisation that Looking Glass from Visix does not have. In the US, however, Motorola top brass are saying that such issues are being tackled, and will be solved within a few months. The major reason why the launch did not happen in Europe, despite the fact that half of the company's business is sited there, was to give Motorola extra time to sort out Internationalisation issues.

KNOWLEDGESET AND CD-ROM INDUSTRY GETS BOOST FROM RS/6000

Included within the many announcements at IBM's RS/6000 launch a few weeks back was a CD-ROM copy of documentation for the system, allowing users to access all of the 16,000 pages of documentation from a single disc, read by the CD-ROM drives built into most models. The InfoExplorer retrieval software includes features full text search methods and hyper-text links to graphics and cross references. It comes from a licensing agreement IBM has with Mountain View, California-based KnowledgeSet Corporation, which sells the product under the name of the Knowledge Retrieval System. The IBM deal marks the company's first major Unix success: it has previously sold the product under DOS and Macintosh environments.

IXI HAS OSF/MOTIF KIT FOR SUNS

For political reasons if nothing else, Sun Microsystems is unlikely to endorse or offer its users the OSF/Motif graphical user interface. So UK graphical interface software house IXI Limited is offering ready to run OSF/Motif Development Kits for £695. According to IXI there is "a significant requirement for OSF/Motif development tools on platforms where the manufacturer does not supply it". The product, comprising of the OSF/Motif Toolkit, Window Manager and User Interface Language as object libraries, includes OSF/Motif documentation and six months support.

...AS VISIX TOUTS LOOKING

GLASS AT SUNVIEW ENVIRONMENT

Visix Software Inc is pushing ahead in the heated desktop manager race by putting its Looking Glass interface under Sun Microsystems' SunView, and going after what Visix management reckons is 90% of the Sun dominated workstation market. The company also feels that bitter rivals IXI Ltd won't be able to follow them there. The software, which will impart a Motif look-and-feel to Sun machines, should be immediately available, priced at \$695. Visix has also been going direct after big end-users, backed by a 15-man sales force, and expects to be announcing some really big hits soon. A \$100,000 a month advertising campaign, directed at large accounts, should kick off in May.

IIM INTEGRATES MS WINDOWS AND X WITH HARDWARE SOFTWARE PC KIT

A new hardware and software package from Integrated Inference Machines looks like being the most effective way yet of adapting PCs to work as X-terminals. IIM, from Anaheim, California, developed the X/PAC package when it found the need to integrate two different windowing systems running on its proprietary 450 Series 40-bit symbolic processing engines. One model, the 450i attached processor inference engine, was front-ended by an Intel-based PC running Microsoft Windows, while the 450e Ethernet network node unit ran under X-Windows. IIM decided to combine the two in its X11/AT server software, which runs on top of Microsoft Windows and converts X-Windows subroutine calls to Microsoft Windows calls. Now the company has added a TCP/IP kernel, network interface card drivers and a PC diagnostic and installation support software program to create the X/PAC system. The main hardware component is the PC/AT Multifunction Card, which functions as a network interface card and extended memory card (2-16Mb), and the Ethernet interface circuitry includes the Fujitsu Etherstar VLSI chip for high speed network operation. The whole package costs from \$1,599. IIM begins shipping to dealers and end users this month: in the UK it is available through UniPalm Ltd. The company is now working on an MS Windows 3.0 version, and on a Presentation Manager/X-Windows integrated product. IIM senior vice president Charles Ross said that "a sizable number of our X11/AT buyers intended to convert hundreds or even thousands of their PCs into PCs that could double as X-terminals". UK company Visionware Ltd in Leeds also offers Microsoft Windows and X-Window integration in a software only package costing from \$349 in the US: Visionware has a US office in Minneapolis.

INTERLEAF PREVIEW**INTELLIGENT "ACTIVE DOCUMENTS"**

Pushing back the frontiers of publishing technology, Interleaf Inc, Cambridge, Massachusetts has applied object-oriented programming techniques to create what it is calling active documents - electronic documents with the intelligence to access information, evaluate it and act on it. Previewed in Boston this week, the technology includes a technical proposal that shows different contents and has a different interface depending on the authorisation, need-to-know or interests of the person reading it; a document that, when it's completed, contains the instruction to mail itself electronically, automatically taking itself through the review process; a report that builds itself by running a corporate database, extracting data relevant to the individual user, putting the data into a document in graphic form and able to gather other information after evaluating the data it has already accessed; and a WYSIWYG editor that interactively ensures that users cannot violate the SGML document-structure standards mandated by the US Department of Defense. Interleaf will offer a Developer's Toolkit in the summer to enable other software developers and users to build their own active documents. The active document technology itself is planned to be available in the fourth quarter and will run on all the computers Interleaf supports, including Apple, Apollo, DEC, Hewlett-Packard, IBM RS/6000 and PS/2-386 and Sun Microsystems.

SANDERSON TAKES WORLDWIDE RIGHTS TO PICK-ON-STRATUS

Sanderson Electronics Plc is taking a leap up-market, taking worldwide rights to market Stratus Computer Inc's fault-tolerant machines running the Pick operating system. The agreement runs for an initial four and a half years, and the Sheffield company sees fault-tolerant systems accounting for half its business in three years. Affiliate General Automation gets the line for the US.

DEC'S X-STATION THIS MONTH

DEC is finally ready to launch its X terminal family on March 19 says Unix Today, setting a starting price of \$2,900 for the entry-level 15" monochrome version. In contrast to the Network Computing Devices X Stations endorsed yesterday by Motorola which use both a Texas Instruments graphics chip and a Motorola 68000 or 68020, the DEC VT1000s use only the TI34010 processor running at 50MHz, and also have a lower resolution - 75 dots per inch - on the 19" inch version than Network Computing's 100 dots per inch. DEC will offer X Window or up to six VT320 emulation windows, and has the X logic and memory loaded into programmable ROM, freeing more memory - although the standard 1Mb needs to be upgraded to 2Mb for an additional \$600 in order to run most X applications - 4Mb is the maximum configuration. The 19" version costs \$3,600, and a 19" flat panel monitor version is \$14,000 with discounts for 25-up. In the UK, the machine will surface at the Which Computer Show, starting on April 24th at Birmingham's NEC.

ULTIMATE'S PICK-UNDER-UNIX UP ON IBM'S RS/6000

Quick off the mark, Ultimate Corp, East Hanover, New Jersey and VMark Software Inc, Natick, Massachusetts announced Friday that they had completed implementation of Ultimate's ULT/ix version of the VMark uniVerse Pick-under-Unix for IBM's new RS/6000 Unix family - and IBM Austin lent a hand. As well as offering the software with the IBM machines, Ultimate plans to make ULT/ix for the RS/6000 available on a software-only basis at "very competitive prices" to attract new customers, especially among the IBM reseller community. Shipments will start as soon as IBM is able to get the hardware out the door. There are also ULT/ix implementations available for the IBM RT, Bull SA's DPX/2 and DPX/2000, Hewlett-Packard Co's HP 9000, and Sequoia Systems Inc's Series 300.

CONCURRENT COMPUTER PREPARES FAULT-TOLERANT ENTRY

Concurrent Computer Corp is set to enter the fault-tolerant systems market this April with a range of hardware, software and communications products - and as a prelude is homing in on the financial sector market currently dominated by Tandem and Stratus. Concurrent has signed a marketing agreement with FD Systems of New York and London for FD's Market Information Planning System - confusingly abbreviated to MIPS - to run on its real-time Unix Series 6000 and new RISC-based Series 8000 hardware, from the Masscomp side of the business. Concurrent claims the software is the first affordable system to integrate video and digital feeds from financial information services such as Reuters and Telerate. Concurrent provides two servers with mirrored disks for resilience, with workstations, personal computers, X or dumb terminals as display stations. FD Systems was formed in 1976, and has sold financial software in conjunction with Sun Microsystems and Stratus.

PYRAMID MOVES CLOSER TO BIIN

Pyramid, which is said to be interested in acquiring the assets of Biin (UX No 267), is now reported to be putting a research and development centre in close proximity to the remains of the now-defunct Siemens/Intel venture. Pyramid needs mission-critical fault tolerancy and a tech transfer is thought to be in the wind.

COMPAQ, APPLE, SUN "TO DO LIQUID CRYSTAL DISPLAYS"

Despite the failure of US Memories, another attempt at a US co-operative to reduce dependence on Japan Inc is being discussed, Electronic News reports. The paper says that Compaq Computer Corp, Apple Computer Inc, Sun Microsystems Inc, and three other unidentified companies have been in talks since last autumn on establishing a joint venture company to develop and produce high definition liquid crystal diode displays in sizes of 17" up for the shareholder members of the consortium. The technology would be licensed from the David Sarnoff Research Center in Princeton, New Jersey, and the members reckon that seed investment of \$100m would be required by the corporate shareholders in the privately held company. The paper hears that a business plan is being prepared and that a June launch is planned. None of the named companies would comment.

ALTOS PINS REVIVAL HOPES ON NEW 80486 LINE

In the UK, Altos Computer Systems Ltd's new managing director Colin Globe reports that the company is now shipping "several hundred" 486 System 1000 boxes a month. The 1000 was introduced at the beginning of the year, (UX No 265), and Altos is pinning much of its revival hopes on the system after a disappointing fiscal 1988/89 which saw sales plummet 20%. Frame Technology's FrameMaker publishing software, Informix's Wingz spreadsheet and SCO's Open Desktop are currently being ported to it and will be available by the summer - a DOS emulation product will be offered in the future. Multi-processing versions of the 1000 running Corollary Inc's multi-processing Unix extensions are expected before the end of the year, though Unix V.4 won't be on the uni-processor models until 1991. Altos' i860 RISC-based system, revealed here back in September, (UX No 250), will also be out next year according to Globe. At the low-end the firm has introduced a package of PC-orientated software aimed at its entry-level 386 Series 600 - though it will run on all of its 386 and 486 platforms - combining WordPerfect, SCO Professional, Altos MultiView, Altos Mail and Altos Calendar. Altos Open Office is available now for \$3,795. Altos also plans to introduce a new range of graphics software during the Which? Computer Show, April 24-27 at Birmingham's National Exhibition Centre. The company claims an installed base of 15,000 in the UK, with Spain its fastest growing European market. Globe arrives at Altos UK after 10 years out in corporate headquarters, San Jose, California, to the job vacated by Archie Thomas at the beginning of last year, (UX No 219). Mike Daly and Barry Forrest - formerly general manager and marketing manager respectively - have left "to pursue other interests".

AGE BUILDS ON X BUSINESS

San Diego start-up AGE is beginning to wrap its tentacles around the budding X terminals business. In the last few months, the software company signed OEM deals with screen mavens Tektronix and Hewlett-Packard for the X server code to power up their X terminals. Then IBM went to AGE for the Xstation Manager software it's using to run its "sexy" new Xstation 120 off of the brand new Rios (RS/6000) boxes it has just announced. Separately, AGE will be putting on the market the Xsoftware programs it has developed to run IBM's Xstation 120 off of the installed base of old RTs and SUN/OS-run Sun workstations. When Xsoftware for the RT and Sun becomes available next month, licenses are expected to go for under \$1000 in both single and multi-user versions. And by April we wouldn't be at all surprised to see a package for DEC's X terminal.

SEE AND BE SEEN AT MAY'S EXECUTIVE UNIFORM SYMPOSIUM

Aside from the cavalcade of exhibitions now littering the Unix scene, the next de rigueur see-and-be-seen event in the industry is the second annual Executive Uniform Symposium sponsored by Uniform, X/Open and the Seybold Office Computing Group. This year's festivities are scheduled to be held in the plush surrounds of the Four Seasons Biltmore Resort Hotel in Santa Barbara, California on May 22, 23 and 24. Price of attending is \$1095; \$895 if you are a member of Uniform or a Seybold subscriber. The usual Unix "rat pack" will be on the dais: Nicholas Donofrio of IBM Advanced Workstation Division, David Tory of OSF, Peter Cunningham of UI, Doug Michels of SCO, Bill Joy of Sun, Robert Kavner of AT&T as well as some less hackneyed faces: Pete Peterson, executive VP of WordPerfect, Alfred Spector, president of Transarc and Jay Wettlaufer, chairman of Visix. Sensibly enough, the symposium will focus application development - and even try to spot the new killer applications, such as offering a sneak preview of the next generation of multimedia software.

MICRO TEMPUS PROMISES**LAN MANAGER/MVS FOR 1991**

Long-time micro-to-mainframe link developer Micro Tempus Inc has teamed up with Microsoft Inc, Redmond, Washington to say that it will next year be marketing LAN Manager/MVS, an implementation of OS/2 LAN Manager to run on 370-type mainframes under MVS; VM and DOS/VSE versions will also be offered if there is demand for them. LAN Manager/MVS is written in C and based on LAN Manager 2.0; it will turn an IBM host into a giant server compatible with OS/2 LAN Manager, IBM's LAN Server, 3Com Corp's 3+Open LAN Manager, and LAN Manager/X for Unix. The company claims that geographically dispersed local area networks based on LAN Manager will be able to access each other's resources via the mainframe by using a companion product, The Enterprise Router, which is a VTAM subsystem designed to act as a routing hub over existing SNA links. Set for delivery in the second quarter, The Enterprise Router costs \$22,300 to \$34,000 for the host component depending on processor size, and \$1,950 for each local network-to-host component. LAN Manager/MVS will go into field testing in the fourth quarter and is planned to ship in 1991. Prices for it have not been set.

PROLINC FROM HUGHES OFFERS**MULTI-PROTOCOLS FOR DOS DESKTOPS**

Hughes Aircraft's LAN Systems, Mountain View, California-based subsidiary, has introduced ProLINC Software, a connectivity package integrating a range of protocols such as NetWare IPX, DEC LAT, TCP/IP and NFS Services for DOS-based desktops via Hughes' Multiple Protocol Architecture. Three protocols can be used simultaneously with ProLINC, and users do not need to reboot their machines to load or unload each protocol. Using three protocols at one time allows data to be transferred concurrently across dissimilar networks and systems. Protocols can be off-loaded from RAM to allow applications to be used - they can be re-loaded without re-booting. ProLINC requires no gateways - it is independent of LAN operating systems, and supports a range of terminal emulators. LAN Systems says ProLINC is the first member of what is expected to be a family of connectivity applications linking PCs and PS/2s to LANs and network resources. Support for SNA, DLC and OSI will be offered in future, together with RAManager, a multi-function LAN adapter card LAN systems is developing. ProLINC Software will be out at the end of the month for \$600.

USER SOFTWARE ROLLS IN FOR IBM'S RS/6000

Announcements of the availability of end user applications for the new RS/6000 line from IBM are now coming through thick and fast. Here are a selection of the latest.

Decathlon Data Systems Inc's Goldmedal integrated office system includes compound document processing, 3-D spreadsheet, relational database, communications tools and graphics - prices start at from \$1,495, depending on the number of users, and availability is from the second quarter. Decathlon is based in Boulder, Colorado.

Xerox Corp's Pro Scan automated mapping and facilities management system is aimed at utility companies, such as gas, electric and telephone companies: the system is aimed at simplifying a utility company's transition from manual map drafting and record keeping to computerised mapping and asset management.

Maspar Computers of Manchester has sole UK rights for the K2 company information system developed by Dutch software house Adapt, and was demonstrating the package on the RS/6000 at the recent IBM 90 show in Birmingham: K2 is built around the Oracle database and SQL, and is centred around a general ledger, with project and cost management and budgeting and forecasting modules, amongst others.

PHILIPS NV SEEKS A PARTNER FOR

LOSS-MAKING COMPUTERS AND COMPONENTS
Philips NV accompanied its annual figures - net profits up 29.% at the equivalent of \$720.8m on turnover up 2% at \$30,010m - with a statement that it had no intention of selling its loss-making semiconductor and computer businesses, and that it would continue to invest to build the up to a point where they become profitable. The computer and professional electronics division saw operating profits plunge 90% to \$21m on sales up 4% at \$8,237m, while the components businesses made a \$65.6m loss against an operating profit last time of \$185m on sales up 9% of \$4,407m. Philips says it is interested in a partner, although it intends to retain control, and says that an announcement is likely soon. If it has found a partner, all the signs seem to point to Ivrea. Both Philips and Ing C Olivetti & Co SpA use the Arix Corp Edgecore super 68020 emulator processors at the top of their Unix lines, and the lower end 68000 family Unix machines are also similar. Both are substantial players in banking terminals and could achieve economies of scale and development, and in banking on essential peripherals such as journal printers and card readers. In the present climate in Europe such a move seems the most likely, but if Philips is ready to buck the trend it also has long ties with Motorola Inc's computer business, so a merger of its computer business with Motorola's European computer operations - with Philips retaining at least 51% - is not inconceivable.

**PRIME RECORDS \$101.3m
FOURTH QUARTER LOSS AFTER
RESTRUCTURING, OTHER CHARGES**

Prime Computer Inc, now privately held, although some debt issues are still traded, recorded a whopping \$101.3m net loss for the fourth quarter of 1988 on turnover down 9.3% at \$391.1m. The loss is after restructuring charges, and balance sheet costs such as write-off of goodwill, and also reflects interest and financing costs. The company's new legal parent, DR Holdings Inc, which was set up by J H Whitney Co to acquire Prime, says that without the one-time charges, amortisation and other acquisition costs, but, significantly, also before heavy interest payments, Prime would have reported a \$4.7m profit. But stripping out the interest charges is not a legitimate way of looking at the figures, because Prime is going to have to live with high interest charges for the foreseeable future following its heavily leveraged buyout. A year ago, Prime reported a loss of \$14.4m after \$32.8m in non-recurring charges. At the nine-month mark, turnover was down 5.3%, so the decline in the company's business accelerated in the fourth quarter, suggesting that if, as Prime says, customers held off from buying products because of the uncertainty caused by the protracted and ultimately unsuccessful MAI Basic Four Inc bid, customers are now at least as cautious about buying from a company labouring under such an enormous burden of debt.

COLLABORATION BRINGS OSI TO JAPAN

Major independent Unix software house Digital Computer Ltd is to team with Dash Communications Inc of San Jose, California, Maben SA of Paris, and Interglass Ltd of London to bring Open Systems Interconnection products to Japan and use them to create Japanese versions. Dash claims to be the world's first software house specialising in Open Systems Interconnection, and was formed by Charlie Bass, co-founder of Ungermann Bass Inc, and Digital Computer has concluded an exclusive agreement with Dash for distribution of its products, which will be implemented for leading computer architectures in the Japanese market.

**NEC REVEALS "SUPER-UX"
FOR SX SUPERCOMPUTERS**

With little opposition, Unix has become the preferred operating system for supercomputing and NEC Corp has been showing off its Super-UX implementation on its SX-2 supercomputer, which was designed to run a proprietary operating system: Super-UX was developed for its next generation SX-3 machine and the company has fixed the shortcomings of Unix for the supercomputing environment - enhancing support for input-output channels and the security and adding support for parallel processing to exploit fully the top-end SX-3 Model 44.

NKK HAS 5% OF SILICON GRAPHICS

Now that Control Data Corp has cut its holding in Silicon Graphics Inc to 5% from 20% - with the Mountain View company buying back its own shares - its Japanese distributor NKK Corp has filled the breach and is putting up \$35m for convertible preference shares that give it some 5%. It looks to sell 150 to 200 of the Iris 4D workstations this year and 500 a year in the near future.

**KODE LETS COMPUTER SALES
ARM GO IN MANAGEMENT BUYOUT**

Kode International Plc, Swindon has sold the computer and peripherals distribution arm of its Kode Computers Ltd to management for a lowly £1.2m in order to put all its efforts into its computer maintenance, engineering, training and consultancy activities. Kode's other business is Kam Circuits. The company will get £200,000 on completion and the £1m balance in stages. The new company has taken the name of the Comart acquisition, trading as Comart Systems Ltd and marketing Wyse, C Itoh and Intel kit from Swindon.

**BBB's DATABASE SYSTEMS PICKS UP
MEMORY COMPUTER UK ASSETS**

The BBB Design Group Plc has acquired some of the assets and businesses of Memory Computer UK Ltd, which went into receivership last month following the demise of the separate Dublin arm of the firm (UX No 271). The group is a design and computer services company, and it has paid an initial £225,000 in cash, with a further £50,000 payable in six months on a deferred consideration business. It has acquired Memory Computer UK Ltd, Memory Computer Investments Ltd, Memory Computer Systems Ltd, and the bureau division, Memory Computer Services Ltd. BBB says that there will be some rationalisation, but the receiver has already made 80 staff redundant, and BBB intends to keep the remaining 20 staff for the time being.

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NeXT Computer's expected 68040-based machine should be ready late this year if all goes well - but remember how many false launch dates were proposed and cancelled before the original machine finally saw the light of day (UX No 202): MacWeek hears the colour system will have a 33MHz chip, along with a faster, 20-millisecond access time optical drive.

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But two companies, Dayna Communications Inc of Salt Lake City and Pacific Micro Inc of Mountain View, California, are now offering SCSI-based external floppy drives for the Next machine.

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Matsushita Electric Industrial Co will show its Sparc-based workstations at this month's Hannover Fair to gauge reaction, and will market them in Europe if it's favourable.

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Differences over corporate strategies have seen Ing C Olivetti and Co SpA managing director Vittorio Cassoni to take over as managing director of the 27,000 employee, \$4,000m-a-year Olivetti Systems & Networks SpA computer subsidiary, replacing Luigi Mercurio, who will now "assume other important functions" at Olivetti, the company says.

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Racal Redac is looking to buy again, and this time the target is said to be Silc Technologies Inc.

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Struggling Daisy Systems Corp is to cut its worldwide workforce by 64 and will close its Mountain View headquarters where another 48 work, decamping to Boulder, Colorado.

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And Daisy says that the version of its computer-aided engineering suite of applications for Sun Microsystems' Sun-4 Sparc, with which its is replacing its own workstations, is available this month.

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IBM has announced that it is planning to provide Adobe Systems Inc font technology across all of its System Application Architecture compliant operating systems: it will be compatible with the AIX version of Adobe's Display Postscript system on the RS/6000.

Jean-Louis Gasse has at last confirmed that he is to leave Apple Computer Inc - but not until September: his responsibilities for new product development will be shared by three group vice presidents reporting to the chief, John Sculley.

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Xerox Corp made its publishing fortune out of Ventura Publisher, and its Xerox Desktop Software Inc subsidiary has now regularised the situation by acquiring the developer, Ventura Software Inc, Salinas, California, on undisclosed terms.

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The Consumer Electronics Division of Philips NV has signed with Prime Computer Inc for 1,000 Computervision workstations - based on Sun Microsystems hardware - to be used in the advanced design of its products: no terms were disclosed.

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Microsoft Europe denies gossip that the launch of Windows Version 3 has been postponed from April to May: it says that no definite date has been set, and is currently releasing a new beta version on to developers; as regards the suggestion that the products will be launched and available on the same day, Microsoft says it is one option under consideration.

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To strengthen its relationship with Silicon Graphics Inc further, Japanese steelmaker NKK Corp plans to take a stake in the Mountain View company's presently wholly owned Nippon Silicon Graphics KK, in addition to paying \$35m for a 5% stake in its parent.

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While bean counters reckon that Sun Microsystems must be moving close to its goal of selling 10,000 Sparcstations a month, they say DEC - in stark comparison - looks to be doing only 800 3100s a month, leaving them to speculate that if IBM can garner market share with its new AIX boxes it will probably be at the expense of the likes of DEC and Hewlett-Packard.

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At the launch of its VMS-based fault tolerant system in Paris a few weeks back, DEC officials promised that an Ultrix version was on the way, and would be ready "within a year".

Matsushita Electronic Industrial Co may not get a licence for the Japanese language version of SunOS from Nippon Sun Microsystems for its Sparc-based workstations, Newsbytes reports: Matsushita has been selling the Solbourne Computer Inc workstations using the American version of SunOS; insiders say Nippon Sun's licensing arrangement was not acceptable to Matsushita, which may develop its own Japanese language Unix for the machines.

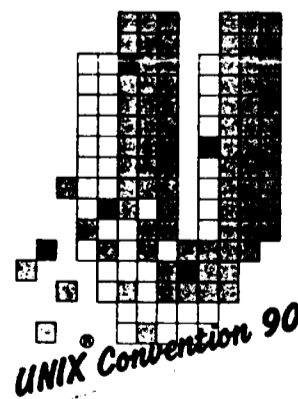
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The Open Software Foundation's three-man California office is now down to one sole recruiter handling membership services. An OSF spokeswoman said the consortium is now centralising these kinds of activities back at its East Coast headquarters.

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What gives you the impression that Unix user groups in Australia are rather less serious affairs than their equivalents elsewhere?: well, perhaps its the titles of the various Chapters of the Australian Unix User Group including SWiGS (the Software Wine Guzzlers Society), SESSPOOLE (the South Eastern Suburbs Society for Programmers Or Other Local Enthusiasts), and the slightly more boring Western Australian Unix systems Group who produce a publication called YAUN, standing for Yet Another Unix Newsletter!

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NOW AT&T TAKES A LICENCE TO HEWLETT'S NEWWAVE

Hewlett-Packard Co's HP NewWave object oriented desktop applications environment is beginning to look like a runaway winner with the news yesterday that AT&T Co has followed NCR Corp and Data General Corp in taking a licence to the software, while Canon Inc has joined forces with Hewlett to develop Japanese versions for Unix, MS-DOS and OS/2. NewWave runs on top of Microsoft Windows and is designed to make it easier for users to move and update information among different applications and to schedule routine tasks to be done automatically by the computer. AT&T, which did not disclose financial terms, plans to use the NewWave desktop as a component of some of its networked computing systems. NCR will be incorporating NewWave into the forthcoming NCR Co-operation office-automation system based on its Open, Co-operative Computing Architecture; Data General will use it in its Distributed Applications Architecture and Comprehensive Electronic Office. Hewlett says that more than 80 independent software developers are working on applications for use with NewWave, one of the key inspirations behind the formation of the Object Management Group, created to apply object-oriented techniques to establish a common applications environment to improve interoperability of hardware and software from different vendors.

DELL EXPANDS UNIX OFFERINGS WITH PRE-CONFIGURED 386, 486 STATIONS

Dell Computer Corp is expanding its Unix offerings this week with the launch of two Unix/DOS workstations: the DELL Station 325 and 425E, and is introducing a software kit to convert PCs into low-cost X terminals. Based on the existing Dell System 325 and 425E, the DELL Stations are sent out with pre-loaded software that includes Unix System V version 3.2, Uniplex office automation software, and X-Windows, including concurrent access to MS-DOS applications, OSF Motif and the IXI X.desktop graphical user interface. DELL Stations can be configured with up to 32 serial port connections. The X package, called DELL Station Partner kit, includes PC Xsight and PC Interface from Locus Computing, and supports VGA or Super VGA screens. A 25MHz 80386-based 325 with 8Mb memory, 100Mb drive, VGA adaptor and monitor and the software costs from \$9,000, while an i486-based 425E, including 100Mb drive and 150Mb tape, costs from \$12,000. The Dell Station Partner kit costs \$400, or \$200 with a Dell PC.

...PUTS ITS RISC DEVELOPMENT ON HOLD

Faced with an extremely soggy personal computer market, Dell Computer Corp has scaled right back its ambitious Olympic project to design a multiprocessor personal computer using a RISC CPU, for which the company hired three former IBMers, reports the Wall Street Journal. Last July, the company said that it was looking at four RISCs - the Motorola 88000, the Cypress version of the Sparc, the Intel 80860 and the MIPS Computer R-series, saying that it wanted to be sure that it had picked the right one (UX No 239). At that time, the company was also considering a parallel multiprocessor 80386 machine - but has not yet even got a 33MHz single processor 80386 machine down to the wire. A further setback for the company is that president Lee Walker has resigned for health reasons, although he remains on the board.

UNIX TO INFILTRATE UNISYS' PROPRIETARY SYSTEMS WHEN THE COMPANY LETS ITS SCAMP LOOSE

With an embarrassment of proprietary operating systems in an increasingly "open" world, Unisys Corp desperately needs a strategy to migrate users of some of its proprietary environments to Unix, and according to Mike Brewer, director of marketing for Unisys in the UK, the first fruits of the company's as yet unannounced strategy is not too far off - courtesy of the company's Scamp single chip A-series mainframe processor: "The Scamp will allow us to run multiple operating environments within one machine," Brewer points out. "We are of course looking at how to make Scamp run with Unix next to it, and I think you'll see something on that later this year. We already have one System 80 (the 7E) running on a Scamp chip designed for the A-Series. And we can use the chip to give new machines a dual character," meaning an A-Series with a 2200, or an A-Series with a System 80, or indeed a V Series machine. "In the long term all that is planned," he concedes. "You've just seen our second major effort with the Scamp allowing us to run multiple processors - in the new A6 models - and gradually you'll see more CPUs added to a single system. We'll take it as far as we can go right on up the range."

AT&T ADOPTS TANDEM'S

FAULT-TOLERANT UNIX BOX

The agreement under which AT&T Co will market Tandem Computers Inc's Integrity S2 three-processor MIPS Computer Systems Inc RISC-based fault-tolerant Unix machines as part of its 3B family (UX No 263) is finally signed, sealed and ready to go. The decision confirms AT&T's commitment to the MIPS series of RISCs as the successors to its WE32000 series of proprietary microprocessors for the 3B family, and casts further doubt on whether AT&T's proclaimed commitment to Sun Microsystems' rival Sparc will ever be converted into hardware. The agreement has no announced value, but seems certain to lead to enormous sales of the S2s into the captive market of local US telephone companies as it succeeds AT&T's much more expensive fault-tolerant 3B20D. AT&T gets worldwide marketing rights to the machines, and the pact also involves a joint development effort aimed at accelerating the availability and acceptance of Unix System V-based fault-tolerant systems, including new hardware and software for the Unix system market; advancing the delivery of Unix System V Release 4.0 on the companies' RISC-based fault-tolerant machines; development of Open Systems Interconnect protocols; and enhanced interoperability between AT&T and Tandem products. The partners also plan to establish enterprise solution centres which will review customer requirements and formulate specific solutions best addressed by integration of AT&T and Tandem products in the development and porting of applications, and serve as focal points for working with Independent Software Vendors in the development of fault-tolerant Unix applications.

SUN "YIELDS TO BT PRESSURE OVER YELLOW PAGES"

Sun Microsystems is to change the name of its Yellow Pages networking resources utility after the threat of legal action from British Telecom, industry sources are saying. Yellow Pages, a public domain name in the US, is a registered trade mark held by BT in the UK. Although neither company would confirm the story, Sun did admit that it is in the process of changing the Yellow Pages name, which is expected to be re-named Network Information Services and should appear at the same time as the low-end Sparcstation expected this summer. The namechange mostly affects documentation, which has to be re-printed, but system file names may also have to be changed, both by Sun and its licensees. Sun UK spokesman John Coon said he did not foresee any compatibility problems. A BT spokesman said that Yellow Pages was a registered trade mark "for both printed and electronic media", and that BT "always seeks to protect its trademarks".

DEC LAUNCHES US PROGRAMME TO SHED UP TO 8,000...

Without any formal announcement, DEC has begun its expected voluntary redundancy programme in the US, which it hopes will cut its 125,900 worldwide workforce by between 5,000 and 8,000 US employees. The company is offering those with less than two years of service 40 weeks' pay plus continuation of their medical, dental and life insurance benefits for one year; the maximum benefit for the longest-serving qualifying employees is 104 weeks' pay, and those with stock options exercisable after 10 years will be able to cash them in after five. If enough people take DEC's money, the fourth quarter charge could reach \$280m.

...PREPARES VAX 6000 500, MICROVAX 4000 FOR THE SUMMER

While power users - and DEC shareholders - wait impatiently for the company to start shipping the VAX 9000 in volume, DEC is hard at work at the lower end, and Electronic News expects it to come out with a new top-end VAX 6000 Model 500 at the start of its new year in July. The box is expected to use a new 11 MIPS version of the CMOS CPU and use a system bus running at 160Mbyte-per-second - twice as fast as in the 6000 400s. A MicroVAX 4000 using the CPU from the 6000 400 is also expected.

IBM RISKS MORE SELF-IMPACT WITH ITS SERVER PLAN

The things are not even announced until March 20, and Compaq Computer Corp is already rubbishing IBM's first major foray into the personal computer server market. According to the Wall Street Journal, IBM plans PS/2 Micro Channel servers based on the 80386 and the 80386SX, and the machines will come with up to 1.3Gb disk using the SCSI interface. The company is also working on an 80486-based model but that is understood not to be ready yet. They will make use of the bus-mastering capability of the Micro Channel, but the word from Compaq is that the things are simply a slight repackaging of the PS/2s with faster disk access. The Compaq Systempros come with one or two processors, distribute data over the disks for fast access, and will have an element of fault-tolerance. But IBM's biggest problem will be in pricing the things so that they are competitive with rival offerings without cannibalising sales of the low-end AS/400s: they will clearly be attractive systems on which to run the Baby/36 emulation of the System/36 environment from California Software International Inc, although third parties will be confined to the MS-DOS version of Baby/36 - IBM has acquired exclusive rights to the OS/2 version.

SANDERSON INCREASES ITS STAKE IN GENERAL AUTOMATION TO 49%

Sanderson Electronics Plc, Sheffield, has exercised more of its options on General Automation Inc shares, and has raised its stake in the Anaheim, California Pick-popper to 49% from the 35% it previously held. Sanderson still has warrants for another 2%. Separately, the General added the PL-Series to the CIE Systems line it acquired late last year. The PL-Series includes a modular set of systems that provide expansion from an eight-user system with disk capacity of 95Mb to over 9Gb; it comprises the four-slot the PL-400, nine-slot PL-900, and 15 slot PL-1500. Presumably based on the 68030, the machines sell for between \$16,250 to over \$150,000 with 128 users.

ALPHA MICRO PREVIEWS APIX CONCURRENT PICK+UNIX V.4

The one systems vendor community that has met the challenge from Unix head-on and looks like winning for itself the best of both worlds is the sturdy band of Pick-poppers, and having plunged into Pick with the acquisitions of Rexon Business Machines and Fujitsu Systems of America, Alpha Microsystems Inc, Santa Ana, California, which has vacillated over Unix in the past, has now taken the plunge with a vengeance, announcing Apix, which it claims is its own concurrent Pick and Unix System V.4. Apix will become the company's standard version of Pick, enabling execution of stand-alone Pick or Unix applications, or the concurrent execution of applications in both environments. It was made possible because Alpha Micro was a beta test side for System V.4, the AT&T implementation designed to pull together all the widely-used variants of Unix. The development and testing was done on AMS Pick Release 6 and an earlier version of Unix. Apix contains the necessary software bridges to move files and data between Pick and Unix applications, and supports environment switching, so that Unix and Pick applications can run under operator or program control, without requiring knowledge of which environment is being used. The company says that in its benchmarks there was less than a 1% decrease in performance when multi-user Pick applications were run under Apix. The beta release is set for the fourth quarter and Phase I will exclude the Pick-based Common Network Architecture communications, and the Unix networking and Graphical User Interface, and Phase II will include the first production release of Apix, with early ships in the first quarter of 1991, volume the second. The firm's core business remains its proprietary Amos operating system.

IBM HAS TCP/IP FOR OS/2 EXTENDED EDITION

The Transmission Control Protocol/Internet Protocol for OS/2 program enables OS/2 Extended Edition Version 1.2 users connected via a Token-Ring, an Ethernet Version 2 local area network, or an IEEE 802.3 local area network, to interoperate with other users and systems operating in a TCP/IP network - the protocol is widely used in the Unix world. TCP/IP for OS/2 provides TCP/IP protocols and selected client and server application protocol functions. It interoperates with TCP/IP products for VM, MVS, PS/2, AS/400, and the AIX family, and can communicate with other TCP/IP products that provide equivalent protocol support. The main features are TELNET Client including full screen emulation for both 3270, ANSITERM, and VT100; Client/Server support for TELNET, FTP, TFTP, REXEC, TALK, LPR, and MAIL/SMTP; a Simple Network Management Protocol agent can communicate with an SNMP monitor; Programming interfaces include Berkeley sockets, Remote Procedure Call, Network Computing System 3, and Kerberos; Kerberos authentication security support and resolver support; and Non-dedicated IP router function, including Routing Information Protocol. Available March 30, the 3.5" and 5.25" disks cost \$675, and the 3.5" and 5.25" disks with additional source material are \$1,675.

...AIX PS/2 PERSONAL GraPHIGS INTERFACE

In addition to the existing capabilities, an installable option and documentation is available that enables applications written to the Graphical Kernel System International Standard 7942 to run on the AIX PS/2 Personal graPHIGS Programming Interface Version 2 API. The GKS-CO supports level 2 of the kernel system with a Fortran 77 or a C binding. However, the option of running in an X-Window environment will not be supported until AIX PS/2 1.2 becomes available. Version 2 is \$395.

TULIP READIES FIRST EISA 486 LAUNCH FOR HANNOVER

Tulip Computers NV of Holland is looking up-market from its traditional line of IBM-compatible PCs, and will be launching its first Extended Industry Architecture system using Intel Corp's i486 processor at Hannover's giant Cebit exhibition later this month. The new Tulip tr 486e uses a 25MHz chip, and will be sold as a desktop publishing, CAD/CAM and engineering technical workstation, and also as a file-server for PC networks. Instead of second level cacheing, Tulip uses the capabilities of the i486 for its Advanced Memory Concept, supporting the chip's "burst mode" for data transfers from external memory to the internal cache at a transfer rate of up to 80 Mb/sec. The machine also features a hardware-based System Control Manager to control security. The floor-standing machines come with from 8-16Mb memory, eight EISA expansion slots and a choice of 100, 160, 330 or 660Mb hard discs. VGA is standard on the motherboard and there is provision for a Weitek 4167 co-processor. Currently MS-DOS and Windows is bundled with the machine, but Tulip is promising Unix announcements by the Which Computer Show in April, and also offers OS/2 as an option. Shipments start in May, and have been delayed due to difficulties making the i486 work with the EISA chipset, said Tulip UK's managing director Steve McCall. In the meantime, Tulip has an i486 ISA machine available immediately, with prices starting at £7,195.

SIEMENS STRENGTHENS INTEL RANGE WITH NEW WX200 WORKSTATIONS

Siemens AG, which is one of the few companies to continue with the National Semiconductor NS32000 range of processor for its mainstream Unix micro line, has now strengthened its Intel-based systems range with the launch of four new workstations in Germany. The WX200 Series of internally developed 386 and 486 systems run the Santa Cruz Operation's Open Desktop package of Unix V.3, database, office software and networking, accessed through the OSF/Motif user interface. Emulation of alphanumeric Sinix screens allow for the integration of applications written for Siemens' Sinix Unix implementation, and Siemens also offers its own X-Window-based Collage graphical interface as an alternative to OSF/Motif. SQL, TCP/IP and NFS, and DOS emulation are also offered as standard. WX200 workstations include two desktop models - the 10DT and 20DT - and two desktside models - 30T and 40T (where the T stands for Tower, but don't tell NCR Corp!). 386 and 486 processors run at between 16 and 33MHz, depending on the model, and screen options range from 16" 640 x 480 resolution to 19" 1280 x 1024, in monochrome or colour. Siemens aims the systems at office, desktop publishing (using the FrameMaker package), CAD/CAM, CASE and artificial intelligence applications. Available in April, prices start at DM 20,000, with no UK prices given.

MEMORY UK FOLLOWS IRISH SISTERS INTO RECEIVERSHIP

The Memory Computer (UK) Ltd arm of Memory Computer Group Plc has followed its Irish sibling companies into receivership, leaving little hope that shareholders, who saw the shares suspended at 7.5 pence pending a refinancing that never materialised, will see anything from the crash. The receiver for the UK end - from KPMG Peat Marwick McLintock - is seeking to sell the business, which did £5m a year at peak and has leasehold properties in London and Belfast and a travel reservation application and other software, a bureau service and distribution agreements, as a going concern.

THStyme READIES PERSONAL SUN KILLER FOR PRIVATE SHOWINGS THIS YEAR

Chuck Peddle is still playing the product plans for his new start-up THStyme Inc (UX No 258) close to his chest, pending involvement from more investors. However, the one-time designer of the Commodore Pet, who made all of his previous backers a bundle, hopes to have a working prototype of his latest machine available for at least a private showings by this fall. The specs, as described to Unigram.X, call for a personal system based on Unix and DOS, armed with brand new application software, and including scanner, laser printer, 20Mb hard disk and big screen. The whole thing should have the performance of four Suns and have an introductory price point of \$8,000 to \$9,000 -- dropping to \$5,000 with volume!

UNIX BATTLE FOR HEARTS & MINDS OF UK DP MANAGERS WON, PRICE WATERHOUSE SURVEY SUGGESTS

"If only there was one Unix", said one of the 100 British information technology executives polled by Price Waterhouse Management Consultancy in the wake of the IBM RS/6000 launch, making it clear that users are still trying to bang the heads of the heads of the major computer companies together and make them see sense over the ridiculous and damaging schism between Unix International and the Open Software Foundation. The survey is a killer for those that believe that Unix still has a very long way to go before it wins the hearts and minds of the corporate sector - no fewer than 82 of the 100 people polled said they intended to move towards open systems - 25% soon, 57% within five years. And that is without having taken on board the enormous cost benefit of open systems, where the existence of an army of companies selling essentially the same system is paring prices to the bone. Because according to Price Waterhouse, when asked their main reason for making a move to Unix, 50% said portability, 33% said flexibility, only 17% said cost: that means that there is money available for better support from Unix vendors, and that the gap in perception of potential cost savings means that the move towards Unix is likely to accelerate at a faster rate than currently forecast as the message on cost begins to get through. And support is a key issue - 58% said that software package support for Unix was inadequate, 63% said there is a shortage of skilled personnel in the Unix environment; 31% thought support adequate in the area of software development tools for Unix. Among the quotes cited by the consultants are "I believe Unix will dominate within five years", and "In 10 years' time we will look back and wonder why IT users were so hesitant about Unix". On the downside, as well as the "We are still looking for a true Unix standard," and "There are two issues - protection of investment and a standard form of Unix" were accompanied by concerns over recovery and security - "Unix is too prone to hacking". The gang of 100 was sceptical about IBM's true commitment to Unix, but believed that IBM's entry into the market had made Unix respectable and that it will accelerate the development of Unix packages and tools.

INTEL HAS INTERACTIVE VIDEO FOR 80386s - UNIX ON THE WAY

Multimedia technology is coming on in leaps and bounds as increasing processor power makes integrated digitised image, sound and voice systems more of a reality than a concept. After their joint agreement announced in March of last year, Intel Corp and IBM have introduced the first two multimedia interactive digital video - DVI - boards for 386-based personal computers in a new line of ActionMedia 750 adapter cards. The two are built upon Intel's 82750 - or i750 - video processors, and are the result of slimming down what was previously a seven-board platform. The next objective according to the company is to scale the things down further on to DRAM parts for inclusion on the motherboard itself. Shipping in the second quarter, Intel is to sell 16-bit PC-AT and 32-bit Micro Channel bus versions of the boards for £1,350, and IBM will offer the Micro Channel version for its PS/2s. An Intel Pro 750 PC running MS-DOS, with the boards - but without a monitor - will cost around \$15,000.

Decompression

The delivery board decompresses full-motion digital video and audio in real-time for screen presentation, the capture board converts the analog video and audio inputs to digital data for the delivery board to process. Software includes tools such as Intel's Real Time Video 1.5, 30 frames-per-second real-time compressor, the Video Application Programming Interface - VAPI - and a collection of C language functions for application building. Other third party tools available include an authoring system - Authology - from CEIT Systems, Lucma, a painting package from Time Arts, and Mediascript from Network Technology Corp, Springfield, Virginia. To make all the image and sound wizardry happen in front of you on a PC (with a CD-ROM drive), the video and audio material needs to be compressed and written to a CD. This can only be done at present on an Intel 386 Hypercube system with 64 processors. A CD-ROM can deliver 650Mb of data at 150Kb per second. A TV quality video uses 720Kb per frame, and operates at 30 frames per second - or 22.1Mb per second. On the HyperCube, DVI software - technology which Intel bought from GE in 1988 - is compressed to 5Kb per frame, using delta and still frame techniques which employ some gee-whizz algorithms. This enables 20 minutes of video, 5,000 high-resolution stills, 6 hours of AM quality audio or 15,000 pages of text to fit on one CD. Intel charges \$250 per video minute to do the job, though it is currently in negotiation with three major European firms to allow them to do the same. However Intel has no plans to move the compression software on to any other hardware platform, though it will be available for the recently announced i860 RISC-based HyperCube as soon as porting is complete. Intel expects to have the on-board i750 pixel and display processors running at twice the 12.5 MIPS performance of the existing set by the middle of next year. Meanwhile AT&T and Olivetti are currently porting DVI technology to Unix, and Olivetti is working to produce a PAL-conformant version of the DVI compressor for the European market, expected in the third quarter.

UNIFACE 4GL ADDS MULTI-DATABASE, CLIENT SERVER FUNCTIONS WITH VERSION V

4GL developers Uniface International BV of Amsterdam in the Netherlands has released version 5 of its Uniface applications development environment, which includes a PolyServer and Universal Presentation Interface. Uniface - which recently got top marks for its Uniface fourth generation applications development environment in a report on fourth generation software carried out by Butler Bloor Ltd, Hull, (UX No 260) - enables the use of any relational database, file management system and software engineering tool in any combination. The PolyServer brings client/server functionality to it, allowing simultaneous access to databases running on multiple platforms across a range of networks. The Universal Presentation Interface allows users to define applications which can run under character or graphical-based user interfaces without recoding. Version 5 includes support for Presentation Manager only, but Motif, Open Look, DEC Windows and X-Windows will follow, with at least one - most likely Motif - ported by the end of the year. Uniface also comes with an integrated text retrieval system as standard. First versions will be for VMS and OS/2, with copies for the various flavours of Unix following, shipments begin in May. Prices have not yet been fixed, but will be around 60% of what Oracle charges for its database kernel - currently £4,500 on a four-user Unix system - or 30% on client/server architectures, according to president Bodo Douque. There are currently around 500 copies of Uniface installed worldwide - 120 of them in the UK - but on the back of all the rave reviews it has been getting over the few months Douque predicts this figure will rise to 2,000 by the end of the year and to 5,000 by the end of next. By the time Version 5 comes to market it will be integrated with Sybase - in Europe Uniface is bundled in with Sybase as FastBuild, and Sybase has OEMed Uniface in the US for the past four years. Uniface's other OEM is Delft Technologies. Douque says the firm is also working with a handful of developers who will be offering software based on Uniface, in much the same way that Progress Software Corp's 4GL is used as the basis of other applications. Managing director of Uniface UK is Ed Humphrey - a former founder of Progress - who replaces Richard Branch, and his aim is to build UK turnover to £2m by this time next year. Uniface has UK offices in Maidenhead and a US operation in Madison, New Jersey, in addition to its Amsterdam headquarters, and will be opening a further US offices over the next couple of months. The company is owned 20% by its employees, 40% by management and 40% by a group of venture capitalists. A staff of 68 is expected to rise to 151 by the end of year. Uniface Distributors include Cofis srl-bvba, Belgium; GEI GmbH, West Germany; Infi Gestion, France; Labinf SpA, Italy; Multibase Pty Ltd, Australia; Sidata GmbH, Switzerland; Skrivervik Data AS, Norway and TaKT in Japan.

SEQUENT CLAIMS 175 TPS

FOR INFORMIX ONLINE COMBINATION

Sequent Computer Systems Inc is claiming top marks in the Unix transaction processing stakes following an audited test of the TP1 benchmark achieving 175 transactions per second. The test, audited by database veteran Tom Sawyer of Codd and Date Inc, was carried out on a 20 processor Sequent Symmetry multi-processor running the Informix OnLine database engine and a scaled 22 million row database. Last year, the company issued an unaudited result of 126 TPS using Informix Turbo, and said that the performance increases had resulted from joint development efforts since the initial tests. The Informix product has been optimised for the Sequent parallel architecture, including features such as spin locking, multiple log buffers, group commits and advanced query capability. Sequent used the recently introduced 20MHz 80386 processor boards in the Symmetry, including expanded cache memory, which has resulted in a 25-40% increase in overall systems performance. The company said that enhancements to the Symmetry I/O subsystem and Dynix operating system had also contributed. Costs work out at \$8,100 per transaction initial cost, \$10,700 per transaction over five years with system maintenance, and \$14,000 per TPS with a 90 day history file.

MORE UNIX WORKSTATION MODULES FROM SAS INSTITUTE

Independent software house SAS Institute has expanded its Unix software range with three decisions support tools already available on PCs, DEC VAXes and IBM mainframes. The three tools: SAS/QC quality improvement, SAS/OR project management and operations research, and SAS/ETS econometric time series financial analysis: are now available for Sun-3 and, Sun-4 workstations under SunOS, and Hewlett-Packard 9000/300 and 9000/800 workstations under HP/UX. SAS/QC is a full implementation of the SAS mainframe statistical quality control product with additional features, and according to SAS it is particularly relevant to workstation users working in such areas as engineering, production and design. SAS/OR is used for model building and solving planning problems, and SAS/ETS for corporate and financial modelling and the analysis and forecasting of physical, biological and ecological models. SAS now claims to have over two million users in 18,000 sites worldwide: its UK headquarters is in Marlow, Bucks.

JAPANESE VERSIONS OF SUN OFFICE PUBLISHING RANGE SHIP NEXT MONTH

Japanese versions of the Sun Microsystems SunWrite, SunPaint and SunDraw range of office publishing software are now ready, and will begin shipping next month, according to Sun and its software partner Island Graphics Corp of San Rafael, California. The products, which run under the Open Look graphical user interface, were translated by Tokyo-based Unisol Corp, which will license them in Japan through its distribution channels: Unisol is jointed-owned by Fuji Xerox and Sun. Originally developed by Island Graphics, and first introduced in February 1989, (UX No 221), the packages are now said to be the best selling office software on Sun workstations. According to Unisol director of marketing and sales Michael Takahisa, they fill a gap in the Japanese marketplace: "a middle solution between the limited PC-based word processing and few very expensive technical publishing programs currently available", he said. Kanji and Kana characters are supported by the three products, with the help of Sun's Japanese Language Environment. Prices will be approximately equivalent to the English versions, and run on Sun3, Sun4 and the SPARCstation line. SunWrite is a WYSIWIG word processor for memos, letters and reports; SunPaint a raster graphics editor for scanned or original images; and SunDraw a vector graphics editor for designs and illustrations.

INFORMIX ADDS MULTI-PLATFORM LICENSING

Informix Corp has introduced a new "Enterprise License Program" that will allow customers of its Wingz spreadsheet and its MS-DOS-based SmartWare II office suite to take out a single enterprise-wide license for the products on workstations throughout an organisation. The company hopes the move will simplify its licensing strategy as it moves the Wingz spreadsheet onto multiple platforms. The recently introduced Wingz-Datalink technology now also allows Wingz users to access Informix SQL databases from any of the supported platforms. And industry sources say that a Unix-based version of Smartware is currently being considered, due to user demand. One of the first to sign up is Liberty Mutual Insurance of Boston, Massachusetts, which is planning to implement Wingz on Macintosh, OS/2 and Ultrix-based systems. Enterprise license fees are user-based, with categories ranging from 0 to 250, 251 to 500, 501 to 1,000, 1,001 to 2,500 and 2,501 or more users - regardless of platform - but the deal is currently limited to North American users.

METIER MANAGEMENT SYSTEMS TO GO TO UNIT OF LUCAS

The buyer for highly-regarded project management software specialist Metier Management Systems Ltd turns out to be Solihull-based Lucas Industries Plc, which has agreed to pay an undisclosed sum for the business to Calabasas, California-based Lockheed Corp. Metier's planning and control software will become part of Lucas' own project management and software division called Lucas Engineering and Systems. Metier has made modest progress since it was acquired by Lockheed in 1985 - turnover then was put at the equivalent of about £57m at the ruling exchange rate and is now estimated at between £60m and £65m. The combined turnover of the two companies operating within the Lucas division will total £80m a year. While Lucas admits that the acquisition may raise eyebrows in the computer industry, it argues that Metier fits in well with Lucas Engineering. For a start, so the argument goes, it gives Lucas entry at world-level into project management software, while, in return, Metier gets access to Lucas group resources across the world. Metier will remain an autonomous unit within the Engineering division and employees from the two halves will be loaned to each other as required. Lockheed put Metier up for sale last April, along with its other software interests because it wanted to refocus on its core businesses. It is not known whether Lockheed, which bought Metier for \$100m in 1985, will continue to use the company's services.

CYRIX CLAIMS 10-FOLD PERFORMANCE GAIN WITH 80387-COMPATIBLE MATHS CHIP

A fully 80X87-compatible numeric co-processor claimed to offer up to 10 times the performance of the standard Intel Corp parts has been released by the Cyrix Corp of Richardson, Texas. The FasMath processor offers a peak performance of 5.5 MFLOPS by implementing floating point primitive operations in hardware rather than in microprogrammed sequencer. Cyrix says that this enables the processors to perform floating point operations as fast as an 80386 can perform integer additions. It implements a full extended double precision IEEE-754-1985 architecture using 80-bit internal format for storage and computation. The instructions used to program the processor are binary- and function-compatible with those defined for the Intel numeric processor, and 117 floating point instructions are implemented. Operating at 20MHz, 25MHz, or 33MHz, it dissipates 20W of power, said to be 5% lower than other processors. Cyrix says that the FasMath is the first in its family of math processors for workstations and personal computers that will enable desktop systems to run applications previously confined to mainframes. Cyrix has appointed a network of distributors in France, Germany, Switzerland, and the UK. The French distributor is Newtek of Cedex, and Atlantik Elektronik GmbH is based in Martinsried in Germany. Switzerland is covered by Chiptec AG of Langenthal, and the UK distributor is the Thame, Oxfordshire company, Microcall Ltd. The 20MHz, 25MHz, and 33MHz processors cost \$647, \$814, and \$994 respectively.

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AT&T's Computer Systems Division is planning to unveil new office automation software for its DOS and Unix-based Intel lines on March 27th in New York: could this be the elusive Conquistador package said to have been tendered as part of AT&T's giant OATS contract for the US Department of Transportation (UX No 264), now ready to emerge onto the general market?

Sequoia Systems Inc, Marlborough, Massachusetts got its initial public offering of 1.9m shares, all of them new, away at \$9.50 a share, raising some \$17m or so net for the fault-tolerant Unix systems firm, which will use it for working capital and general corporate purposes; underwriters to the issue were Merrill Lynch Capital Markets, Donaldson Lufkin & Jenrette Securities Corp and Needham & Co Inc.

AT&T Bell Laboratories will license to Olin Corp's Olin Hunt Specialty Products the secrets of a new ultra-violet photoresist claimed to enable chips to be fabricated to design rules as fine as 0.3 microns without resorting to X-ray lithography. The Olin unit will produce and market the chemical under licence and it is expected to be available for use within 18 months.

Hot on the heels of its Unix version of the 1-2-3 spreadsheet, Lotus Development Corp has now launched a VMS version of the product, integrating it with DEC's All-In-1 office software and DECWindows on workstations: rather upstaged, Access Technology Inc of Natick, Massachusetts leaped in to say that its 20/20 "the leading spreadsheet for VMS users" now supports DECWindows and DEC's Compound Document Architecture.

IBM's personal computer server announcements, postponed from November when Compaq stuck a spoke in the wheel, are due on March 20: the Wall Street Journal suggested last week that IBM plans PS/2 Micro Channel servers based on the 80236 and 80386SX with a 1.3Gb disk using the SCSI interface.

Other sources on IBM's server plans (see page 2) say that the announcement will contain replacements for the Model 60 and Model 70, with SCSI disk drives and Micro Channel across the line; and the same disks as in the RS/6000 boxes, although only the 320 is suitable for Model 70s; it is uncertain if the UK and US launches are to be simultaneous, although IBM UK says there is a number of announcements scheduled for next Thursday, some of which could feature servers.

AT&T Co is planning another major reduction in its workforce, and will shortly launch a new early retirement programme for its 173,000 non-managerial employees: it is thought that up to 10% may accept: the programme would be in addition to closures and consolidations already announced this year, which will see 12,000 leaving AT&T.

Stratus Computer Inc warns that net profits for the first half will be flat or slightly down on last year, but should be somewhat up for the full year: sales by IBM will account for 20% to 25% of the total this year, down from the 30% to 35% of business that went out with IBM System/88 badges on it last year.

Supercomputing Solutions Inc, the San Diego company in which Concurrent Computer Corp was a shareholder, has unveiled its Capps-9064 parallel supercomputer and says it will announce full-scale volume production of the 64-bit multiprocessor in June: the Capps-9064 is claimed to provide the sustained performance levels of conventional supercomputers with a 20 to one improvement in price-performance, and has 32 nodes, is rated at 800 MFLOPS peak, and will be offered with C, Fortran and assembler.

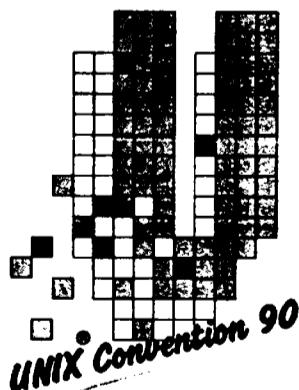
Data General Corp has an enviable Houdini-like record for getting itself out of situations that look to be terminal, and its AViiON 88000-based Unix computers look set to repeat the runaway success of the original 32-bit Eclipse minis, with which Data General pulled itself out of a deep hole and walked all over DEC for two or three years, and the Comprehensive Electronic Office software, which kept the company on the up-and-up for two or three more years. Latest to sign for the AViiONs is Dallas-based Recognition Equipment Inc, in for \$30m of the machines over three years for use in its next generation of document processing systems.

Prologue SA, Paris, France has established Prologue Espana SA, retaining 80% control while the other 20% is held by Spanish company Javier Miquel Jaureguibeitia SA. Originally part of the Bull Micral Group, Prologue was set up as an independent division in 1986 with a capital investment of \$5.1m to promote the Prologue multi-user operating system for Intel iAPX-86-based machines. There are now said to be 250,000 users of Prologue and according to managing director Michel Joubert turnover this year should be about \$13.6m - about one third of it coming from foreign markets - Spain and West Germany being particular targets for expansion. A Prologue 90 conference is being staged in Madrid.

Sharebase Corp, the Los Gatos, California back-end database processor company in process of being acquired by Teradata Corp, has added the entry-level Server/8000 Model 250 to its family of SQL database servers. Sharebase claims that the new machine is a breakthrough, enabling it to offer its client-server technology at \$165,000. The Model 250 runs the company's Share-Base II relational database software, which is designed to support heavy throughput in production applications. It can support more than 100 concurrent users running on heterogeneous client systems with support for such communications protocols as DECnet, TCP/IP and 3Com.

Analysts are unenthusiastic about the new Macintosh II - now expected to be called the IIfx - saying that the thing may be all very technically excellent - it is expected to deliver 10 MIPS to 12 MIPS, still less than a Sun Microsystems Sparcstation - but that what Apple Computer Inc really needs is a nice new cheap entry-level Macintosh. The machine, due out next week, is expected to be its most expensive Apple yet, selling for about \$10,000: the box will use the 50MHz version of the 68030 but will reportedly be slowed to 40MHz.

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MAC-OS-COMPATIBLE UNIX ACCOMPANIES APPLE MAC IIcx

Apple Computer Inc accompanied launch of the Macintosh IIcx last week with release 2.0 of A/UX Unix, which adds the Macintosh desktop user interface and full support for Macintosh as well as Unix and X-Window applications, providing the sort of Unix/MacOS interoperability so sorely lacking in the original release. The company also added three new display boards, the most powerful using the AM29000 Risc processor from Advanced Micro Devices Inc. Up to twice as fast as the 25MHz Mac IIci, the IIcx has a 40MHz 68882 maths co-processor, 32Kb static RAM cache and a new design called latched writes, which enables data to be read from the cache concurrently with previous results being written back to main memory; it adds dedicated input-output processors and a combined SCSI and direct memory access controller; and includes an expansion slot tied directly to the processor in addition to its six NuBus slots. All Macintosh II and IIx users can upgrade to the IIcx with a processor swap-out. The features added in A/UX are the Macintosh desktop, with the menu bars and icons; the capability to run any number of Unix, X Window System and Macintosh applications under A/UX 2.0 concurrently so that A/UX 2.0 combines the full capabilities and benefits of both Macintosh and Unix environments in one system - details on page seven. The IIcx computer with 4Mb and the Super-Drive floppy that reads Mac and MS-DOS disks is \$8,970 - (£5,610 UK); it's \$9,870, £6,290, with 80Mb hard disk, \$10,970, £6,970, with 160Mb and is available now in the US, late next month in the UK. Pricing for A/UX 2.0 will be announced when it arrives in June: it will be offered on CD-ROM, 800Kb floppies, 40Mb tape cartridge, or pre-installed.

...AS HP BRINGS NEW WAVE TO WORKSTATIONS WITH VUE USER INTERFACE

Just as Apple announced the complete integration of A/UX with its Macintosh environment, Hewlett-Packard has come out with the first stage of its ambitious user interface strategy and at the same time has dubbed its whole HP/Apollo Unix-based cooperative computing environment NewWave Computing. HP's VUE - or Visual User Environment - is based on X-Windows and OSF/Motif, and is expected to be completely integrated with the NewWave object-orientated management environment by the end of the year. The initial 1.0 release is for the Apollo workstation line. Version 2.0 for the HP 9000 Unix Series will be out next month, and version 3.0 - out in around nine months for both platforms, including a fully distributed NewWave bolted on the back - has already been prototyped and forms part of the joint HP/IBM submission to the Open Software Foundation's distributed computing RFT known as Decorom. VUE uses pull-down menus, dialogue boxes and mouse, and has a visual shell that can be extended to encompass all system commands. The Apollo Domain version includes an icon-based File Manager and visual editor, along with such things as clock, calculator, schedule etc. The HP-UX version will add a Workspace Manager, allowing individual workspaces for different groups of tasks, Style Manager controlling fonts and colours, and context sensitive help screens. Apollo versions available in May, HP-UX in the third quarter, at \$550.

VENDORS BALK AT OSF LICENSING TERMS

A group of thirteen independent software vendors, significant players and all intimately involved with the Open Software Foundation, met at Dataquest headquarters in California on March 15th to change the way OSF is doing business with third party software companies. The group is concerned that the Foundation, dominated by hardware companies and with little experience of - or perhaps even taste for - the software side of the business, is headed on a collision course that could destroy the software market. The group is responding to reports that OSF, in the few dealings that it has had so far with ISVs, is demanding unreasonable licensing terms and conditions that will effectively put the companies out of business by proposing that OSF acquire the technology outright and take over its development, offering only a pittance for the source code and no royalty stream. What is more - and what is equally dangerous - is that OSF is then pricing, or proposing to price, the product below market value, apparently in an attempt to capture market share such as it did with the OSF/Motif user interface. Unigram.X spoke last week with a majority of the attendees and all reiterated that the meeting was not an exercise in "OSF bashing". Instead, they all see the OSF as a potential distribution channel they are anxious to harness. The software vendors hope to establish an advisory ISV council that would give them more input into "targeting technology areas and to the acquisition and distribution process of OSF", according to a statement presented to the Foundation. OSF operations VP Chuck Reilly dismissed the idea, maintaining that there was already "a mechanism in place to get input from ISVs." The group has no current plans to meet again, but it is understood that if the issues are not addressed at the forthcoming OSF members meeting in May, the software vendors will get back together. Full details, page five.

UNIPALM BUYS UP TORCH X DIVISION

Keeping the flame of UK X-Window developments in Cambridge - parallel to its Cambridge, Massachusetts counterpart at MIT - Unipalm Limited has purchased the X technology division of ailing Torch Technology, put up for sale a month ago (UX No 269), setting up a new subsidiary company called XTECH Limited. Initially, XTECH will concentrate on the X-Sun X.11 server product range for Sun workstations, to be upgraded from X.11.3 to X.11.4 within the next few weeks. XTECH will be selling off the rights to Torch's Y-Opentop graphical user interface in order to concentrate on the servers, and will also be offering X-Window consultancy services. Unipalm says it took on 80% of the personnel active in the X division of Torch. The Cambridge-based company has a turnover of around £2m per year, and claims to be growing at a rate of 10% per calendar month. It also acts as a European distributor for US companies such as FPT Software, Legato Systems, GSS, Hummingbird and Integrated Inference Machines Inc.

DEC, SUN INTENSIFY WORKSTATION WARS

Faced by the red flag of IBM's RS/6000 workstations at the head of the performance benchmarks, Sun Microsystems and DEC are now hurrying along their own next generation systems. DEC, which last week signed an agreement with visual supercomputer vendors Stardent for its Application Visualisation Software AVS system - see page 3 - is set to boost its workstation line on April 3rd with four new models, including a top-end graphics system and a new release of the Ultrix operating system. And Sun, which responded to the DEC/Stardent announcements with its own new range of software tools - detailed on page seven - is set to come out with a cut-down SPARCstation priced around \$6,000 to ship over the next few months, and will follow it with a more powerful SPARCstation 2 this summer.

OLIVETTI, APRICOT LAUNCH 80486 DESKTOPS

Ing C Olivetti & Co SpA is controversially claiming that its new CP486 workstation, launched this week at the Hannover Fair, is the first 80486-based desktop machine to be brought to the market. The CP486 is set to ship next month throughout Europe, and will typically cost around \$21,360. Meanwhile, UK company Apricot Computers is working on a desktop version of its Q_i system family, to be shown at the Which Computer? Show in Birmingham next month. Apricot will also introduce a dual processor version of its 80486-based VX FTserver.

COCOM PREPARES THE WAY FOR

OPENING UNIX FLOODGATES TO THE EAST

It has taken only a few short months for the stampede towards open political systems in Eastern Europe to be mirrored by an increasing availability of advanced open computer systems technology over there. According to sources on the continent, a decision was reached by CoCom last week that will lift restrictions on the export of Intel 80386-based hardware and software technology - including Unix, as predicted here a few weeks ago, (UX No 272) - to the Soviet Union and the rest of the Eastern Bloc. This looks sure to signal the start of a huge wave of Unix migration Eastwards. At present, US export barriers are set more or less at the level of 80286-based hardware, though 80386 systems with 4Mb of memory or less can be sold on an individual licence basis. As far as the software is concerned, runtime versions of 286 Xenix have been sold legally into Eastern European countries for some time now, without the development kit however. Although 286 and 386 versions of AT&T Unix are not officially available - Unix is on the list of prohibited technology and AT&T has not directly sold a single copy - it is well known that they have been getting through via unregulated channels and pirate outlets, many located in Southern Europe where Unix can effectively be bought on the street. Security extensions in AT&T Unix take the operating system over the US Government Trade and Commerce Department threshold into areas prohibited for export, extensions that Xenix does not incorporate.

Sticking point

The decision by CoCom must surely prompt the US Government to harmonize its own trading practices with those in Europe especially if the West is to maintain its united front on the whole Eastern European question. AT&T for one is unlikely to lie down whilst it sees Unix software being sold into a potentially lucrative market by other manufacturers and resellers when its own hands are tied. Indeed a spokesman for AT&T's Unix Software Operation says that the company is already in negotiation with Eastern European nations which are said to be "very keen to get Unix." The main sticking point from AT&T's point of view as owners of Unix source code, resides at a dialectical level - where opposing socialist and capitalist ideologies come into conflict - namely that in the Eastern European countries there is as yet no legal provision guaranteeing intellectual property rights over products like source code. Indeed AT&T says it is laws to protect these rights that are needed before it could begin Unix sales to these countries in any case. SCO does not have the same sort of problems as it is only shipping compiled binary versions of Xenix, which are supplied via SCO's West European distributors. The new CoCom rules are likely to come into being at the beginning of June and are due to be announced at a meeting of US and Soviet government trade representatives - likely to be timed to coincide with one of the forthcoming computer exhibitions in Moscow. However there will be no provision for the sale of RISC-based technology, which is still banned under the new arrangements.

HARRIS SPIN-OFF

SEEKS DOS/UNIX SOFTWARE PARTNERS

When Harris Corp, Melbourne, Florida, split up and sold off its office automation and personal computer-orientated operation back in January, the 3270 plug-compatible display terminal side of the business went to Adacom 3270 Communications Inc, Overland Park, Kansas. Now known as Harris/Adacom - Harris retained a stake in the firm - and still at its Dallas, Texas headquarters, the outfit is on the hunt for software partners to produce DOS and Unix applications for its SuperNet line of communications systems in financial and defence markets. SuperNet connects workstations to IBM environments and Harris/Adacom has a UK base in Wokingham, Berkshire.

MOBIUS ENTERS WORKSTATION FRAY

Unix newcomer Mobius Computer Corp, Palo Alto, California, has a new range of 80486 and 80386-based Unix workstations out known as the Protege/PWS Series. The 486, PWS/425 machine is rated at 11 MIPS and 1.2 MFLOPS, running a 25MHz version of the part. It costs \$10,000 and comes with 4Mb memory, 105Mb disk, a 16 inch colour monitor, Interactive Unix, TCP/IP, Ethernet, X-Windows and Motif. On the 386 side, the low-end PWS/20 running a 20MHz version of the part is rated at 4 MIPS and costs \$3,700 with 65Mb disk. The PWS/25, with a 25MHz 386 rated at 4.5 MIPS, with 94Mb disk is priced at \$4,900. At the top-end a 5.5 MIPS PWS/25C, again with a 25MHz part - and cache - comes in at \$6,000, and the PWS/33C, rated at 7.8 MIPS, using a 33MHz 386 with cache costs \$8,000. Each 386 system comes with 4Mb memory expandable to 16Mb, run Interactive's 386/ix Unix, and all but the PWS/20 come with X-Windows.

BERKELEY UNIX VERSION 4.4 HELD BACK TO YEAR-END

The next release of Berkeley System Distribution Unix - BSD 4.4 - is now not expected to be ready for general release until the end of the year according to computer scientists at the University of Berkeley in California. However the college is known to have an early alpha tape of the scientific and technical-orientated flavour of Unix which it will be delivering to the Open Software Foundation in June to fulfill a contractual obligation with the Unix pretender, according to a spokesman. Version 4.3 of Berkeley Unix has been around for over four years now and the new release is reckoned to contain a plethora of new features, especially on the communications front where OSI and TCP/IP protocols are to be integrated.

PHILLIPS, HITACHI

"MAY BE NEXT TO JUMP OSF SHIP"

Philips is unlikely to renew its sponsorship of the Open Software Foundation when its original three-year commitment expires later this year. Sources close to both the Dutch-based company and to the consortium say that Philips, which is currently seeking a partner to help it turn its severely troubled computer operations around, (UX No 273), feels that the purpose for which OSF was originally created has already been served and that its continued support would be idle. Hitachi, the lone Asian firm among OSF's founders, may also bolt, the same sources say. They contend that Hitachi in Japanese terms has lost face as an OSF founder since Japan's Ministry of Trade and Industry and other Japanese manufacturers have thrown the bulk of their respect behind Unix International, despite titular memberships in OSF. Hitachi would have to find a way of extracting itself from OSF without further embarrassment, they reckon. In addition, question marks have been raised over the continued sponsorship of Siemens and even IBM, whose defection could sound the death knell for OSF. OSF's founders each contribute \$4.5m a year to its maintenance and additional monies are realised from its member rolls. However, informants claim that it has been "burning" funds faster than originally anticipated and will probably require more from its founders than the \$31.5m a year it's been getting. In fact, they say, OSF has postponed its database Request for Technology because it cannot fund it properly. Raising additional capital from a shrunken founder base may prove difficult for OSF and possibly jeopardise its effectiveness.

DEC ADOPTS STARDENT APPLICATION VISUALISATION CODE

Stardent Computer Inc, Newton, Massachusetts has won a powerful supporter for its Application Visualisation Software interactive environment designed to provide scientists and engineers with access to complex graphics and imaging techniques without graphics programming. DEC and Stardent will work together to implement the environment on DEC's workstations, and DEC is buying licences to market and distribute the product worldwide on its own workstations. Financial terms of the pact were not given.

SCSI BECOMES STANDARD ON PS/2s AS IBM OPTS FOR LAN SERVER OR UNIX FOR ITS SERVERS...

IBM duly came out with much more expandable models of the PS/2 suitable for use as file servers, but disappointed those hoping for super-exciting server software for the things: it has opted for a new 1.2 release of OS/2 LAN Manager, which cuts the cost of supporting MS-DOS by allowing users to replicate the the MS-DOS LAN Requester 128 times at no extra charge - or AIX Unix. Making good on its promise to NCR Corp, the company is making a big feature of the Small Computer Systems Interface on the new models, which include the Model 80 8580-A21 and -A31 using the 25MHz version of the 80386 and 64Kb cache and 4Mb of 80nS RAM and direct memory access parallel printer port. The A21 has 120Mb 23mS access SCSI disk, and the A31 the new 3.5" 320Mb disk with 64Kb look ahead buffer and 12.5mS access. The new housing has seven slots and room for five storage devices. They run AIX 1.2, OS/2 and MS-DOS 3.3 up and the A21 is \$10,700, the A31 \$13,200, now. The Model 8580-121 and 8580-321 are similar but come with 2Mb rather than 4Mb main memory; they come with the same disks and the 121 is \$7,500, the 321 is \$9,900. The new PS/2 Model 65SX uses a 16MHz 80386SX with 2Mb memory and includes the new SCSI controller accounting for one of the eight 16-bit slots. It also takes up to five disks, and will support AIX PS/2 at some time in the future. It costs \$5,300 with 60Mb 23nS disk, \$6,000 with 120Mb 23mS disk, now. There is a new portable, the PS/2 P70-386, using a 16MHz 80386 with 30Mb disk, VGA 16-gray scale plasma display, and a fully compatible PS/2 Enhanced Keyboard, all integrated into the package. It has 2Mb memory expandable to 16Mb and costs \$6,000, now. The new 16-bit Micro Channel bus master adaptor supports up to seven devices, fits all Micro Channel PS/2s and has an 8.3Mbytes-per-second burst transfer rate and is \$500, plus \$155 for the Card to Option Cable and \$90 for the daisy-chaining Option to Option Cable, now. There is also a 32-bit version that is twice as fast in burst mode by virtue of a 512Kb Cache and needs the SCSI Adaptor External Terminator; it's \$1,000, plus \$110 for the adaptor, now, and will be supported by AIX Unix one day. IBM also cut the PS/2 50Z by 11% to \$2,000 with 30Mb disk, 4.2% to \$3,500 with 60Mb disk. The new SCSI disk drives cost \$1,200 for the 60Mb, \$1,920 for the 120Mb, \$5,500 for the 320Mb, and \$90 for the fitting kit. There are also internal and external Compact Disk Read-Only Memory optical drives using SCSI at \$1,250 for the internal, \$1,550 for the external, now. The new compact disk drives take platters that store up to 600Mb with 380mS access time.

LSI LOGIC HOPES TO BECOME CHIPS & TECH OF UNIX WORLD WITH SPARCSTATION 1 CLONING KIT

Giving the campaign to supplant MS-DOS with Unix on the desktops of the world a major boost, LSI Logic Corp, Milpitas, California has launched the first building block chip set for simplifying the task of designing workstations compatible with Sun Microsystems Inc's Sparcstation 1. The SparKit set is intended to expand the market for Unix workstations built around the Sparc RISC, and LSI Logic reckons that over 40,000 Sparcstation 1s were sold in the first nine months after its introduction in May last year, and that some 23 manufacturers are designing add-in cards for the system's open S-bus. The SparKit Family consists of seven circuits - including the Sparc CPU itself, which can also be used in Sparc-based servers, and comes in 25MHz and 40MHz versions, rated at 18 and 29 MIPS respectively. The parts in the 0.7 micron CMOS set are the L64811 Integer Unit, L64814 Floating-Point Unit, L64815 Memory Management, Cache Control and Cache Tag; the L64850 Memory Controller Unit; the L64851 Standard Input-Output Controller, the L64852 M-bus-to-S-bus Controller and the L64853 Direct Memory Access Controller; the SparKit-25 set costs \$1,327 for 1,000-up with samples of the full set in 90 days; the SparKit-45 will be available in the second half. It supports both the M-bus and the S-Bus. The M-bus is a 64-bit, 400Mbytes-per-second bus that decouples system boards from silicon implementations and enables CPU modules and memory modules to fit into the Sun-defined M-bus for uniprocessor or multiprocessor configurations; fully synchronous, it supports 40MHz and 128-byte burst transfers. SBus is a synchronous 32-bit bus for high bandwidth peripherals such as SCSI ports and Ethernet adaptors and transfers at 80Mbps to 100Mbps. LSI says that six firms are already designing the chip sets into products, and that while initial implementations will likely start at \$8,000, prices will fall to \$5,000 within nine months, \$1,000 in two years.

GOSIP 3.1 OSI SPECS NOW AVAILABLE

The Central Computer and Telecommunications Agency has released a new version of the UK Government's Open Systems Interconnection Profile - GOSIP 3.1. GOSIP is more or less a simplified version of international Open System Interconnection standards, and defines specifications for the purchase of new computer communications systems in government departments and agencies. GOSIP 3.1 includes enhanced specifications in the areas of File Transfer Access and Management - FTAM - and VT, virtual terminal. New definitions cover recommendations for X.400 message handling systems and X.500 directory services. The message handling profile includes added functionality for remote user support, message stores, distribution lists and secure messaging. Published in four volumes GOSIP 3.1 costs £95 from HMSO.

FRENCH SOFTWARE HOUSE HAS RUSSIAN UNIX SUPPLEMENT

One of the growing number of companies keeping itself firmly on top of events in Eastern Europe is French Unix house International Management and Technology, Nice. It has introduced Cyrillic, a Russian supplement to Unix - which is also available on Xenix and AIX. It allows Cyrillic script and English to be used at command, file, programming and application levels, concurrently on the same system, and additionally supports X-Windows. IMT is aiming Cyrillic at both Western and Eastern European markets and has a porting service available. Prices start at \$850 for and SCO Unix implementation of the package, going up to \$1,600 on the new IBM RS/6000 system - the latter not available in the East.

MICROSOFT SET TO COMPROMISE OS/2 AGAIN WITH WINDOWS 3.0 PRESENTATION MANAGER-KILLER

It seems that Microsoft's next version of Windows, Windows 3.0, is an upgrade designed to appeal to a large number of 80386 users, despite Microsoft's positioning statement that Windows will simply be a transition environment to get users from MS-DOS on 80286 and 80386 micros to OS/2 and Presentation Manager on high end 80386 machines. Indeed, it was only last November that Microsoft's Bill Gates shared a stage with IBM's James Cannavino at Comdex in an effort to give credibility to OS/2 (UX No 259). However, Windows 3.0, which is expected to appear before June, will have improved memory management and system installation as well as new user interface and configuration software, says Computer Systems News. All these features are likely to appeal to a broad sector of 80386 users and could mean that Windows 3.0 ends up competing with Presentation Manager. But users may be dissuaded from buying Windows 3.0 because of a lack of both new applications and modified old ones that are able to exploit its enhanced-mode operation. Furthermore even if developers come up with such applications, users will have to switch between real mode and enhanced mode when running, respectively, incompatible and compatible applications. This means that they will not get the full benefit of the enhanced mode's 2Mb memory since real mode is written for systems with less than 1Mb of memory. However, programs that will run in the new environment will be able to benefit from a user interface enhanced via three new programs to replace the old MS-DOS Executive Shell in Windows 2.0. The first of these is Program Manager which enables programs and their files to be grouped into a single icon and launched directly from the screen. File Manager will offer a visual description of files and their locations, while Task Manager helps the user to switch quickly between applications or to deactivate particular windows. Other features include a new macro-recorder facility, improved on-line help facilities, an upgraded Paintbrush program and a new program Smartdrive to handle disk-caching for virtual memory mode use.

AS/400 COMMUNICATIONS FIRM EMERALD TECHNOLOGY SELLS OUT TO ANDREW

IBM AS/400 and Unix communications specialist Emerald Technology Inc, Bothell, Washington has rather surprisingly decided to sell out to microwave and communications specialist Andrew Corp of Chicago, which will add the company to its two-year-old Network Products Group. Emerald will join Andrew Network Products Group - already an IBM mid-range communications player, as a wholly-owned subsidiary. Emerald Technology offers 5250 terminal emulation and file transfer products for MS-DOS personal computers and moved into Unix last year with the acquisition of Milwaukee-based SST Data Inc, and can also link the Apple Macintosh to the AS/400. It was the first to supply a bridge between the IBM RS/6000 and the AS/400 (UX No 272). The \$300m-a-year Andrew offers gateways between IBM computers and non-IBM peripherals, local area network products for Token-Ring systems and wire management products for local connection of terminals to computers. Terms of the agreement were not disclosed.

SYBASE SQL SERVER ADDS SYMMETRIC MULTIPROCESSING SUPPORT

Sybase Inc, Emeryville, California yesterday announced Sybase SQL Server support for symmetric multiprocessor systems, saying that it had extended its uniprocessor server architecture to a Virtual Server Architecture explicitly designed to take full advantage of symmetric multiprocessor hardware systems to provide high throughput and linear scalable performance. The SQL Server with Virtual Server Architecture will be available for beta testing on the Stratus XA2000 line of fault-tolerant computers next quarter and generally available later this year. Versions will follow for DEC and Pyramid Technology computers later in the year. The new version manages all database scheduling, load balancing and synchronisation without interference from the operating system. On a Stratus XA2000 Model 160 in a fault-tolerant environment with networked communication and duplexed disks, the thing did 43 TP1 transactions per second with an average response time of 0.71 seconds on a database with over 4.3m rows - against 8.1 tps with the uniprocessor version of SQL Server, Sybase says. Scalability is claimed to be 95% when the number of processors goes from one to six. Memory needed is 50Kb per user. The company gave no prices.

INGRES IS ICL'S PREFERRED DATABASE BUT IT WILL SELL ORACLE AS WELL ON DRS UNIX LINE

Following ICL's decision a couple of years ago to adopt Ingres in preference to Oracle as its relational database product, ICL has now decided to support Oracle as well as Ingres in its markets outside the UK on its Unix-based hardware. Oracle has in fact been competing head to head with Ingres for the past year in this market and in ICL's Series 39 VME environment. Indeed ICL's £1.8m Unix contract with the UK Inland Revenue back in November carried 170 Oracle licences, while its recent sale of a DRS 6000 to the European Commission has Oracle as its relational database. Oracle has been lobbying ICL hard for an OEM agreement which has now been signed. Under the agreement ICL will be in a position to sell Oracle on its DRS 300, DRS 400, DRS 500 and DRS 6000 machines on the Continent and in other international markets. The deal excludes the UK because, according to ICL, the majority of its UK users prefer Ingres, although ICL is prepared to work with Oracle where a UK user asks for its relational database. Oracle's ICL product line manager Ian Hardacre says the agreement with ICL is important as ICL is a major player in the European market and will continue to be so with its DRS 6000s. He is planning to sell twice as many relational databases as Oracle's competitors in all the markets covered by the agreement and will continue to sell into UK accounts as an independent supplier.

NETWISE ADDS REMOTE PROCEDURE CALL TOOL FOR MICROSOFT WINDOWS

Netwise Inc, Boulder, Colorado used last week's Hannover Fair as the launch pad for its Netwise RPC Tool for Microsoft Windows/286 and Windows/386 with NetBIOS and NetWare SPX environments, claiming it to be the first time that Remote Procedure Call has been available in the MS-Windows environment. The new version enables developers to build client-server applications for a wide variety of machines that exploit Windows features such as snazzy user interfaces, multi-tasking and expanded memory usage. Client applications built with RPC Tool can run alongside other Windows applications while they communicate with servers over the network. Support is also available for MS-DOS, OS/2, VMS, Wang VS/OS, Hewlett's MPE/V and most implementations of Unix; the company did not give any prices.

INFLUENTIAL SOFTWARE HOUSES WANT MORE SAY IN OSF TECHNOLOGY AND PRICING DECISIONS

by Maureen O'Gara

Because of the consolidation of the Unix industry into two major camps, the Open Software Foundation's power over independent software vendors is enormous, and they feel that what they see as OSF's blatant abuse of this power must be corrected. In a meeting reminiscent of the original Hamilton Group gatherings that originally led to the formation of the OSF itself, (see front page), thirteen ISVs got together in California a few weeks back to see what could be done

Whether legal action will result remains to be seen. One ISV came to the meeting armed with advice from his lawyer about possible violations of the 1984 National Cooperative Research Act, which requires joint ventures to pay fair market value for technology, though this was not pursued. And Peter Alsberg, president of Addamax, who took part in the meeting, sought legal council last week because of his experience negotiating with OSF for his security technology. "I think the industry would be poorly served by a suit," Alsberg said, "but I have a fiduciary responsibility to my investors to understand our position." OSF did not select Addamax secure Unix products, going instead to Secureware, which Unify product marketing manager Michelle Perry, another meeting-goer, described as "a case of buying on price, not the best technology.". Questions are also being raised over the way the security RFT was reportedly changed along the way to make the Secureware decision more palatable.

"No choice"

Alsberg and others at the meeting report a definite and consistent pattern emerging in discussions at OSF, beginning with an insistence on a paid-up license well below the ISV's development costs. Alsberg, for instance, said that Addamax, which has spent \$7m on research and development, was told in various conversations with OSF during the aborted procurement process that Addamax could expect to get only a "modest six figures" for all rights from OSF, and that it "might as well take the money" because it essentially "had no choice". Who else could it sell to? When Alsberg protested that this would put him out of business, OSF reportedly told him to find another business, suggesting servicing OSF members using his technology. Alsberg says he seriously considered doing so. After discussions collapsed, Alsberg believes OSF used him as a "stalking horse" in continued negotiations with Secureware to drive Secureware's price down even further. He personally feels that whatever was paid for the Secureware license - and suggestions range from \$750,000 to \$1.5m - it is one tenth of what Secureware should have charged.

Alsberg's is the worst of the "war stories", and he says he thought it was "just us" until he came to the meeting and started comparing notes with at least three other firms present. But no one at the meeting appeared to see any evil intent by the OSF - "that would mean they have a direction," one participant joked. Rather they see OSF as misguided and derailed from its original track, too heavily involved in Unix politics and using a bad business model, perhaps due to a lack of middle management skills. All of the ISVs are concerned about the long term effects OSF's tactics could have on the software industry, stifling investment and innovation because there's no pay-out. Because of these concerns, at the end of the all day meeting the group wrote and communicated to the OSF a tactfully worded and unanimous statement asking the OSF "to adopt a business model for acquiring technology that is economically viable to end users, OSF and technology providers." It continued "OSF should establish partnerships with technology providers to encourage continuing innovation".

The statement is on unheaded paper and bears no signatures, as OSF operations VP Chuck Reilly is quick to point out. On the telephone with OSF that day, only a handful of the participants were willing to identify themselves as being there, with some feeling that OSF, the champion of openness, might somehow retaliate against them for joining in the meeting. Dataquest, which provided a "neutral ground" meeting room for the ISV's reportedly took a lot of heat from the OSF for hosting the meeting, and eventually succumbed to concerns over the delicacy of its position and denied the group use of its fax machine to relay the communique to OSF, because its name would appear on the transmission. As a result, an observing consultant from another firm, Michael Killan, president of Killan & Associates, was called upon to read the communique to Reilly, OSF director of business area planning Marie Burch and marketing communications manager Eileen Coons.

Reilly says OSF's reaction was the result of incorrect information given to it by members of the press that the meeting was to consider antitrust litigation against it. The Foundation, which says it knows who was at the meeting and has talk to some of them since, is obviously irked that it was not invited to attend. Reilly says he was surprised that such an issue was not brought directly to OSF. The pricing policy, he contends is a "win-win situation", or at least OSF "always tries to do that - OSF does not want to put ISVs out of business". Although Reilly says he believes OSF's current "framework for negotiation" is "not unfair" and he anticipates "no modification", he added that if the ISV group "comes up with public talks, face to face, we'll input into discussions".

"No access"

But despite Reilly's assertions that OSF "already gets input from hundreds of ISVs", those present at the meeting felt that they had no formal access, let alone input, to OSF, hence the Foundation's exclusion from the meeting. As to those who were there, Will Neuhauser, director of US operations for the French firm Chorus Systemes, flew in from France specifically for the meeting. Others present included Unisoft Corp president and CEO Brian Lovell, Visix director of western operations Montgomery Kersten, Transarc manager of finance and accounting Gayle Kuokka, Adobe operations director Ann Robinson, Sybase product manager Betty Burton, Peter Winston of Integrated Computer Systems, Legato Systems marketing VP Carol Realini, Netwise strategic relations director Larry Lytle and Jim Billmair, VP of systems software for Mips, the one hardware company represented. Franco Vitaliano, president of VMX Technologies was unable to be there in person, but called in over the phone.

Ironically, Lytle, then with HP, and Billmair, who worked for DEC, were instrumental in creating the original Hamilton Group, which in short order became OSF. In fact Lytle originally managed US operations for OSF, charged with recruitment.

THE ROAD TO RICHES ?

For Unix hardware and software suppliers, the huge contracts from the US Government still represent some of the most glittering prizes. The ten largest pending or recently awarded procurements based on Unix could together eventually be some \$10bn, approaching the size of the 1988 worldwide Unix systems market. In the first of two articles, Mike Faden reports.

Nobody, however, is suggesting that path to riches is always simple. First, there's the gestation period of up to five or even ten years while a billion-dollar procurement slowly proceeds from conception to formal request for procurement (RFP) and eventual award. There's the multi-million dollar cost of preparing and bidding for these contracts. Then there is the margin-cutting competitive bidding for business from a government whose use of standards is driven by the need to cut costs - and which is still haunted by the publicity surrounding tales of \$250 hammers slipped into contractors' expenses.

And no sooner has the winning supplier reached the post than it is confronted with a new set of hurdles, often starting with another vendor crying foul and challenging the contract award. Take for instance Zenith's dispute (since settled) of the award to Unisys of the current \$700m Desktop III successor to the earlier Zenith-won Desktop II, or the Martin-Marietta protests over the Honeywell/Apple success in the \$164m Air Force contract for some 10,000 A/UX Macs last August.

No guarantee on numbers

Even if objections are quelled, functional tests passed (another DTIII stumbling block) and first shipment dates agreed, there's always the chance that the procurement may never result in anything like the huge sales volumes suggested in the procurement documents. Commented Lynn Boyd, Vice-president of Federal Operations at Uniplex, which has won or been involved in numerous Government procurements, "Many of the huge Federal programmes are structured as IDIQ (Indefinite Delivery Indefinite Quantity)" - which means that the Government may buy up to a certain number of systems but "doesn't guarantee any quantity".

Vendors that "believe in the strength of their products" and actively help in the sales effort after the contract award can do well from these contracts, she claimed; on the other hand, to think that merely pitching a product that is "below market strength" will result in volume sales "is very naive". Large procurements may now provide a framework for various agencies to purchase systems, and to achieve maximum penetration suppliers may, it seems, have to put in as much sales effort after the contract award as before it.

Other observers selected the widely publicised example of AFCAC 251, the huge contract for small multi-user office automation systems originally estimated at \$3.5bn. Following award of the contract to AT&T with the Prelude software from Phase II Systems, Cambridge Massachusetts, the press was filled with suggestions that only a fraction of the planned volume of shipments was taking place, due in part to lack of sales effort. Air Force officials now say that the contract is "on schedule", but Phase II president Bill Spencer admitted a slow start and some disappointment, partly related to internal factors at AT&T but also involving a mismatch between the products supplied and the high expectations of some users apparently anticipating a high-powered equivalent of PC office applications, resulting in negative publicity on the Government grapevine and subsequent lack of take-up of the products.

Many of these large contracts continue to centre on providing office automation, and the increasing trust placed in Unix systems for the purpose is indicated both by the sheer volume of contracts and by the way that they are infiltrating not only military administrative functions but even specialised tactical and mission critical systems including the ACCS Army manoeuvre control system, as well as rather less publicised applications for the CIA and NSA intelligence agencies.

However, the installed base of personal computers now plays an important part in determining procurement specifications; contracts such as the Desktop series have filled military and other agencies with PCs and this is reflected in the need for Unix systems to adapt to DOS in various ways. Links to PCs and PC applications are a clear example; others are the ability to run Unix, OS/2 or DOS on the same system (Desktop III) or, according to Computer Reseller News, even using Unix to multi-task DOS applications under VP/ix (The \$850m Federal Aviation Administration's OATS contract recently awarded to AT&T).

POSIX, not Unix

Of course, we should not really be talking about Unix in connection with Government specifications at all, because the Federal Information Processing Standard 151 POSIX interface, rushed out by the Government's standards body NIST after the DEC/Wang objection to the use of the AT&T SVID in the AFCAC 251 procurement, is used in most Unix-type procurements.

Posix is currently viewed as not comprehensive enough to guarantee the compatibility and portability that the Government seeks, but the IEEE, NIST and procurement agencies are working on it; the FIPS will be both enforced more firmly and broadened in scope. To date, the POSIX FIPS has been based on a draft specification but a revised specification based on finalised IEEE specifications is imminent; according to NIST programme manager Shirley Radack, adherence to this will be mandatory, after a six-month phase-in period. The catch? That this applies only where the procurement specifies "a POSIX-like interface".

There's little dispute that POSIX is being put to work, however. An Air Force spokesman indicated that for the AFCAC 300 "Superminis" project currently approaching full RFP, compliance to the current FIPS covering POSIX system calls was required; and as the FIPS is extended to cover other operating system services, so the suppliers will be required to update their products to comply.

POSIX falls into the Government's framework of procurement standards alongside GOSIP, the Federal set of OSI specifications. In an apparently aggressive timescale for the shift towards OSI, Version 1 of GOSIP - including OSI file transfer and Email, X.25, Ethernet and Token Ring - becomes mandatory from August this year. Again, use of GOSIP in specifications is tempered with "if it makes sense", said Radack. In practical terms, the US TCP/IP installed base is huge and few suppliers yet have viable OSI products. "You could specify OSI", commented Roger Cooper, a senior official at the Farmers' Home Administration, part of the Department of the Interior. "But compared with TCP/IP, you probably wouldn't get such a good competition".

EVANS & SUTHERLAND CHOOSES MIPS AND PEX FOR ESV WORKSTATIONS

Rather than sitting back and licking its wounds during the four months after it gave up on its ambitious effort to diversify into supercomputers with the ES-1, (UX No 259), Evans and Sutherland Computer Corp has been reorganising itself for an assault on the 3D graphics Unix workstation market which is dominated by Silicon Graphics, Hewlett-Packard/Apollo, Intergraph and Stardent. The Salt Lake City, Utah-based outfit has launched ESV, a series of five workstations built around 25MHz versions of Mips Computer Systems' R3000 RISC processor - all binary compatible with Mips' own systems. They are claimed to represent the first industry implementation of the extended, 3D version of the PHIGS graphics standard - PEX - which runs under X-Windows. Each of the systems use AT&T digital signal processors - DSPs - to support the hard-wired version of PEX, and to achieve parallelism. And not all that ES-1 development has been wasted, as the things use a proprietary pixel chip designed using the same technology. On the board the three chips are integrated via a 32Mb G-bus and were chosen in this configuration because - according to E&S - the R3000 is not powerful enough to carry out parallelism along with all the Z-buffering and depth-queuing required for graphics processing. The low-end ESV5 performs at 277,000 depth-queued vectors per second and 19,000 polygons per second, which rises to one million vectors and 100,000 polygons per second on the top-of-the-range ESV50. The 10,240 by 8,192 resolution is achieved using Cleanline technology, which implemented in four VLSI chips to display clear lines in wire-frame models, is the successor to E&S's existing Shadowfax anti-aliasing raster technique.

At present there are around 50 software houses developing applications for the PEX standard, and the workstations use an ES/PEX PS 390 software emulator to run the 35 or so applications written for E&S 390 graphics terminals. Supporting the Mips RISC processor's application binary interface also means the new workstations will run software designed for Mips Computer Systems machines. Rated at 20 MIPS and 8 MFLOPS, the workstations come with from 8Mb to 128Mb memory and up to 2.4Gb of disk. Running AT&T Unix with BSD extensions and the OSF/Motif graphical user interface they support TCP/IP, NFS, FDDI and ES/Dnet, an implementation of DECnet from KI Research, Belmont, California. Ethernet, and three RS232 come fitted, as does a SCSI controller for up to four devices, a VME bus with five slots and a 19-inch colour display. Increased graphics performance can be achieved with addition of extra DSP cards, and E&S expects to double the performance of the workstations in the future by cranking up the pixel chip specification and employing its CDRS high-speed, photo-realistic rendering system. Available next month, prices go from \$49,000 for the ESV5 up to \$85,000 for the ESV50, and expect to see a server version following on.

UNIX, MAC/OS COME TOGETHER IN A/UX 2.0

Apple has a new version of the Unix operating system - A/UX version 2.0. This version retains the features of previous releases of A/UX and adds three major new features: the Macintosh graphics-based desktop; the ability to run multiple Unix, X Window System and Macintosh applications simultaneously; and Unix functionality in an easy-to-use manner. As with previous versions, A/UX 2.0 is based on AT&T System V.2.2 which runs the large family of Macintosh applications and complies with Unix standards such as IEEE POSIX 1003.1-1988 FUS and AT&T System V Interface Definition. More importantly, A/UX 2.0 offers a number of new features which pulls the Unix environment more fully into the Apple Mac users' grasp, with the aim of leading to a meeting of two markets - the mainstream and the technical. For example, all the elements of the Macintosh desktop including point-and-click-simplicity, menu bars and icons have been put into A/UX 2.0. It also supports MultiFinder, 32-Bit QuickDraw, and the Macintosh start-up and shutdown process. Additionally, A/UX 2.0 supports text cut-and-paste between Unix and Mac environments, plus graphics cut-and-paste between Macintosh applications. Because of these capabilities Apple believes that users will find A/UX 2.0 suitable for such applications as large financial models, animation, graphic design, page layout, and scientific and engineering activities. The complete A/UX 2.0 package including off-the-shelf Macintosh applications, A/UX, Macintosh hardware, and support is available through A/UX-authorized Apple resellers. The operating system requires at least 4Mb of memory and runs on the following hardware: Macintosh SE/30, Macintosh II (with PMMU installed), Macintosh IIfx, Macintosh IIfx, Macintosh IIfx and Macintosh IIfx. Obviously the best Mac to run A/UX 2.0 on is the IIfx as it alone offers the operating system SCSI direct memory access and input-output processor capabilities. By this summer A/UX 2.0 will be available on Apple CD-ROM disk, 800Kb floppy disks, a 40Mb Apple Tape Cartridge or preinstalled on the 4Mb to 80Mb hard disk versions of the IIfx, IIfx, IIfx Macintoshes or preinstalled on an 80Mb external hard disk. Pricing will be announced at a later date. Current A/UX users can upgrade to A/UX 2.0 through a software update subscription service or by purchasing A/UX 2.0 update products on CD-ROM, floppies or tape. Customers that buy A/UX 1.1.1 operating system software starting from this week will receive a free upgrade to A/UX 2.0, which is set for a summer release. Those that buy updates to A/UX 1.1.1 from this week do not qualify for this programme. All A/UX customers will be offered an update to A/UX 2.0 this summer.

SUN MOVES ON VISUALISATION MARKET WITH SUNVISION, XGL

Following DEC's decision to license 3-D visualisation software from Stardent Computer for its Unix-based Risc workstations (see front page), Sun Microsystems is fighting back with its own visualisation package for its Sparcstations. SunVision, unveiled at the National Computer Graphics Association conference in Anaheim on Monday, gives Sun users image processing, 3-D volume rendering and photo-realistic capabilities for the first time. It runs under Sun's OpenWindows application environment, including X11/NeWS windowing and the Open Look graphical user interface. SunVision is a set of visualisation tools and libraries aimed at software developers working on medical imaging, remote sensing for satellite data interpretation, finite element analysis and architectural and engineering rendering - but according to Sun "sophisticated end-users" in the scientific and medical field might also be interested. Included is Sun's own image processing library and a renderer with an interface compatible with the 3-D photo-realistic RenderMan software developed by Pixar Corp. An interactive graphics tool allows images to be generated from geometric data sets for display and manipulation. 3-D images are not generated in real-time, but SunVision offers a movie display tool which allows for the sequencing of previously computed frames. The package is priced at £2,700, and will ship by mid-July. Run-time and source licensing are available.

Sun also took the opportunity of boosting its 2-D and 3-D graphics performance by launching an accelerated graphics library - XGL - that takes advantage of its existing GX graphics accelerator boards, available across its workstation range (UX No 227). The new software, aimed at mechanical computer-aided-design and electronic computer-aided design applications, is said to boost the speed of a Sparcstation 1GX to over 440,000 2-D vectors per second or 220,000 3-D vectors per second (10 pixel transformed, clip checked, rendered), allowing for the display of smooth dynamic motion of 2-D and 3-D wireframe objects, according to Sun. XGL also includes facilities for shading, depth queuing, multiple light sources and hidden surface removal without the need for 3-D solids modelling hardware. Unlike the standard PHIGS and GKS libraries also offered by Sun, which provide data management through pre-defined display lists, XGL allows developers to create their own display list within the application. The package is the first to take advantage of Sun's Direct Graphics Access display technology, which manages access to the screen between the graphics library and windowing system and is included as part of the OpenWindows environment. Sun claims that over 20 vendors have already begun work on porting applications to XGL, including Cadence, Camax, Excellon Photonics, General Dynamics, Ithaca Software and McDonnell Douglas Corp. Priced at £1,350, XGL will be available within three months.

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Hewlett-Packard is the latest systems manufacturer to come out in favour of the 80860: it was demonstrating a "graphics transform engine" based on the chip and installed inside a 3000 Series workstation for texture mapping, full-colour anti-aliasing, contour mapping and ray tracing. HP said that it was planning a number of 80860-based "graphics technologies", but would not comment on details or timescales.

In one of those apples and oranges comparisons, a researcher at the Lawrence Livermore National Laboratory found that a configuration of IBM's new RS/6000 Unix box priced at \$42,705 outperformed a \$4m Cray Research Inc X-MP/416 on two scalar applications: it ran a nuclear reactor simulation program 10% faster and a data network simulation program 50% faster than the Cray.

Lotus Development Corp is providing development support to Hewlett-Packard Co in the Cupertino company's efforts to support 1-2-3 Release 2.2 spreadsheet under its object-oriented NewWave environment.

Intel Corp, sitting on more than \$1,000m cash, is looking to spend some of it investing in software companies complementary to its chip business, and in businesses related to its Intel Systems computer operations: the company is happy with the ramp-up for the 80486 and says it can meet demand now, and is planning to make hundreds of thousands of the things in the second half of the year; as for the company's current performance, the present quarter is likely to be about flat with fourth quarter 1989.

Also bubbling is Sequent Computer Systems Inc, Beaverton, Oregon, which look for profit and turnover growth this year, but intends to cut manufacturing costs by 25% to ensure continued profits if margins are squeezed: it plans to launch a new mid-range model, and add new software, during the current year.

SMT Goupil has announced its first 80486 machine, using the 32-bit EISA bus - but its Normerel acquisition had opted for the Micro Channel before Goupil bought it, so the company is hedging its bets: the new G60 is being pitched as a file server for local area networks and as a department computer under Unix System V.3.2. Main memory goes from 4Mb to 64Mb and the thing can house up to two floppies, two hard disks and a 250Mb tape streamer. It will be available in the UK next month at from £12,000.

IBM duly came out with much more expandable models of the PS/2 suitable for use as file servers, including SCSI interface, but disappointed those hoping for super-exciting server software for the things: it has opted for a new 1.2 release of OS/2 LAN Manager, which cuts the cost of supporting MS-DOS by allowing users to replicate the the MS-DOS LAN Requester 128 times at no extra charge - or AIX Unix version 1.2.

McDonnell-Douglas Information Systems Ltd has cancelled its planned UK flotation: the company will become a UK public limited company with legal responsibility for European and Australasian subsidiaries, but it will remain wholly owned by McDonnell-Douglas Corp.

It is now the case that winning major US government computer contracts is only the first stage - you then almost always have to go through an appeal by one of the losers, and often a rebid of the contract: latest victim of this expensive process is Data General Corp, whose \$127m seven-year award for its AViiON Unix systems for a water resources system for the US Interior Department was duly protested by SMS Data Products Group Inc on the grounds that the database and statistical analysis software do not meet the spec and were not delivered on time, and the General Services Administration has ordered a replay, with SMS and another contender, Lockheed Corp, invited to join the bidding.

The latest applications development tool from Oracle Corp, Belmont, California is Oracle Graphics, designed to provide users with graphic analysis of time-varying database information: it combines computer graphics, distributed database, and user interface technologies into one tool that enables applications developers to present database information graphically; it enables users to create over 50 different types of charts and alter more than 60 different chart parameters; it's available now on Sun Microsystems workstations and will be available on DEC VAXstations during the third quarter, at from \$1,400 for a single-user licence on Sun-3 and Sun-4 to \$19,000 for a 64-user licence.

The Open Software Foundation is holding a series of announcements this week, beginning on Monday at the Hannover Fair, to fill in further details about OSF/1, now expected to emerge in October.

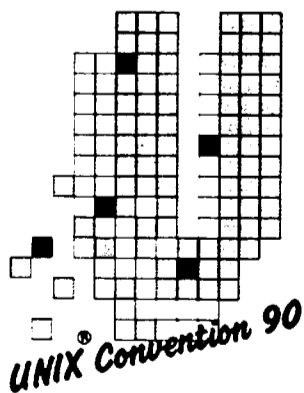
The Unix Software Operation says that it is making its standard C++ libraries available as a separate product to any vendor offering a C++ language system: previously, the libraries were available only as part of the C++ Release 2.0 source code: cost is \$2,000 for source.

And a research version of Concurrent C Release 1.0, a superset of C suitable for parallel programming, is now available from Unix Software Operation: designed at AT&T Bell Labs by Dr Narain Gehani and Dr William Roome is an upward compatible extension to C and C++, and is available in source code format at a promotional price of \$700 until the end of July, when it will cost \$1,000.

Pyramid Technology has signed a joint marketing agreement with Dutch software house Uniface for the Uniface 4GL, which will be used as the front-end for database systems running Sybase, Ingres, Informix, Oracle and Unify: the agreement covers Pyramid's European territories, and the company estimates that the relationship will lead to an extra £2m worth of business during 1990.

SiCob in the Soviet Union - that's what PC World's PC Forum in Moscow is being billed as, it takes place between July 10-15, contact OSP on 01 978 1440.

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MULTIFLOW THROWS IN TOWEL, DECIDES TO LIQUIDATE

Multiflow Computers Inc, the Branford, Connecticut very long instruction word minisupercomputer builder has given up the struggle for survival after a "large computer company" pulled out of a deal to pump in new cash, and has decided to call it a day and liquidate the company. Multiflow's ingenious architecture and its Trace Scheduling Compilers won plenty of plaudits - Intel Corp paid Multiflow \$4m for rights to use the compiler technology only last month (UX No 270) - but none of the good opinions converted into substantial sales. The company, which had raised \$50m in venture capital since its founding in 1984, sold only \$15m of machines in its best year, despite an array of big-name resellers in Europe - Ing C Olivetti SpA for Italy, Metrologie International SA in France, GEI Rechnersysteme GmbH in West Germany and a \$30m three-year exclusive deal for Japan with C Itoh & Co signed last summer (UX No 241). The company established a UK direct sales operation in Basingstoke last year, and ran its European affairs from Leuven, Belgium. It was working on a 64-bit ECL version of its Trace computer when the end came - but the quest for additional funding had been its most pressing priority for a couple of years. A year ago, it came close to agreement with Adage Inc, cash-rich but with few products, to reverse into Adage, but that fell through as Adage holders jibbed at the extent of the risk they were being asked to take. (UX No 236). Ironically, very-long instruction word computers are now being talked about as the next technology leap on from RISC.

OSF RELEASES SECOND OSF/1 SNAPSHOT - PLANS OSI FOCUS

The Open Software Foundation has released its second snapshot of OSF/1 to members on its early access program, and revealed a pricing policy significantly undercutting AT&T's Unix System V, and providing a simplified pricing structure (details, page 5). The new snapshot includes additional kernel functionality, Streams, transport layer interface, loader, language tools and documentation. OSF/1 will be released in November. And the Foundation said that the results of its Distributed Communications Environment request for technology would be revealed at its Boston members meeting in early May - director of technology Ira Goldstein said the product would "move away from the current restrictions of NFS" with a more sophisticated caching file system. Products resulting from the choice, which will come from more than one source, will be available this year, said the Foundation. And OSF is to initiate an Open Systems Interconnection Focus group following the release of the environment, aimed at the European marketplace.

ALTOS BOOSTS TOP-END WITH 486 SERIES 5000 RANGE

Long criticised for failing to provide its dealers and resellers with a sufficient growth path towards minicomputer level systems, Altos Computer Systems has begun talking about its new generation of 80486-based computers, which supports from 128 to 256 users, or up to 500 devices using multidrop cabling. The EISA bus-based Altos Series 5000 replaces the Altos 2000 range, and has a 25MHz 80486 CPU supported by Intel 80186 and 80286 processors off-loading terminal and disk I/O. It includes minicomputer-like features such as disk striping and mirroring, and an uninterruptible power supply. Systems can be expanded to 64Mb memory with up to 29Gb on-line storage in 30 disk drives over five SCSI data channels. The Series 5000 runs a C2 secure version of Unix System V.3.2, based on SCO's Open Desktop technology, and as with Open Desktop there is an emphasis on graphics applications, with OSF/Motif and the IXI X-Desktop-based Locus Xhibit desktop manager bundled in. Although Altos itself will provide only a graphics console for the new system, it has ensured that the Series 5000 is fully compatible with X terminals from Network Computing Devices Inc and NCR, and anticipates that 15 to 20 X-terminals running demanding graphics applications could be supported. Graphics software includes FrameMaker, the Wingz spreadsheet from Informix, and AutoCad. TCP/IP, ISO/OSI, NFS and RFS networking standards are supported (along with X.25 and SNA for wide area networks), and Altos plans to introduce Novell's Portable NetWare in June, and Lan Manager/X later in the year. The new system, which will be launched to dealers and value-added resellers in the UK on April 17th, will ship immediately, priced from £25,000.

COURTS PUT HOLD ON 68030 SALES

A US court in Austin, Texas, has granted a temporary injunction against Motorola Inc which prevents it from selling on the 68030 processor: the move is the latest stage in the company's copyright battle with Hitachi, which claims the chip infringes its patents (UX No 235). The court battle has ended in a stalemate, with Motorola infringing a Hitachi patent, and Hitachi infringing three Motorola patents. Hitachi must also stop selling its H8/532 microcontroller until the companies reach a settlement. Most analysts expect this to happen before inventories are affected.

DG WINS NORSK DATA OEM PACT

Yet more evidence that its bold and extraordinarily rapid move to build itself a completely new business on the 88000 RISC chip and Unix will succeed in bringing Data General Corp back from the brink comes with the news that Norsk Data A/S, also in the 88000 camp, has signed for \$6m of Data General's AVIIONS for inclusion in its Uniline 88 family marketed in Scandinavia and West Germany. Separately, the Oslo company's Dolphin Server Technology A/S subsidiary suffered a wicked theft at the Hannover Fair when at 3.30pm on Wednesday, someone walked off the stand with one of the processor boards from its Triton 88 machine - a board that holds 128Mb and is claimed to deliver 100 MIPS.

AT&T LAUNCHES RHAPSODY OFFICE SUITE

AT&T revealed its Rhapsody "business orchestration" software last week, designed to raise the efficiency and productivity of workgroups by co-ordinating and automating the flow of work. Using a client/server model, the system (code named Conquistador during its development - UX No 264) runs on an AT&T 6386 WorkGroup System acting as a Unix server running AT&T Starlan networking and MS-DOS clients - Unix clients will be supported later. Key elements of the software include Informix SQL, HP's NewWave, Lotus 1-2-3, Microsoft Windows and Excel spreadsheet, and Workhorse from Workhorse Systems of Dublin, managing the workflow element on the server. Cost is around \$8,500 per user.

VLSI, HYUNDAI, METAFLOW PLAN LIGHTNING 80 MIPS SUPER-SPARC

LSI Logic Inc hopes to ride the Sun Microsystems Sparc to turn itself into a major player in the merchant microprocessor market, and following its move to offer a building block chip set for cloning the Sparcstation-1 (UX No 275), the Milpitas company has teamed up with Metaflow Technologies Inc, the San Diego company working on a 100 MIPS ECL Sparc (UX No 194) and Hyundai Electronics America, San Jose to develop the next generation Sparc chip. The new part, code-named Lightning, is to be the basis of the next generation of high-performance RISC-based personal workstations to be introduced by Hyundai in 1991. All three expect that the Lightning will be the highest performance CMOS processor available in the 1990s, initially doing 80 MIPS on most compiled programs. It will be based on a unique architecture developed by Metaflow that is claimed to improve efficiency and performance significantly, and Hyundai has acquired the rights to the technology. Planned for first half 1991, Lightning instructions will be executed out-of-order and execution will continue on speculation beyond unresolved branches as well as executing multiple instructions concurrently, while retaining full compatibility.

IBM ADDS XSTATION SUPPORT, UNIX USER INTERFACES ON PS/2s...

IBM's Tuesday announcement was headlined by a program that enables PS/2s running under AIX Unix to support the new Xstation 120 X-Window System server station when linked to the PS/2 via an Ethernet, or, optionally a Token Ring. The AIX PS/2 Xstation Manager is \$500 plus \$50 for the Workstation Feature and arrives second quarter. The company also announced its AIXwindows Environment Version 1.2 for the PS/2: the thing is based on the Motif user interface and OS/2 Presentation Manager, and enables users to develop and run AIXwindows applications and AIX PS/2 X-Window-based applications. It consists of the AIXwindows user interface and toolkit; the AIXwindows Desktop graphical desktop enabling users to browse the file system and start up applications; and AIX PS/2 X-Window 1.2 based on the X-Window System. It costs \$500 from this Friday. And, completing the line-up, IBM announced a PS/2 version of the NeXTStep user interface that IBM picked up from Steve Jobs' NeXT Inc. AIX PS/2 NextStep Environment 1.1 is \$500 from September 30 next. And IBM announced that the heavily delayed 1.2 release of the AIX PS/2 version of Unix for the PS/2 was finally available this week.

SUN LEADS WORKSTATION PACK AS DATAQUEST FORECASTS 33% GROWTH FOR 1990

In its estimates for the world workstation market in 1989, Dataquest reckons that the market as a whole grew 40.2% to \$6,000m and that Sun Microsystems Inc held the lead position with 28.7% even after the combination of Hewlett-Packard Co and Apollo Computer Inc, which came in second at 26.4%. DEC comes next with 15.9%, Intergraph Corp is in at four with 6% and Silicon Graphics Inc with 5.2%, leaving 17.8% for all others. Dataquest forecasts that growth will slow a little this year, to about 33%, for a 1990 market worth more than \$8,000m. That compares with a personal computer market forecast by Dataquest to reach \$48,000m, up from \$43,000m in 1989. Japanese vendors are together estimated to have 12% to 13% of the world workstation market, most of it in Japan, with Sony Corp the only one that is visible with a share of 2% to 3%.

HP LAUNCHES SEQUOIA FT BOXES

Hewlett-Packard Co duly launched the Sequoia Systems Inc fault-tolerant Unix machine last week, and, as it had said when the agreement was announced, pitched the machine primarily at the telecommunications industry. Called the HP 9000 Model 1240 in Hewlett colours, the machine is claimed to use more efficient technology and offer better price-performance than competitive systems. Telecommunications companies are increasingly relying on fault-tolerant computers to manage their networks, change telephone service on-line and to bill customers, Hewlett says. The Model 1240 goes from two to 64 68030 CPUs and is claimed to have processed transactions up to 150% faster than comparable Stratus Computer Inc and 25% faster than comparable Tandem Computers systems: 250 debit/credit transactions per second with 12 CPUs, 125 with six. It is \$684,900 for a 128-user two processor configuration; ships start next month.

...AND DESCRIBES 80860 GRAPHICS ENGINE

Hewlett-Packard Co has revealed more details of the three-dimensional graphics hardware engine it plans to build around Intel's 80860 RISC for use in a forthcoming line of workstations (UX No 275). The graphics engine will include hardware support for some of the most difficult three-dimensional algorithms, Hewlett said, and will perform all but the most complex operations either in real time or so quickly that the user will hardly notice any delay, addressing the problem that most current three-dimensional technology is so slow that users don't generally use it for checking "what if?"-type variations in a design. According to Microbytes, Hewlett reckons that the thing will produce such realistic images that the need for physical models and for prototypes will be eliminated - it even claims that the graphical models will be able to be manipulated and modified in ways not possible with actual objects. The graphics co-processor will link to the main processor in the workstation via a 30Mbyte-per-second link, and will include proprietary custom and semicustom parts around the 80860, which will sit on an independent graphics bus capable of supporting multiple processors. Hewlett is claiming that by putting the ray tracing and radiosity needed for photorealistic rendering into hardware, it is seeing 30% to 700% better performance than with software-based methods. The graphics engine is expected to turn up in the first workstations that bring together the HP 9000 and Apollo strains into a single product line and will likely run both HP-UX and Domain/OS Unix - which are expected to appear this summer. The company is hinting at a fully-configured price below \$100,000, which would line the box up against Silicon Graphics Inc's Power-Vision and the dedicated graphics models of IBM's new RS/6000 boxes.

PHOENIX REJECTS NORWOOD BID

The board of Phoenix Technologies Ltd has considered the unsolicited proposal to acquire the company from Norwood Partners Limited Partnership and rejected it, saying that it appears to be an illusory offer since it is conditional on Norwood being able to obtain financing, and that it believes that any discussions with Norwood would not be in the best interests of the Norwood, Massachusetts company or its shareholders. Norwood plans to make a tender offer giving holders the option of receiving either \$5 a share cash - against a price in the market of \$3.25 - or one share of non-voting common stock; under the latter option shareholders would be able to participate pro rata with Norwood Partners but without voting rights. The aim would be to take the company private. Phoenix also declared that it was not for sale.

RECEIVER OFFERS XIOS AS GOING CONCERN

The problems of Kinburn Technology Corp, which are expected to see the Canadian passing control of SHL Systemhouse Ltd to BCE Inc have spread to the company's Xios subsidiary, both in Canada and in the UK, where the Xios Systems UK Ltd and Xios Systems Europe Ltd divisions have gone into receivership. The receivers, from Spicer Oppenheimer Partners, are seeking to sell the business - successor company to the old AES word processor business, as a going concern. The UK business was thought to have been profitable. Kinburn defaulted on \$691m in loans earlier this month, much of it owed to BCE, the former Bell Canada Enterprises.

TATUNG, SOLBOURNE TO DO BATTLE OVER LOW-END SPARC GROUND

Solbourne Computer Inc, preparing to cut its entry-level price with a new low-end Sparc compatible system due out this autumn, will face competition from Sparc-licensee Tatung Co, which previewed its own low-end Sparc system at Hanover recently. Taiwanese manufacturer Tatung said that its Sparc-based TWS 7000 workstation would be out later this year: it is expected to sell for under \$10,000. The Tatung TWS 7000 runs the SunOS operating system, has a VME bus and in-built Ethernet, and from 8-64Mb memory and 110Mb hard disk. Meanwhile, Solbourne is preparing a low-end machine based around a custom version of the Sparc chip rated at 20-25 MIPS and developed in conjunction with its parent company Matsushita - the two have also been working on a 40 MIPS, 64-bit implementation (UX No 270). The machines, expected to be volume sellers, and also with a price tag of under \$10,000, will be manufactured and assembled by Matsushita in the Chicago area, according to Digital Review. Tatung first revealed its Sparc intentions back in June 1989 (UX No 237) along with fellow Taiwanese manufacturer Datatech: Fujitsu Limited is also thought to be preparing for its own entry into the Sparc-based workstation market.

PARATECH HAS HIGH RESOLUTION TRANSPUTER GRAPHICS BOARD

Paratech Solutions Ltd, Coulsdon, Surrey, has launched a PC-AT compatible workstation board using the Inmos T800 Transputer, aimed at turning the PC into a 10 MIPS graphics system. The GM8013 board from Paratech, rated at 10 MIPS and 1.5 MFLOPS, supports the Posix-compliant Helios multi-user, multi-processor operating system developed by Perihelion Software, which in turn supports X-Windows, as well as C, Fortran and Pascal compilers. It can therefore be used as the basis of a Unix-like workstation, as an X-terminal, or as a graphics board for the PC/DOS environment, with a Borland-compatible graphics library. Drivers for AutoCAD, MS-Windows and Gem are currently under development, and Paratech already has a painting package for creating advertising artwork or textile design. The GM8103 has an on-board display capability with a viewable resolution of 1536 x 1152 pixels, 256 colours, two independent 8-bit hardware windows, three colour user definable hardware cursor and single-pixel pan with 16-level hardware zoom: it comes with either 1Mb or 4Mb memory, up to 2Mb of dual ported video RAM, and communicates with the PC via either a high-speed FiFo buffer or via a SCSI interface module. No prices were given.

DEC UK WINS £18M EMPLOYMENT CONTRACT

DEC has won what could turn out to be a major contract for Ultrix-based systems from the UK Government Employment Department's Training Agency for the new Training and Enterprise Councils, currently being set up to provide vocational and educational training throughout Britain. The contract has an initial value of £700,000, but DEC says that it could lead to sales of over £18m. The systems, either DECsystem 3100s or DECsystem 5400s, will be provided with GOSIP-compliant communications software, and up to 2,000 DECstation 300 PCs will be connected via Ethernet, using PC-Interface software from Locus Computing Corp. Implementation began in February, and continues in phases over the next eighteen months.

ITALIANS ENDORSE X/OPEN STANDARDS

The hitherto slow progress of the Unix market in Italy looks set for a boost following the news that the Italian government's senior technology advisor, Dr Diego Siclari, has recommended that all Italian ministries should adopt X/Open standards for all new information system procurements. According to Dr Siclari, open systems could substantially cut costs for the Italian government, particularly in the area of personnel, where costs currently exceed that of hardware, software and services combined. Benefits would also occur in the exchange of data between different systems and administrations, he said, speaking at a conference in Rome earlier this month. Estimates put the potential spend on open systems by the Italian administration at around £2 billion by 1995. The Italian decision follows a similar move by the West German government back in January, while the European Council of Ministers, already committed to X/Open standards, has adopted a directive binding all member states to make use of European standards wherever they exist when calling for information system tenders.

ULTRA NETWORK CHOSEN BY FUJITSU, SIEMENS
Super-high-speed networking systems company Ultra Network Technologies Inc, San Jose, California, has won a significant coup in a deal negotiated by its Japanese distributor, Tokyo Electron Ltd under which Fujitsu Ltd will support Ultra's gigabit-per-second network on its M-series mainframes and VP series supercomputers. The three entered a mutual development and marketing agreement to make UltraNet support available for Fujitsu computers worldwide. UltraNet will run under systems using Amdahl's UTS/M Unix implementation and under Fujitsu's own OSIV/MSP re-write of IBM's MVS. UltraNet for UTS/M will be available by the fourth quarter, while the version for OSIV/MSP will follow in the first half of 1991. And the deal extends to Fujitsu's European partner Siemens Data Systems, which says that UltraNet is now available in the UK and Europe on its VP and S-Series supercomputers OEMed from Fujitsu.

LOSS-MAKING SPHINX HAS NEW MD

Sphinx Limited, the Unix software and services company acquired last year by Pegasus Group Plc, has a new managing director. He is Martin Ruda, currently head of international activities at Pegasus. Ruda takes over from Mike Heneghan, who has left the company, which suffered a £277,000 loss in the six months to 31 January 1990, on turnover during the same period of £811,000. Plans for the restructured company include more investment in the services division in the form of more people, who will expand sales of high margin training and consultancy services as a proportion to total business.

XEROX TO APPEAL OVER APPLE RULING

All the claims by Xerox Corp in its lawsuit alleging infringement of its copyright by Apple Computer Inc in the screen display of the Lisa and Macintosh were thrown out on Friday by US District Court Judge Vaughn Walker in San Francisco. The only claim allowed to stand was the one seeking a declaratory judgement confirming Xerox's claims to ownership of the 1980 copyright on the software for its Star workstation. Apple itself is making essentially the same claims against Microsoft Corp and Hewlett-Packard Co over MS-Windows and NewWave. Xerox says it will appeal the decision.

THE VIRTUE OF PATIENCE

In the second part of his article on the Federal computer market, Mike Faden looks at some of the obstacles often encountered, and ahead to the major contracts likely to come to fruition over the next few years.

A good proportion of recent publicity about the Federal market has centred on Desktop III, the contract won by Unisys - whose \$700m bid was variously described as \$100m or \$200m less than the nearest competitor - for maybe 70,000 (and conceivably up to 250,000) 80386 systems. Each is capable of running DOS or an operating system sporting a POSIX-compliant interface, in this case Unix from the Santa Cruz Operation. The immediate primary requirement is for high-powered DOS PCs at a low price - according to Government Computer News' estimates as little as \$668 for a basic 386 system or \$1,400 for a configured 20MHz 386 system with cache, 42Mb disk and VGA colour - but Unix is already used on some Government PCs and is likely to be on many more in future. Observers also suggest that there's no reason why the hardware might not end up as the core of very low cost Unix multi-user systems.

Holdups

And Unix - or rather Unix applications - appears to be a central feature of holdups in the functional testing following award of the contract; Air Force and Unisys officials said that a number of problems had cropped up including the ability to run the Enable office software on the SCO operating system, and a Unisys spokeswoman said the performance of Enable was the "only serious question outstanding". Both Unisys and the Air Force have now clammed up about the subject, while Enable in the US did not respond by our deadline.

For Unisys, DTIII is turning into an obstacle course worthy of Jeux Sans Frontieres, with the latest potential problem being a congressional request for information understood to have been prompted by unspecified allegations of irregularities in the procurement procedure; Air Force officials said they were in the process of supplying required information. Although many of the large Unix contracts are for specific applications for specific agencies, others are much more like Desktop III - framework procurements that are initiated by a specific agency but in practice can be exploited as a source of cheap systems by numerous military and civil users. AFCAC 251 was one of the first of these - the FHA's Cooper noted that his organisation had acquired over 100 systems under the contract - and is one reason the AFCAC expertise is being used to specify and manage more contracts in the same vein. DTIII is one example: another is the AFCAC 300 Superminis project, initiated by the Navy, which will make large systems available to users in the Navy, Army, Coastguard, Defense Logistics Agency and others including, probably, the Air Force. The draft RFP, due out this month with a full RFP around August, is expected to specify 1,200-1,500 systems capable of supporting from 72-256 users apiece, according to an Air Force spokesman, and some estimates put the value at \$500m or more. AFCAC 251 specified 16-64 user systems; the Superminis contract could therefore conceivably be used by the same agencies to provide larger OA systems.

Of the other large contracts that are approaching fruition, the Army supermicros contract, one of the biggest, is expected to be awarded in the first half of this year; current estimates suggest a value to the winning supplier of as much as \$1.2bn, although others put it closer to a mere \$750m.

Meanwhile the Treasury's long-gestating DMAC (desktop) and TMAC (minis) procurements, valued at \$800m and \$400m - although as much as \$1,800m has been allocated from Government funds - are due this year.

Patience

If patience is a virtue, then anyone who succeeds in tracking the DoD/Army Reserve Component Automation System is a saint, or will be by the time it is complete; for the contract is said to have taken 13 years and at least two incarnations to come to RFP stage and covers procurement of systems over a 12 year period after its award. For those who stick with it and win, it may still be worth it, because the value of the contract is put as high as \$1bn.

For the numerous agencies outside the military that are now putting together their own procurements, the task often involves the automation of near-ancient manual tasks and records using Unix. Among them, the Department of the Interior's ALMRS (Automated Land and Minerals System) has presidential priority and about \$250m approved for the task of computerising vast amounts of information currently on paper; not surprisingly it combines office automation functions with a considerable imaging requirement. The Forestry Service Geographic Information System with some similar requirements, is estimated to have a similar value, and is expected to reach RFP stage in the next few months. Other large procurements pending include NOVA, from the huge Veteran's Administration organisation, while the General Services Administration itself is planning to switch from an existing proprietary office automation system to Unix.

For the future, the consensus is that for Unix software suppliers, the acceptance and revenues generated by the booming market had better be channelled into further development to fend off the growing range of competitors, in particular those coming up from the DOS world. As Boyd from Uniplex put it, Unix suppliers must expect to be "measured against a full range of products" - not just against other traditional Unix suppliers as in the past. For hardware suppliers, Unix may occupy the high ground but Desktop III is seen by some observers as the forerunner of future contracts that will specify systems capable of OS/2, Unix or DOS.

Agency/contract	estimated size	timescale
Army Supermicros (SMC)	\$750m- \$1.2bn	First half 1990
Treasury minicomputer (TMAC) & desktop	\$1.2bn in total (\$1.8bn funds approved)	This year
Superminis - Navy, Army, DLA, etc (AFCAC 300)	\$500m	Full RFP August 1990
DoD/ Army Reserves (RCAS)	\$1bn	At RFP stage
Dept. Interior (ALMRS)	\$247m	1991
General Services Administration (GSAS)	\$250m	At RFP stage

*Examples of large forthcoming contracts:
Estimates of value of contracts vary widely.*

ISO SEEKS TO BLEND ACRONYM NIGHTMARE OF IT STANDARDS EFFORTS

The myriad variety of guides and profiles sloshing around the information technology is a nightmare of acronyms - POSIX, NIST, EWOS, AOW, COS, SPAG, CENELEC and CEN are just a few of the names and initiatives bandied around the industry in the search for a coherent approach (apply to the editorial desk for a key!). It now appears that ISO, the International Standards Organisation which ultimately sits at the top of the pile is set to grab the bull by the horns and adopt a single, all-embracing model for applications portability between systems. In a move that seems to have passed by the ears of the international trade press, the French Unix users group AFFU - Association Francaise des Utilisateurs d'Unix et des Systemes Ouverts - says that a meeting in Copenhagen of ISO's recently established Joint Technical Committee Technical Study Group for applications portability (known as TSG1), voted to adopt a conceptual model for this task. This will now be developed and put to ISO for adoption as a recognised standard at a full meeting of the organisation to be held in Ottawa in September. If, as the AFFU believes, this happens, an internationally ratified set of specifications for applications portability in system and software design will be available for developers and manufacturers. The model, which was put together by independent consultant, Jean-Michel Cornu - president of AFNOR, the French POSIX body, Associatio Francaise de Normalisation - in collaboration with AFFU, was one of a number of proposals considered at the Copenhagen meeting. Other submissions included a joint UK/US model based around the CCTA's guide for open systems, and Swedish and Danish models

Overcoming inconsistencies

According to Cornu, the French model is intended to overcome inconsistencies that exist between models from the various standards organisations. His model is like the picture on the front of a jigsaw box. On the table some of the pieces are in place, others will have to be shaped to fill out the gaps. Areas that the TSG group will be looking at in preparation for September's meeting in Ottawa include portability, user requirements, internationalisation and a framework within which to work. A meeting of European representatives takes place ahead of this in June to thrash out a concerted strategy to take to the Ottawa meeting, which will be divided into a range of sub-groups considering hardware, operating systems, languages and so on. The highly conceptual model adopted in Copenhagen also proposes that specific applications areas are addressed by recommendation for communications, system processes, data processing and user interface profiles. The enhanced model to be presented in Ottawa will bring together profiles and guides that already exist in certain areas, such as X/Open's XPG3 model for interoperability, and OSI protocols in communications. Gaps in the model as a whole will then be addressed, as will be the suitability of those existing models - like those above - for inclusion, and ways and means to connect the various elements.

DUNE IS LATEST REAL-TIME UNIX PLAYER

A new player in the real-time, symmetrical multi-processing market made its debut at the French Unix show. The Paris-based Dune Technologies launched the 68030-based Dune 3000 running a real time Unix kernel developed in-house known as Dune-iX. With up to four 25MHz processors, each capable of supporting up to 32Mb memory, the 3000 is front-ended by Sun workstations with X-Windows and the NeWS window manager. Dune-iX is binary compatible with System V/68 3.5, and includes dynamic load-balancing. Out in May, a single processor model starts at 400,000FF and goes up to 1mFF for a four processor configuration. It comes with TCP/IP, Ethernet and a SCSI interface. A 68040-based version is expected to follow, and an 88000 RISC-based system will be developed in the future. Dune has 15 employees at present but expects to double its workforce by the end of the year.

OSF SETS "AGGRESSIVE, SIMPLIFIED" PRICING

At its briefing sessions in New York, Hannover, Paris and London last week (UX No 275), the Open Software Foundation filled in some details on its forthcoming OSF/1 operating environment, expected to emerge this November. Taking its cue from the complex pricing schedules for Unix System V.4, OSF made much play of its "aggressive, simplified pricing" of the software. For a single CPU source code license, OSF will charge \$50,000, including full redistribution rights. Without redistribution rights this is reduced down to \$25,000, while source for each additional CPU costs \$3,000. After the initial source license has been paid for, licensees also have the option of a commercial site license for \$50,000. Single binary license fees range from \$65 down to \$13 per copy at maximum volume discount, regardless of system type. For universities, a special site license of \$5,000 is available, allowing source and binary copies to be distributed throughout the campus. Prices include elements within OSF/1 such as TCP/IP, B1 security and the NFS-compatible file system developed by the University of Berkeley in California. Although OSF future plans involve a move away from use of AT&T code, OSF/1 requires a minimum of an AT&T Unix System V.2 license, but AT&T now supplies only V.3 licenses, costing around \$70,000 - most systems manufacturers already hold such a license, however. Those OSF members who, in the words of the Foundation "choose to license OSF technology", will get bi-monthly snapshots of the code before general product availability.

WISH INTERFACE JOINS DESKTOP GRAPHICS BATTLE WITH ATARI DEAL

Little known Paris-based software house Non Standard Logics looks set to intensify the fierce competition in the graphical desktop manager marketplace with a the imminent launch of a new version of its desktop manager - Wish 2 - and interface builder - XFaceMaker 2 - in May. And the company has won its first endorsement of the product from Atari Corp, which plans to bundle the interface in with its new Motorola 68030-based Unix box, known as the TT030X (see below). The original Wish, which was first seen at last year's show (UX No 222), used a proprietary widget set in the interface builder. The new release incorporates InDepth, an iconic Unix shell, and InDepth Edit, an X-file editor. The software runs on a Hewlett-Packard widget set, and is currently being ported to the OSF/Motif set. Running on a Sun 3/80 workstation, XFaceMaker is 50,000FF, InDepth and InDepth Edit are 5,000FF each. NSL expects that the two together will compete directly with Visix Inc's Looking Glass manager and interface builder. It integrates with Unix databases and uses icons to build interfaces for applications. NSL, which regards IXI's popular X.Desktop manager as "rather unstable", will be showing its new offering at the forthcoming Xhibition in San Jose, between May 21 and 25, where it hopes to attract more attention than it currently does in France, which lags about a year behind the US in X-based technology. With 20 employees at present, NSL hopes to start up a US operation later this year. NSL's customers include France Telecom and AT&T in the Netherlands.

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Two Unix shows in Washington DC within the space of six months has proved too much, and so UniForum/DC Summer, which was to have run between July 17 and 19, has been cancelled: the UniForum Association said that it would be held in 1991 instead, when January's main UniForum event is removed to Dallas, Texas.

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Having controversially bundled its RDB database with the VMS operating system last year, DEC is reportedly set to do the same thing with Ultrix and the Ingres 6.0 relational database, which is sold under the name Ultrix/SQL: DEC is set to launch its new range of DECstation 5000 Risc systems this Tuesday (April 3rd).

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And DEC is also considering the possibility of licensing its forthcoming DECnet Phase V networking software to other vendors to run on non-DEC platforms, hears Digital Review: DECnet Phase V supports the use of OSI protocols.

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Progress Software Inc says it expects sales of over \$40m worldwide during 1990, following a four-fold increase in sales of the Progress 4GL and relational database management system over the last two years: sales last year topped \$25.4m, and the company.

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Quadratron Systems has launched a low-cost office automation package called Q-Word for the Unix environment, featuring word processing, electronic mail and diary package: based on Q-Office, the new package includes the ability to produce typeset output with a variety of fonts, and costs £795 for one to 16 users, £1,395 for 17-32 users, and £2,495 for 33 to 64 users in the UK.

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ICL's customer training division is the first to offer generic training for Unix System V Release 4: the seven courses are the first products to emerge from ICL's Dublin-based Unix training development centre opened last year.

Autodesk Inc, Sausalito, California has signed to incorporate Emeryville, California-based Ithaca Software Inc's Hoops Graphics System into AutoCAD to enhance three-dimensional graphics performance, and has taken 20% of the company: Hoops is a database optimised for producing three-dimensional graphics across a wide range of personal computers and workstations and designed to be used by software makers to develop highly interactive scientific, engineering and business applications; no terms were given.

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Compaq UK has added the Compaq Deskpro 386/25e, a 25MHz 80386-based personal computer to its business line: features include a 4Mb expandable to 16Mb memory, a choice of fixed disk drives and a 16-bit integrated video graphics array video controller; three models are available; Model 1 with no fixed disk drive, £4,400; Model 60 with a 60Mb fixed disk drive, £5,200; and Model 120 with a 120Mb fixed disk drive £5,800 are currently being shipped to Compaq's UK dealers.

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Despite austerity measures in other sectors the People's Bank of China has awarded a \$3m contract to NCR Corp for the first automated cheque-clearing equipment in China: NCR is to supply 250 7720 proof-encoders to handle cheques passed to the Guangzhou branch in Canton, which will then be sorted by NCR 6760 reader-sorters run off four NCR Tower 32/650 Unix-based processors; Qiu Guang, president of the People's Bank confirmed that growth in foreign trade had made computerised cheque handling essential.

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Cypress Semiconductor Corp, San Jose has abandoned plans for a single chip BiCMOS version of its 7C600 Sparc chip set in favour of a two-chip all CMOS approach: it looks for a 0.65 triple-layer metal set that executes two instructions per cycle and would deliver 80 MIPS in a dual processor configuration; and, breaking all the rules about high-tech companies conserving cash, it says it plans to buy in up to 2m of its shares in the market; the company did not give any reason for spending its cash in that way.

Oracle Systems Corp caused its fans severe concern this week when it announced third quarter profits up only 1.3% at \$24.3m on turnover that rose 54% at \$236.4m - and then came out with the lame explanation that the brake resulted from an "accounting anomaly" - \$15m of business that should have been booked in the current quarter had been credited to the third, and that stripping it out represented a direct charge to the bottom line. It says that it expects to be back on plan this quarter, but the "explanation" implies that once it has hit target each quarter, Oracle sits around and stops selling until the next one. The news was a shock because profits rose by 66% in the second quarter, and by 65% and 84% in the four periods of last fiscal.

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AT&T Co said that its computer business would do almost \$2,000m in sales this year, but declined to predict when it would make profits.

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Carlton Amdahl's builder of servers around the 80386 or 80486, NetFrame Systems Inc opened for business in the UK yesterday, saying that Businessland UK Ltd is to market its network servers to corporate users.

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Atari Corp has been talking about the Unix models in its Motorola 68030-based TT range, which sit above its ST line of PCs: above the basic TT030/2 will be two systems running Unix, with the TT030X with 6Mb main memory and 60Mb disk, and a TX desktop version for multi-user applications, using the VME bus. And at CeBit '90 in Hannover over the last few weeks, Atari was showing its long-gestating Atari Transputer Workstation, originally called Abaq. The latest version (4.5) includes up to three Transputers along with a Motorola processor.

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USO NEARS COMPLETION OF COMBINED API FOR MOTIF, OPEN LOOK

Speaking at a Unix briefing hosted by Amdahl in Brussels late last week - see inside - Unix Software Operation European sales and marketing director Morris Schwartz confirmed that USO has been working on a common Application Programming Interface for both the Open Look and Motif graphical user interfaces, (UX No 248). It will be showing it for the first time at the European Unix User Show in London this June. Earlier in the month, X/Open's John Totman, speaking at the French Unix show, said that he expects intermediate de facto GUI specification on a style guide, Intrinsic and an Application Programming Interface to be in place by the middle of the year, which will be superseded by a full interface definition at a later date when bodies like the IEEE have made full recommendations in this area. Likely timing of this will be X/Open's next full meeting in Luxembourg between May 7 and 9.

ENCORE, HARRIS LAUNCH 88000-BASED SYSTEMS:

88OPEN GETS NEW FUNDING FROM DG, UNISYS, MOTOROLA

Motorola Corp has not had an easy job getting its 88000 RISC processor adopted in the face of fierce competition from Sun and MIPS, both established in the market before Motorola arrived. But last week the company was able to celebrate two high-end systems launches, and helped in the re-vamp of the 88Open supporters club with additional funding. A year after its acquisition of Gould Computer, Encore Computer Corp has revealed its strategy for users of Gould's proprietary Concept/32 minis, with a successor product line based on Encore's chosen RISC, the 88000. The Encore 90 Family of real-time computer systems is a first step to merging the two product lines, for as in the MultiMax range, all machines feature two or more CPUs. Encore Computer Corp, based at ex-Gould headquarters in Fort Lauderdale, Florida, is known for its MultiMax parallel processing information systems. Because of a shared memory facility they can run the proprietary MPX real-time operating system from the Concepts on one or more of the processors, and Unix on another. The effect of this, Encore says, is the best of both worlds - an efficient real-time computer and a standard system. The version of Unix being used is Umax, originally developed for the NS32X32-based MultiMax family. So far Encore are introducing the Encore 9102 at the low-end of the range with two CPUs and 16Mb of memory and the 9104 with four CPUs. The 9102 is priced at £48,000. With the acquisition of Gould, Encore can now boast support and sales outlets in 65 countries, compared with a presence mainly through distributors in eight, before the acquisition. It is aiming at commercial users with the Encore 90, exploiting the wide customer base built up by Gould. Meanwhile, neighbours Harris Corp, also based in Fort Lauderdale, boosted its Night Hawk real-time Series with a new model. The 4400, using Motorola Inc's Hypermodule of up to four 88000s, gives performance of up to 30 MIPS with prices starting from \$58,000. Separately, Unisys, Data General and Motorola became sponsor-members of the 88Open Consortium. The Consortium also announced that Tom Mace, previously with Unisys Corp, has been appointed President and CEO. It has also merged its subsidiary Software Initiative operation, (UX No 220), back into the Consortium, and moved headquarters to San Jose, California.

AT&T LAUNCHES TOP-END PYRAMIDS AS ITS SYSTEM 7000

AT&T Co has introduced its first RISC-based symmetrical multi-processors. The System 7000 series of top-end machines are sourced through AT&T's partnership with Pyramid Technology, announced last October, (UX No 252), and like the Pyramid MIServer range come in three models - the 7020 office server, 7040 departmental server and 7080 corporate server - all using Pyramid's proprietary RISC architecture and triple bus. Systems range from single processors rated at 14 MIPS to top-end eight processor systems rated at 122 MIPS and up to 170 transactions per second, and have a price range of from \$88,000 for 128 users to \$225,000 for 1,000 users. The series is optimised for database performance and transaction processing, and is available immediately. Packages with Informix Software Inc's Informix-OnLine database engine and AT&T's Tuxedo Transaction Processing System/T will be offered as turn-key transaction systems. AT&T and Pyramid are said to be developing a new range of systems, thought to be based on the MIPS RISC processor. Also introduced at the symposium was the StarWAN multi-protocol Brouter for interconnecting multiple local area networks, the AT&T 705 multitasking terminal, which upgrades the current 605 model, and System V.4 development systems for AT&T's 3B2 and 6386 lines.

STRATUS ADDS TO UNIX RANGE

Stratus Computer Inc, Marlborough, Massachusetts has expanded its XA2000 range of fault-tolerant systems at both ends, with multi-processor 68030 models and low-end 68020-based offerings. All run FTX, Stratus' implementation of Unix System V.3.2, (UX No 266) - which is available in the UK from June - VOS, the firm's proprietary Virtual Operating System, and Pick 2.0. The Series 200 comes in six models, from the 210 up to the 260, with from one to six 68030s and 68882 co-processors, and up to 128Mb memory. A model 260 with 32Mb is rated at 800 transactions per second and costs £928,000. A model 210 with 8Mb comes in at £194,000. Stratus is also offering multiple implementations of the 200 Series as mainframe-sized options - models 2260, 2460, 2660 and 2860 - the 2260 starts at £2m, the 2860 combines eight model 260s with a total of 48 68030s. New at the low-end are the Model 75 and Model 80 which come in just above the existing Model 30. The Model 75 has a pair of 68020s, the Model 80 has two pairs. Each come with up to 32Mb and can support 96 workstations, the Model 75, rated at 9.5 transactions-per-second starts at £81,000, the Model 80, timed at 19 transactions-per-second is priced at £107,000. All the new systems are available now, support TCP/IP, SNA and DECnet, and will run Oracle 6.0 and Sybase relational databases. Version 2.0 of FTX, compatible with System V.4 will be out at the beginning of next year, and future releases will keep on the AT&T track. On RISC, Stratus says that it has committed to using the Intel 80860 in future machines, it cannot confirm that the machine is yet under development.

IBM TAKES STRATUS UNIX

IBM rushed to announce its own System/88 versions of Stratus Computer Inc's new 68030-based XA2000s - and, as expected it is taking the FTX fault-tolerant Unix too - despite the fact that it is to AT&T's System V Interface Definition and has nothing to do with IBM's AIX or the forthcoming OSF/1 from the Open Software Foundation.

NEW MIPSTATIONS, AND DEC BUNDLES INGRES WITH NEW ULTRIX

As expected, DEC duly unveiled new top-end additions to its MIPS Computer Systems, RISC-based DECstation and DECsystem Series of workstations and servers in a worldwide launch last week. Also introduced was Ultrix V.4.0 - the symmetrical multi-processing implementation of the Unix-like - which is XPG3, Posix and C2 security-compliant, and incorporates the Ingres 6.2 relational database which is offered as Ultrix/SQL. The two- and three-dimensional DECstation 5000 Model 200, available in four versions for up to 64 users, come in at 24 MIPS and 6.4 MFLOPS performance with a SPECmark rating of 18.5, which positions them just below the low-end Model 320 in IBM's recently launched RS/6000, tagged at 27 MIPS with a SPECmark of 22.3. Each uses the MIPS Computer Systems R3000 chip running at 25MHz with from 8Mb to 120Mb memory, 21Gb disk, and come with DECwindows, OSF/Motif, PHIGS, PEX, GKS, Ethernet, three TurboChannel slots - TurboChannel is a new high-performance input-output option - and three serial ports as standard. The Model 200CX, with a single TurboChannel card, 8Mb RAM, eight-plane greyshade frame buffering and a 19" monochrome monitor is £12,750 without disk. The Model 200PX graphics workstation, with a single Turbochannel card, eight-plane two dimensional colour frame buffering and a 19" colour monitor starts at £18,280, without disk. The three-dimensional Model 200PXG comes with an on-board Intel 80860 RISC processor running at 33MHz and a Pixel-Stamp rendering chip set for graphics processing. In a 16Mb, eight-plane three-dimensional colour frame buffering configuration, with a 19" colour monitor - but no disk - the price is £24,740. The top-end Model 200 PXG Turbo T is designed for high-performance three-dimensional modelling. With the same graphics processors as the PXG - but with the 80860 running at 40MHz - it comes with 24Mb memory, 24 plane 3D colour frame buffering and a 19" colour monitor. It starts at £47,770 for a diskless version. Graphics performance goes from 130,000 2D vectors per second and 10,000 polygons per second on the CX to 400,000 and 100,000 respectively on the PXG Turbo T. The 2D models are out this month, the 3D versions will be out in the summer. US prices for the workstations go from \$14,900 up to around \$50,000. New symmetrical multi-processor servers in the 5800 Series - also out in the summer - are the DECsystem 5830 and 5840 for 200 or more users, which come in above the existing 5810 and 5820 models. The 5830 uses three R3000 CPUs and is rated at 48 MIPS. With 192Mb RAM it starts at £118,500. The four-processor 5840 performs at 62 MIPS, and with up to 128Mb memory it comes in at £136,800. All models in the DECsystem 5800 Series are upgradable with addition of add-on CPU boards. DEC has also cut prices on its Ultrix systems. DECstations and VAXstations are cut by between £1,500 and £2,400, whilst DECsystem 5810 and 5820s are down around 30% to £58,870 and £95,550 respectively. In the US diskless configurations of the DECstation 2100 and 3100 are \$6,000 and \$9,000, down from \$9,000 and \$12,000 respectively.

DEC "TO PLAY NO PART IN COMMON MIPS BINARY STANDARD"

In its new MIPStations, DEC has once again reversed the byte-ordering on the MIPS processor to bring them into line with that on VAX series, but says it is playing no part in developing the MIPS Application Interface, which MIPS and its other customers are putting together to ensure interoperability between all R Series-based systems. The price cuts on the older models is a dramatic 25% to 40%. As far as other development is concerned, DEC says it is continuing work on an R6000-based ECL system, but does not expect an announcement for some time. On its relations with other Unix industry organisations, DEC says that bits from the Open Software Foundation's OSF/1 release will be incorporated into Ultrix over time, but it will not offer the Unix pretender as an alternative to Ultrix. The firm says that it and other manufacturers are still in negotiation with AT&T over the future of Unix, but the talks are still stalled on the issue of money. DEC is reported to be more than willing to put up money for Unix to be spun off into a separate organisation, but says that AT&T is dragging its feet over the asking price for its loss-making Unix Software Operation. AT&T originally put a tag of around \$400m on Unix, but says that the price issue that Open Software Foundation members are raising, is "just a smokescreen for other issues".

SYMMETRICAL MULTI-PROCESSING FOR ULTRIX IS HERE AT LAST

The new Ultrix Version 4 conforms to the Posix 1003.1 standard, Federal Information Processing Standard 151-1, the X/Open Portability Guide Issue 3 base level, and will be X/Open branded in the future says DEC. The new Symmetric Multiprocessing capability is claimed to increase dramatically the performance of the DECsystem 5800 series when two or more processors share a single resident copy so that a four-processor system can run 380% faster than a uniprocessor. The new Remote Procedure Call capability, a key component of DEC's new Network Application Support, enables parts of applications to run concurrently on several computers in a multivendor network. The implementation is claimed to result in increased performance because the application can access the most appropriate computer in the network for its task, as well as one that has free time available. It is the first step in the joint development effort with Hewlett-Packard Co to extend the Remote Procedure Call portion of Apollo's Network Computing System to support wide-area networks, large data processing applications, international languages and additional protocols such as X25 and Open Systems Interconnection. Ultrix V4 also includes Network Time Protocol, providing network-wide synchronisation of clocks; Hesiod name service, providing centralised password database administration; and Kerberos authentication service, providing increased security; the latter two were developed under Massachusetts Institute of Technology's Project Athena, which also produced the X Window System. Ultrix/SQL - the 6.2 release of Ingres - is bundled with the operating system and enables applications to access and use information from different vendors' databases across a network. There is also support for IBM 3270 terminals, Remote Procedure Call support for VAX/VMS systems connected to Unix systems via TCP/IP, and new RISC-based mail services, with integration and support services for MS-DOS, OS/2 and Apple Macintosh personal computers promised. The new version of DECnet-Ultrix enables communication among DEC systems that use DECnet protocols and all systems that use the TCP/IP Internet protocols. The Pascal for RISC is completely new, and Fortran for RISC V2 includes extended compatibility with VAX Fortran. As reported, DEC has signed to distribute Micro Focus Plc's Cobol/2 mainframe-level compiler, and it has also signed with Verdix Corp for its Verdix Ada Development System. Ultrix V4 includes a 300% increase in the maximum number of disks supported to 96 from 32 disks per system for up to 114Gb of storage. Physical memory support is 400% higher at 512Mb. DEC also said it would sell and support Uniplex Business Software worldwide, and a formal agreement with Applix Inc for its Alis software on VAXstations and RISC-based workstations running Ultrix. DEC gives as an example of new Ultrix pricing a cut on DECsystem 5810 upgrade licences for 33 to 64 users to \$78 per user from \$392 per user. Ultrix V4 and Ultrix Worksystem Software will be out in the summer.

PIXAR'S RENDERMAN IS OFFERED FIRST FOR THE APPLE MACINTOSH

Despite the fact that Steve Jobs is the controlling shareholder in Pixar Inc and is not the best of friends with the company he helped to found these days, Pixar's RenderMan three-dimensional rendering interface is to be implemented on the Apple Computer Inc Macintosh. According to the Microbytes Daily newswire, Pixar says the new MacRenderMan is the "first end-user implementation of RenderMan." Costing \$800, it will enable images generated in Macromind Three-D, Swivel 3D, and other Mac three-dimensional graphics applications to be created using the powerful scene description tools of the RenderMan interface. Up to now, RenderMan has been available only as a developers' language and toolkit, requiring knowledge of C programming. It provides a scene description language and output mechanism for creating three-dimensional images that include visual attributes such as surface texture, shading and reflected light, and motion blur. Users of programs like Macromind Three-D and Swivel 3D will be able to export files and then generate them using RenderMan shaders and textures, such as marble, wood, or carpet, and apply light sources and reflections, storing the result as a file or putting it up on a colour display. MacRenderMan runs under MultiFinder and runs in background. It needs at least 4Mb memory - 8Mb is better on a Mac SE/30 or Mac II running 32-bit QuickDraw, 4Mb of disk storage, and 8- or 24-bit colour display. It will be out in the US on May 1.

NIXDORF, BULL GO INTO IMAGE PROCESSING.

Nixdorf Computer AG is the latest to persuade itself that there is a fortune to be made from image processing systems, and its Nixdorf Computer Corp arm in Waltham, Massachusetts has gone to Palo Alto-based Document Technologies Inc for its ImageServer line of subsystems and servers for sale with its Unix-based Targon machines. The OEM contract is worth \$3m- plus over two years, and Nixdorf has integrated the servers with its Data Collection and Processing Application. The ImageServers are based on a "unique multiprocessor, multi function Raster Image Processor" that handles images in the form of pixel maps. And not to be left out, Bull HN Information Systems has announced its intention to offer a distributed image storage and retrieval system called IMAGEWorks later this year. Demonstrated at Chicago's AIIM Show this month, IMAGEWorks runs on Bull DPX/2 Unix servers, allowing MS-DOS and Macintosh PCs to be used as image capture and retrieval workstations. It will be aimed at government, corporate, manufacturing, banking and insurance companies looking to reduce the huge volumes of paper-based files. System prices and availability will be revealed "before the end of the year", said Bull.

NCR-TERADATA TEAM TO DO NCR'S NEW HIGH-END UNIX BOX

NCR Corp, Dayton, Ohio and Teradata Corp, Los Angeles now have definitive agreements for about 10% of the back-end database systems specialist (UX No 269), paying \$36.8m, representing a 15% premium on the market price. The two will contribute personnel, technology and funding to a joint project to develop a hardware technology that will serve as a large general purpose Unix computer for NCR's Open, Co-operative Computing Architecture and as the future processing engine for Teradata's database computers. The three-year project will be based in Southern California; NCR will put up most of the funding in the initial years.

IBM TAKES FIRST STEPS TOWARDS SAA-UNIX MARRIAGE

IBM has sneaked out the first details of plans to embrace - at arm's length - its Unix systems into its Systems Applications Architecture families of proprietary systems. Initially only the PS/2s, the plans are still very much in their infancy, because although a string of products was announced, delivery dates for them will not be set until the end of the year. The name given for the new products is DataTrade, and DataTrade is a set of communications programs designed to provide a consistent application programming interface for data transfer between distributed applications running on different IBM processors under different IBM operating systems. The programs come in two parts - a Manager, resident and executing in a server that supports multiple workstations, and a Workstation Feature for each station. Applications can use common communication support, data interchange facilities and "reliable" local area network broadcast to create an integrated system. Where the server is a PS/2 under AIX, the thing costs \$12,500 on the server, plus \$2,000 for each RS/6000 workstation, and \$1,500 for each PS/2 station under AIX, \$1,000 for each one under OS/2. The Systems Application Architecture DataTrade/2 server version is \$10,500, workstation versions are priced as above. When the RS/6000 is used as a server, prices are \$15,630 for the smaller ones, \$15,530 for the middle ones and \$24,420 for the top one.

... CONFINES CADAM SOFTWARE TO IBM HARDWARE ONLY

Having outbid all comers in the auction for Lockheed Corp's Cadam Inc computer-aided design software subsidiary, IBM has moved quickly to kill off Cadam's disinterested moves to make its software available on a wide range of competing hardware: henceforward, it seems, Cadam will be an IBM proprietary program available only on IBM hardware. Cadam says that as from March 12 it ceased marketing all Professional Cadam mechanical design software ported to Apollo and Sun workstations and stopped work on developing versions for DEC workstations. Support for all non-IBM products will cease on June 30 1991. The most significant account to be hit by this move is the C4 project between General Motors' subsidiary Electronic Data Systems and Cadam which was set up to develop a system enabling General Motors to cut its hardware suppliers down to Sun and Apollo. Sources have told Computer Systems News that IBM may continue to supply EDS with Cadam software for Apollo and Sun machines so long as EDS and General Motors agree on guaranteed volume purchases for IBM hardware in the future. Cadam says that EDS users interested in migrating their licence to the RS/6000 box will be able to receive the new AIX 3 version of the software free of charge.

CRAY LOOKS TO ACQUIRE SUPERTEK TO MOVE DOWN TO MINISUPERS

Following its revelation that it will come out with an air-cooled version of the Y-MP in a few weeks - the machine is expected to sell for \$2m to \$5m - Cray Research Inc has moved to take its product line right down into the minisupercomputer arena. Cray said that it had agreement in principle to buy the Santa Clara, California-based Supertek Computers Inc, whose S-1 is a \$500,000 to \$1m machine compatible with the Cray X-MP, for an undisclosed sum put by analysts at between \$20m and \$30m. Given that Multiflow Computers Inc closed its doors only the day before (UX No 276) and that only Convex Computer Corp of the minisuper builders is prospering, it is likely that the venture capital backers of Supertek leaped at the chance to offload a firm that was looking an increasingly risky investment. Supertek is working on an S-2 machine compatible with the Cray Y-MP for delivery next year.

OS/2 DELAYS HOLD BACK MARKET ACCEPTANCE

OS/2 users are still waiting to take full advantage of Intel Corp's 80386 chip, and will have to continue waiting until the end of this year - "probably only days before year-end" said Bill Gates ominously, during his visit to London last week. OS/2 version 2.0 will feature 32-bit addressing, TrueType fonts (co-developed with Apple in preference to Adobe's Type 1 fonts - a decision which clashes with IBM's recent choice of Type 1 for its SAA platforms), the ability to run multiple DOS applications, and demand paging support. Gates said that combined with the advantages of multi-tasking, improved file system, security, and with IBM's SAA and developments on top such as OfficeVision, OS/2 2.0 "will be just too attractive to ignore" for any developers with existing 32-bit software. He expects applications to come flooding in from Macintosh, Unix, Windows and VAX environments. But others within Microsoft are privately less optimistic about the future of OS/2, and even Gates admitted that "the pace has been slower than we wanted - but applications have come out quicker than they did for DOS itself, so perhaps we were being unrealistic". MS-Windows, on the other hand, is doing rather well, with over 600 applications and a 2.5m installed base - a similar base to Apple, according to Gates. The forthcoming release of MS-Windows 3.0, expected this May, promises size and performance enhancements, multi-media support and user interface improvements such as colour icons, icon dragging and 3-D effects similar to Hewlett-Packard's New Wave interface - and will also include TrueType fonts. But back home, the US press is speculating that Microsoft and IBM's inability to ship OS/2 1.2, combined with the impending Windows release, will prompt users to wait for OS/2 2.0, spelling doom for the 16bit version.

...BUT THE ROLE OF UNIX**"NOT ON THE DESKTOP" SAYS GATES**

Despite Microsoft's 20% stake in the Santa Cruz Operation, currently pushing its message for binary compatible shrink-wrapped Unix, and touting its low-cost Open Desktop operating environment, Gates appears to have little faith in Unix. "I see it in an important, but different role, not on the desktop", he said, "the variety of Unix versions prevents generic packaged software, and the old model of source set up for each new hardware platform, doesn't give you the rigid model of DOS and OS/2, although there is a strong argument for it away from the desktop". SCO's \$120m turnover and 500,000 Unix/Xenix licenses still only amounts to around 2% of the size of Microsoft's system software sales, making it, in the words of Gates, only "a significant niche player". Gates was more critical of Steve Jobs and his efforts to establish the NeXT computer. "Steve's entry is most interesting", he said. "If anyone can generate enthusiasm around an incompatible system, he can". On the subject of Apple, Gate said that now everyone else had caught up with graphical user interfaces, Apple would need to find new innovations in order "to justify its position as the minority standard - graphics is no longer a point of differentiation".

NETFRAME LAUNCHES ITS SERVERS IN UK

NetFrame Systems Inc, based in Sunnyvale, California, has announced the UK launch of its NetFrame range - network servers on microcomputers that are based on Intel 80386 chips. The company was set up two years ago by Carlton Amdahl to plug what he saw as the gap in customised network servers in the personal computer-based local area network environment. Since it was set up in 1987, the company has raised around \$17m in private funding. Dataquest market research analysts forecast that by 1993 there will be 60m personal computers on desks and of these 30m will be networked. The NetFrame products are intended to provide mainframe capacity coupled with personal computer flexibility. The low-end NF100 system can generate three times the throughput of a high-end personal computer server system. NetFrame intends its range to compete head-to-head with Compaq's Systempro. But NetFrame claims that under the NetFrame "DX" benchmark, a measurement tool devised by (surprise, surprise) NetFrame, its range outperforms the Systempro in disk throughput for random and sequential read and write access. In both cases, running a NetFrame and a Systempro with one controller and four drives, the NetFrame achieved around twice the throughput of the Systempro. NetFrame also says that the NF100 has around four times the disk throughput of a fully configured Systempro, while the NF300 has eight times the performance. The range runs Unix System V.4, NetWare 386, Banyan Vines and OS/2 LAN Manager. The NF100 retails at £16,000, the NF300 at £26,000 and the NF400 at £36,000. In the UK the NetFrame range is exclusively distributed by Businessland Ltd.

**MUNICH-BASED COMPUTER 2000
TAKES 49% OF FRONTLINE**

While its siblings are busy prospecting the East German market, Munich-based Computer 2000 GmbH has made a foray in another direction entirely, and has bought a 49% stake in Frontline Distribution Ltd, the Basingstoke, Hampshire-based MS-DOS, Apple and Unix hardware and software distribution company, with an option to take its stake to a majority and control. Computer 2000 is the largest personal computer and peripherals distributor in West Germany, and much of the cash for the acquisition is to be ploughed back into the UK company, which has ambitions to expand its interests in the personal computer and printer markets. Founded as First Software, it twice came close to the wire on a public flotation. Ingram Micro D and Metrologie International also took a look at Frontline. Computer 2000 employs 343 and reported turnover of \$155m last year. It has also got subsidiaries in Benelux, Spain, Austria and Switzerland, and it has ambitions to go pan-European. This week, Frontline is set to announce a distribution deal for Lotus 1-2-3 on Sun workstations, which is now shipping.

ICOS TO INCREASE BESPOKE UNIX WORK

London-based systems centre ICOS, Independent Computer Solutions Ltd, has opened a second office in London's W1 district to house the company's software development division. ICOS has also increased its staff to 38 from 20 and watched turnover grow to £2.7m from £1.6m 7m over the past year; it believes that its expansion is a reflection of a growing demand for bespoke software, rather than off-the-shelf packages. The software division specialises in MS-DOS, OS/2, and fourth generation languages, and ICOS says that the new division intends to focus more heavily on Unix development work.

GOVERNMENT IT SPENDING BOOSTS UNIX IN SPAIN

From a comparatively late start, the Spanish government has rapidly taken Unix to its heart (UX No 272), a fact emphatically underlined by 1989 government-produced statistics showing that Unix accounts for 57% by value of new systems purchased. The figures show that in 1989 central government agencies purchased over 2500 Unix systems, an increase of some 900% over the mere 220 bought in 1988, reflecting the implementation of several large scale Unix based projects. Expenditure on Unix hardware increased from 2740m ptas (around \$25.4m) to 6734m ptas (about \$62.3m) over the same period, with systems and applications software bringing the total up to 7824m ptas (\$74m). The entire Spanish Unix market including the private sector grew 42% in 1989, and is expected to grow 41% in 1990.

Victor De Loyola, sub-Director General for data processing coordination in the Spanish public administrations, said that is used for new technical/scientific systems of all sizes, small-medium management/business systems and workstations. Speaking at the recent Convention Unix 90 in Paris, he added that exceptions to the policy include extensions to existing projects, and projects initiated before the policy came into effect. De Loyola noted that the Government asked for X/Open conformance in a standard clause used in procurement specifications, with SVID conformance a subsidiary requirement. In 1989, projects handled by the Ministry of Employment accounted for nearly half the number and value of systems bought. De Loyola also outlined a range of other projects under the Ministries of Justice, Health (hospital systems), Finance, Interior (civil guard), and Culture (provincial libraries). Nixdorf won the honour of being leading supplier to the Government last year, picking up 38% of business by number of systems, 39% by value. Hewlett-Packard was the runner up in terms of value of systems, closely followed by Unisys and Bull; in unit shipments Bull was a clear second with 28%. Britain's ICL also showed with 14% of unit shipments. Overall, the great majority of Government money is being spent on small multi-user systems, with Unix accounting for the vast majority of the systems in this category, although, according to the government figures, only 60%-odd by value.

BULL COLLABORATES WITH TUNISIA ON ARABIC UNIX

A new contender in the growing market for Arabic language systems has been developed following a collaborative development between Bull and the Tunisian Nationale Information Processing Centre (CNI). Dubbed ABCIX for Arabic, Bull, CNI with the inevitable suffix, the software is to be marketed by Bull according to CNI director Farouk Kamoun, who claimed that the system had been developed using the X/Open specifications for 8-bit national language support to ensure portability. The market for Arabic language Unix systems is estimated to be potentially as high as 6,000 units in 1990; in Tunisia and the other former French colonies of Algeria and Morocco, demand for Arabic language systems is being fuelled by the continuing shift away from the use of the French language. Adapting any system to cope with Arabic, and particularly a system that will also cope with other languages simultaneously, is no mean feat. There are, for a start, details such as the different calendar used by Muslims, and the fact that lines are written right to left.

And, according to Kamoun, specially adapted terminals can help software cope with the differences in displaying the script on screen, such as the fact that vowels are displayed above or below the consonants, and that each letter can be represented in four or five different ways depending on its position in a word so that context sensitivity has to be built in to the system. Then again, in some situations vowels may be omitted on output completely - a method used by Arabic language newspapers - or may be included only where their omission would lead to ambiguity. The import of technology into Tunisia has risen steeply, helped by the Government's decision to reduce import duties levied on computers. Government figures put 1988 imports at 19m dinars, up from 12m in 1987. At the same time, the tax regulations were changed at the end of last year in an attempt to make Tunisia extremely attractive for firms basing software development in the country. As a result, local organisations are said to be seeking joint ventures with foreign companies.

MOD AWARDS PORTABLE COMMON TOOLS ENVIRONMENT STUDY CONTRACTS

SD-Scicon Plc has been awarded a Ministry of Defence software study contract into an enhanced version of the Portable Common Tool Environment, PCTE+. SD-Scicon is leading a £500,000 consortium that includes GEC-Marconi Software Systems and STC Plc. Logica Plc is heading a second design study consortium. PCTE was conceived under the Esprit programme as a common environment for development of complex software ie an integrated project support environment or IPSE and the study will assess whether PCTE+, an enhanced version of PCTE, can be developed on a configuration of distributed DEC VAX computers under VMS. The MOD will choose between the Consortia this year, and the winners will embark upon a two year development phase. Other European countries are sponsoring the development of a Unix-based PCTE+, and it was the French intention, under the leadership of Parisbased GEI Emeraude SA, that Unix should become standard (UX No 247). However, the key requirement in defence software is security, and it is here that Unix falls down. Consequently, SD-Scicon is attempting to make PCTE+ less dependent on Unix, and the various consortia are considering not only DEC and Unix versions of PCTE+, but also links to other environments. Meanwhile, the PCTE Interface Management Board has set up a "taskforce" to speed up the process of standardisation and industry support for PCTE as an "open repository". Initial "invitation only" members of the task force are Bull, DEC, Emeraude, Generics Software, Hewlett-Packard, Ipsys Software (the management buyout of Thorn EMI's Software Sciences division), Philips, SFGL and STC.

FRENCH UNIX SHOW HAS EVERYTHING BUT USERS

Set in the heart of Paris' breathtaking La Defense high-tech business park, under the shadow of President Mitterand's recently completed new Arc de Triomphe, La Convention Unix 1990 had all the outward signs of a Unix market moving rapidly along with the rest of the industry. At least twice as big as last year's affair, (UX No 222), most of the major Unix manufacturers were represented - though AT&T, Unix International and the Open Software Foundation were conspicuous by their absence. It was Software houses like Informix, Ingres, Unify and Uniplex that had the biggest stands, all giving impressive demonstrations of what Unix can really achieve now. Users however - at least in any significant numbers - were sorely missing. The laid-back affair generally lacked hustle and bustle - even say of London's European Unix Users Show - and manufacturers, including some who had made a trip to the show from the UK, were openly disappointed by the missing masses. Unix technology in France seems to be developing as fast as elsewhere, but are users being won over to it?

FRENCH USER GROUP LAUNCHES BENCHMARKING SUITE

Further proving itself as a body to which the Unix industry should be paying a little more attention, the French Unix users group - AFFU - has this month published a set of tests for benchmarking Unix and MS-DOS-based systems on which it has been working for over two years. Known as the SSBA, or Suite Synthetique de Benchmarks de l'AFFU, the group hopes that the suite will be adopted by a new ISO/POSIX workgroup on benchmarking, in much the same way as its model for applications portability, (UX No 276). The tests have already become something of a standard in France - the French government uses the suite in making procurement decisions - and manufacturers have been falling over themselves to get their systems benchmarked. So far over 500 machines have been put through their paces. In addition to industry-wide performance standards such as Dhystone, Whetstone and Linpack, the suite has a variety of tests proposed by users and developers at AFFU meetings, and incorporated in the final selection of 200 programs. All the tests have been rigorously designed so that manufacturers cannot achieve performance benefits by tinkering with their systems. Indeed the AFFU is highly critical of the new benchmarking body SPEC, which is pushing to get its own benchmark suite acknowledged as a standard. AFFU reckons a pervasive combination of system manufacturers, and a limited range of company-proposed tests make the suite biased in favour of the member companies with little relation to performance users can expect from applications and packages at their screens. AFFU says that its SSBA sets up over 30,000 processes on systems when the tests are run, and can take up to three hours run, giving manufacturers little opportunity for intensive tweaking. A report on systems benchmarked with the SSBA is available from the AFFU for £20. Contact: France +1 4670 9590.

AMDAHL BRACES ITSELF FOR IBM'S NATIVE MAINFRAME UNIX

At Amdahl's Unix briefing in Brussels last week, Graham Goldfarb, its European marketing manager for Unix was once again asking the question, how long will Amdahl remain the only native Unix mainframe manufacturer? The answer to his own question is - and one he reiterates every year - probably no more than another twelve months. He argues that, political reasons apart, IBM is running into the same technical difficulties trying to bring AIX on to the 370s in a native mode as Amdahl experienced in the early eighties when it was doing development on its System V-compatible UTS operating system, and that IBM has spread the project too widely around the company. As far as Amdahl's own plans are concerned, Goldfarb expects UTS version 2.1 to emerge later this year, incorporating amongst other things enhanced security, X-Windows, OSI protocols, four-way multi-processing and expanded function types. Amdahl's Unix variant is being developed jointly with AT&T, and release 3.0 of UTS, which will be compatible with System V.4.1, is expected sometime in 1992, though on IBM compatibility Amdahl says that it will "never have a full SNA suite running on UTS". On the hardware side Goldfarb says the firm is developing a server that will support in excess of 5,000 Sun workstations, and that an announcement will be made some time this year. However he was not so forthcoming on the European availability of its first non-VM compatible mainframe, the 7300 series, (UX No 257). He said that as the system was a "risk" to the company it would be extensively tested in the US - several installations have been made - before being released on to the European market.

SECUREWARE LOOKS FOR SUPPORT IN TRUSTED X IMPLEMENTATION

SecureWare Inc, the Atlanta-based software house whose security technology was recently adopted by the Open Software Foundation (UX No 267), is trying to put together a "consortium" of its own that will underwrite the third and final leg of that technology. SecureWare president Michael McChesney, who said he first broached the idea of sharing development costs with potential allies nine months ago, has invited at least "12 to 15" companies to a meeting on April 19th to try to formalise some kind of joint development arrangement. Among those he said he has invited are "everybody planning a multi-level Unix product", including Apple, AT&T, British Telecom, Bull, Convex, DEC, Harris, Hewlett-Packard, Hitachi, IBM, NCR, Nixdorf, Pyramid, Sequent, Siemens, Sun, Tektronix and Unisys. SecureWare has dubbed the undertaking project Max, short for Multilevel Architecture for X Networks, which will be the basis of the network portion of its security system, a follow-on to the kernel portion and Compartmented Mode Workstation (CMW) or X/Windows and Motif implementation McChesney said is complete. McChesney, who once worked for a venture capital firm, said he is looking for \$1.2m a year for two years and a minimum of four participants, whose involvement would guarantee them royalty-free rights to what is developed. What SecureWare will bring to the party is a 200 page specification already written, covering the low-level but "crucial" TCP/IP segment SecureWare is calling MaxNet. The spec describes how 200 machines might be hooked together in a trusted network. Project Max would fund the implementation of MaxNet and some of its logical ramifications, McChesney said, but added that the breadth of those ramifications was unclear at this point, and might require additional funding. McChesney believes he can depend on at least four unidentified companies for support, but if he gets no takers on April 19th, SecureWare, a small company whose own R&D resources may already be stretched, will proceed on its own to develop only MaxNet, at an estimated cost of some \$600,000.

**PAMELA GRAY'S MAROSI PROVIDES
OPEN SYSTEM INFORMATION SERVICE
FOR END USERS**

Independent advisory company Marosi - the name stands for Marketing Open Systems Internationally - was set up in July last year (UX No 246) with the express purpose of carrying the open systems message to end-user organisations, manufacturers and consultants, and is now ready to offer a full range of information and consultancy services to users considering or already embarked on an open systems policy. Rather than offer the normal product-specific training courses run by software distribution companies such as Sphinx Ltd - which Gray founded early in 1983 - Marosi concentrates instead on strategic issues, and offers both packaged information and specifically tailored information services. Initial products include a monthly review which alternates between marketing and technical issues, a series of subscription reports on open systems subjects, seminars, and special services, such as a standards tracking service. According to Gray there is a huge demand from end-users for more information about open systems, particularly in such areas as migration co-existence, and the transition from proprietary systems to Unix. Initial interest, particularly from the larger corporates, has seen the most demand for custom consultancy services. Marosi could also provide users with a much needed focus providing feedback to software and hardware suppliers, a role that X/Open is at last beginning to address through its Xtra program.

Unix directory and VAR report

Gray hopes that with backing from users, Marosi will be able to bring influence to bear on the industry, particularly in areas where applications products required by endusers have not been targeted by the manufacturers. The company is also organising the seminar program for the forthcoming Open Solutions Show (19-21 June, London Olympia), and is planning a further conference in November. It also hopes to take on the production of a Unix product directory similar in scope to the US UniForum directory, which currently runs to over 1,000 pages. Gray is hoping to sell advanced subscriptions for this venture to help out with funding. Another special project is a report on open systems value-added-resellers in the UK. Gray estimates that there are currently only around 500 VARs competent to deal in the open systems market. On the future prospects for the company, Gray anticipates turnover of £500,000 in the first year, but says growth will be constrained by people available rather than demand - specialist Unix consultants are hard to find in the midst of the skills shortage. Initially focused on the UK and Europe, Marosi intends to look to the US in the future. The company is based in Ascot, Berkshire.

**JUDGE LIFTS FREEZE ON
MOTOROLA, HITACHI SALES**

Responding to the worries of innocent bystander users in the US of the Motorola Inc 68030 and of the Hitachi Ltd H8 microcontroller, Federal Judge Lucius Bunting very quickly suspended his injunction ordering the two companies to stop selling the chips in the US (UX No 276). The stay of execution will stand pending any appeal of the original ruling, and makes it clear that the judge's prime aim was to shock the two companies into coming to an out-of-court settlement - in his judgement, he criticised the two for wasting the time of the court with their lawsuits - "This suit is not the sort of thing Federal courts should spend time and energy upon," the judge opined.

**AST LAUNCHES 33MHz 486 PREMIUM,
EXPERIMENTS WITH RISC**

AST Research Inc is claiming to be ready with the fastest MS-DOS machine yet to hit the market with its new 486/33 desktop. AST says it will ship the systems "within 10-12 days" of Intel launching the 20 MIPS, 33MHz version of the i486, and points to the processor independent CUPID 32 architecture of its PCs as the reason for its speed. CUPID stands for Completely Universal Processor and I/O design, which also allows users of AST's Premium range of PCs to upgrade from 386SX machines up to the top-end 486 boxes with a simple board swap, taking only a few minutes. The machine architecture is split into three modules consisting of the compatibility set (system board with disk I/O, I/O bus and serial and parallel ports), computational set (CPU card) and memory set (system memory), allowing the individual elements to be changed with no effect on the other modules. The cpu card, for instance, could be made to incorporate RISC processors, an avenue which AST is apparently experimenting with in its development labs. The 486/33, claimed to be 30% faster than a Compaq Deskpro 486/25, currently uses the ISA bus, although an EISA version is waiting in the wings, and has an 80387 compatible maths co-processor, as well as support for the Wietek 4167 floating-point chip. It comes standard with 4Mb memory, seven expansion slots, one parallel port, two serial ports and 5.25 inch floppy drive. Prices start from £8,000 in the UK - \$10,000 in the US, rising to £11,000 (\$13,650) with 320Mb ESDI disk. Dependent on availability of the 33MHz i486, volume shipments should begin in the second quarter. Aside from DOS and OS/2, AST plans to offer the Unix-based Open Desktop environment from the Santa Cruz Operation on the new machines. In the UK, AST is based in Brentford, Middlesex.

**DAEWOO ALMOST THERE WITH
COLOUR SYSTEM FOR NeXT**

Daewoo Telecom Co of South Korea, in taking a licence for the University of Washington's Graphics System Processor 3 - UWGSP3 - is on the verge of releasing what may soon be the first colour display system available for Steve Jobs' NeXT cube. According to sources in Washington, Daewoo may ship versions of the 32-bit card and software as early as the end of the year. The system, which combines Texas Instruments' TMS34020 graphics processor with four TMS34082 floating-point processors, is rated at 160 MFLOPS, and is reckoned to do edge enhancements in less than a second that would take other systems an hour or more to complete. Distributed in the US by Leading Edge Products, the initial cost of the thing will be high, but is expected to come down to as low as \$20,000 in the future.

**UNIFY CORP SUPPORTS OPEN LOOK
INTERFACE FOR ACCELL**

Unify Corp has given the Sun/AT&T Open Look graphical user interface a boost by launching a new version of its Accell/SQL applications development technology supporting the interface. Currently on beta test, Accell/SQL for Open Look gives developers the option of bringing both new and existing Unix applications to the Open Look environment. There are currently over 450 Accell applications, which according to the company will run under XWindows and Open Look with no additional programming. Applications can still be run in character mode, or on a mixture of character-based terminals and Xterminals on a network. PCs running Microsoft Windows are also supported. Unify provides a runtime version, so that once developers have invested in a development version, further copies can be sold on to customers at a quarter of the price. Prices range from £370 up to £83,880, depending on the number of users available second quarter.

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The weekly information newsletter for the UNIX™ community worldwide

ICL is pushing its Open Manufacturing Systems portfolio firmly into the Unix arena by announcing a manufacturing management system called MAX on its DRS 6000s. Hitherto, the updated portfolio, launched in February, centred on its new OMAC 2000 system for its Series 39 mainframes under VME.

On negotiations concerning the future of Unix, Unix Software Operation's European sales and marketing director Morris Schwartz says that the holdup lies with the Open Software Foundation's insistence that the OSF1 operating systems be the basis of any future Unix system, and that financial considerations are only secondary.

According to Schwartz, members of Unix International's early access programme began receiving versions of a seven-layer OSI protocol suite for Unix, known as the Common Platform 1 last week.

Following a Unix briefing held in Helsinki last week, attended by East European and Soviet representatives, USO has also decided that it would like to put a copy of Unix into every East European and Soviet university, once the US government lifts its restrictions on the export of Unix source-code: Schwartz said that direct sales of Unix into Eastern Europe will not begin - even if trade restrictions are lifted - until intellectual property rights are assured, and payments in hard currency can be made.

Unix International's Director of European Operations Steinar Hoistad claimed that \$1.5 billion is now being spent by the industry on developing Unix, and that 15,000 applications are now available: Unix International is now up to 35 employees worldwide, seven of them based in Brussels.

Pulling punches, Hoistad added that as recently as last week the OSF held a meeting to decide whether it would press ahead with its development programme for Architecture Neutral Distribution Format technology, or whether to return the submissions to their owners - a decision should be known soon.

As is always the case with these matters, AST Research Inc's claim to be the first to announce a 33MHz i486 PC (see page 7) is disputed by Advanced Logic Research Inc, Irvine, California, which is also claiming the honour: actual shipments of course, await the pleasure of Intel Corp, which has yet to release the part, and may not do so until next month.

Later this year, reports Computer Systems News, we will see a 50MHz version of the chip, likely to cause system vendors problems with available support chips, heat and emission levels: the paper hears that Intel is considering packaging the chip and its i586 successor in a module with support circuitry, using Tape Automated Bonding techniques to reduce wiring.

Visiting London last week, Microsoft Corp's Bill Gates predicted that Intel Corp's i586 processor ("or whatever Intel chooses to call it"), would double the performance of the 486 in 1992, by improving the clock speed and reducing the number of clock cycles per instruction to an average of one, achieving 35 MIPS at its introduction, and up to 70 MIPS by 1994.

Stratus Computer Inc accompanied the new models in its fault-tolerant line with the Platform/2000 trading system which has been under joint development with Synopsis Ltd for the past two years; overall, Stratus claims a UK installed base of 150 systems, and it now has over 100 employees here.

The newly formed Silicon Design Division of Mentor Graphics Inc, Beaverton, Oregon has won a \$15m multi-year order for electronic design automation software order from Texas Instruments Inc, which will use the integrated suite of tools to develop its integrated circuit design systems; the new Mentor division is the company's March acquisition, Silicon Compiler Systems Inc.

Sphinx asks us to point out that the £277,000 loss it reported in the six months to January 31, (UX No 276), was on turnover of £2,811,000 in the same period, not £811,000 as reported.

Touch Communications Inc, Campbell, California says that its new Worldtalk is an electronic messaging architecture that interconnects local network mail systems with each other and with networks to the X400 network. The Worldtalk/400 family includes a required core messaging server that runs under Unix and messaging gateways for "most of today's popular" local network mail packages. The first seven members are gateways to the main Macintosh-based mail packages; Microsoft Mail, Quick Mail from CE Software and the new InBox Plus package from TOPS; and gateways to the main MS-DOS mail packages; cc:Mail's namesake product, Action Technologies' MHS product as well as SMTP and UUCP messaging systems for TCP/IP users. The system is available as software only or as an integrated turn-key system including the required Intel 80386 AT bus machine, Interactive Systems' 386/ix 2.0.2 Unix, an intelligent X25 network adaptor and an 802.3 Ethernet adaptor. Out now, the software costs \$8,000 plus \$2,000 for each local network messaging gateway; prices for complete turn-key prices start at \$25,000.

We've quoted what DEC said about performance of its multiprocessor Ultrix release in the piece on page two today, but if it is true that the company gets 380% more performance out of a four-processor configuration than it does out of a uniprocessor, the company looks to have discovered the computing equivalent of cold fusion: percentages are tricky things, and we've a strong suspicion that that DEC means that a four-processor configuration delivers 3.8 times the performance of a uniprocessor or 280%.

Pyramid Technology is expecting to make over \$400m over the next four years from its OEM deal with AT&T for the MIServer range, which resulted in the launch of AT&T's 7000 Series last week (UX No 276), and a Pyramid spokesman said that sales during the first year were already exceeding its expectations: AT&T is likely to concentrate on business with a high distributed PC content, while Pyramid will continue to focus on its high-end database server focus, and the phone company is apparently ramping up fast and getting a lot of business from upgrades of its existing 3B2 user base.

In Europe, AT&T is directing its systems operations from its Brussels headquarters, and in the UK from AT&T Istel in Redditch: its priorities in Europe are France, the UK and Italy.

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OSF, UNIX INTERNATIONAL MERGER TALKS ARE OFF

The prospect of a merger between the warring Unix International and Open Software Foundatrion Unix factions ended in tears last weekend as negotiations broke down, with the two sides resuming hostilities with a vengeance - AT&T complained at one point that it was "the victim of a smear campaign". OSF members including DEC, IBM, Groupe Bull and Hitachi finally made the commitment to ship OSF/1 based systems next year, and also promised "extended financial support" to OSF if it becomes necessary. AT&T still intends to float off its Unix Software Operation as a separate entity by the end of the year. The row confirmed the immaturity of the computer industry, and signaled a black day for users and software developers. The full story - page 2.

NCR SEES INTEL FUTURE FOR TOWER LINE

In what could be another signpost to Intel Corp's major offensive against Motorola Inc in the battle for semiconductor supremacy in mid-range, multi-user systems, industry smoke signals are indicating that NCR is to change its focus from Motorola's 680X0 chip in preference for Intel parts some time this summer. NCR currently uses the 680X0 line exclusively in its Unix-based Tower minis, and Intel's 80X86 range only in its DOS and OS/2 personal computer-based offerings. However Unigram.X hears that a floor-standing, non-PC, Intel 80386-based Unix Tower system has already been developed by NCR, and that a full line could be on the way. If so, and NCR drops its commitment to a Motorola-based future, it represents a major departure for the company, which reckons to have around 100,000 Towers installed worldwide. It is unclear where this leaves the company's RISC strategy - NCR chose the 88000 over the Sparc (UX No 171), and was reportedly collaborating with Data General on an ECL implementation of the chip (UX No 257), although the extent of its current involvement is not known. NCR has certainly been hit by a fall in OEM sales of the Tower, Unisys for one - which re-badges the 450 and 650 as its 5035 and 5055 - has been slimming down its OEM operations ever since it decided to build more systems in-house (UX No 219). Unisys also has more Intel-based hardware in the works, due for launch next month. However, NCR is planning a 68040-based Tower system, according to UK marketing manager Pat Arundel, and an announcement is to be made later in the year.

X/OPEN CAE NEEDS MORE WORK TO MAKE A STANDARD

European standards bodies have salvaged plans for a European Common Applications Environment, sidestepping an embarrassing rejection of the X/Open Portability Guide as a fully-fledged standard. The European Workshop for Open Systems (EWOS), which among other activities prepares standards for balloting and approval by the formal European standards body CEN/CENELEC (Comite European de Normalisation de l'Electrotechnique), has initiated development of a set of standards for applications portability by a newly formed CAE Expert Group. Standards developed by EWOS will be forwarded to CENELEC for formal adoption as European standards. Under a European Commission directive already in force, EEC countries are under pressure to use European or international standards in each country. The EWOS group's tasks include delivering a series of draft standards specifying a CAE for use in Europe by 1992. X/Open had attempted to get the X/Open Portability Guide 3 adopted as a standard by CENELEC which got as far as voting in the proposal; but during the balloting process it became painfully apparent, according to observers, that XPG3 would be more or less unanimously rejected. This was not because of lack of technical merit, but because it was simply not written in an acceptable form; its format bears little resemblance to a conventional standards document, and it uses as references standards other than the acceptable ISO or European standards, for instance. In other words, it should never have got so far in the first place. This embarrassing situation was resolved by suspending the ballot and voting to create the EWOS group which is likely to use XPG3 as a starting point for its work. Initially, the EWOS group will attempt to define a blueprint for what standards are needed and set specific timescales, before tackling the adoption of standards themselves, definition of portability profiles and associated conformance testing. In addition to producing standards, the group may also generate other documents such as implementation guides. EWOS could begin to select standard CAE components this year but group chairman Luigi Bertuzzi would not specify delivery dates or the precise form of the group's output, commenting that it was too early to say.

APRICOT SELLS MANUFACTURING ARM TO MITSUBISHI

Apricot Computers Plc has announced that it has reached agreement to sell its personal computer manufacturing arm. The buyer, as expected, is Mitsubishi Electric Corp, and the price is £39m. The sale includes the Glenrothes factory, the research and development and sales and marketing facilities in Birmingham, and the wholly-owned Australian subsidiary. The Apricot name will survive because the hardware business will trade as Apricot Computers Ltd, a UK subsidiary of Mitsubishi Electric (UK) Ltd, and Apricot will change its name to ACT Group Plc. The new ACT, which hopes for sales of £80m, will continue to market Apricot computers to large end users, will be the approved supplier of maintenance for at least three years, will continue to provide warranty services and will retain sole UK spare parts distribution rights. The two companies hope to collaborate in other areas.

SUN WOOS PICK USERS

Sun Microsystems Inc has woken up to what the Pick community has been trying to tell the Unix world for years - that there is an unrivaled number of applications out there for the eponymous Dick's operating system. Accordingly, Sun has announced that it is to make Sparc-based Unix workstations and servers available to value-added resellers of Pick systems. Sun has been showing its kit at this week's International Spectrum 90 show in Anaheim and reckons that Pick-poppers will enjoy getting a new slant on their favourite operating system by viewing it through the Open Look graphical user interface. Sun is not promoting a single implementation of Pick-under-Unix, but highlights UniReality, developed by UniData Inc and McDonnell-Douglas Information Systems, and VMark Software Inc's UniVerse. McDonnell-Douglas Field Service Co is already using UniReality for its new server, which is based on Sun's Sparc RISC architecture.

MIPS HAS OWN-USE-ONLY LICENCE

MIPS Computer Systems Inc has introduced a new Corporate Architecture Licence Programme to complement its Semiconductor Partner Programme but confers only rights to use the MIPS' RISC architecture to implement specialised components, not to sell such parts on to third parties. Companies that have signed under the new programme include Groupe Bull SA, Control Data Corp and Silicon Graphics Inc. They get technical descriptions of MIPS' technology, including schematics, as well as MIPS' internal design and verification tools. Each company would need to complete a circuit design and layout to create its own mask-level design.

OSF, UNIX INTERNATIONAL AND AT&T FALL OUT OVER WEDDING PLANS - LEAVE USERS AT THE MERCY OF RIVAL "OPEN SYSTEM" STANDARDS

John Abbott and Maureen O'Gara report

Last Monday afternoon, Open Software Foundation president David Tory fronted a hastily organised press event in Boston to put the Foundation's case for ending its long running talks with AT&T, seen as the only hope for resolving the schism between companies supporting the conflicting OSF/1 and Unix System V.4 varieties of Unix. Tory then immediately flew to Paris to repeat the exercise on Tuesday at noon. He claimed that "organisational unity" had been the basis of discussions, with the aim of creating a single, vendor independent organisation to take control over Unix. That organisation had to be equally owned by the partners involved, he said, and there could be no negotiation on OSF principles.

"Discussions are under non-disclosure, and we won't make public statements", said Tory, "but there was a real expectation that AT&T would sell the Unix Software Operation and the Unix title and product to the industry on an equal ownership basis. Robert Kavner, in interviews, made it plain that this was part of the process. But OSF sponsors were concerned that the Foundation's vendor neutral technology, OSF/1, should be protected as the next generation operating environment. Given that organisational unity has not happened, it can be assumed that these starting points were not satisfied."

"A complete shock"

The current round of talks was instigated at the Unix Expo trade show in New York last October (UX No 255), and despite long months of seemingly little progress, the abrupt cessation of talks came as a surprise to observers, and to many of those involved. It is understood that Kavner suggested to the OSF board in October that AT&T would have less than 50% of any spin-off, and would move to equal ownership over five years. Real negotiations started in January with an AT&T proposal - long since modified - that reportedly called for AT&T to have 46%, other companies 46%, with the rest going to employees. OSF then came back with something of its own, followed by a Unix International document in February called "Basic Principles for Unity", leading to a proposal both sides were to vote on - the vote had to be unanimous. Behind all this were a number of sub-committees, each with a UI and OSF representative, working out the proposal to be voted on, and covering such areas as people, business and technology - so the proposal itself represented the thinking of many people on both sides. The results of all this work were taken to the OSF board two weeks ago to see if a consensus could be reached, and the reaction was to have been reported back to the UI board in a meeting scheduled for this week. It apparently came as a complete shock to Unix International when chairman Peter Cunningham was notified on Thursday April 5th that OSF was not only rejecting the proposal but pulling out of further negotiations.

Resources and effort being "used up"

This week's meeting is apparently still scheduled, and UI negotiators are hoping to try and find out the real reason why OSF pulled out. One OSF source on the negotiating team suggested that there had been some backtracking on Kavner's October statement that AT&T did not want a majority share. He indicated that AT&T had wanted to phase-in outside ownership over time, and that OSF just didn't trust AT&T enough to believe that it would ever relinquish majority ownership. Another source suggested that there had been an attempt to stack the new organisation's board of directors to favour AT&T.

This was vehemently denied by UI's Peter Cunningham. "No proposal gave anyone undue access or control over the board" he said. Tory laid great emphasis on the amount of resources and effort used up by the talks. "OSF plans were delayed once before by taking part in talks with AT&T, just after formation. I didn't want that to happen again". Aside from these issues, it is hard to see how the technical issue of which technology to use could have been resolved without compromising either side.

Closing ranks

The result of it all has been a closing of the ranks at the Foundation, and increased commitment from some of its member companies. Previously, only Hewlett-Packard had made a firm promise that it would ship the OSF/1 operating system in 1991, but at the press briefings, DEC, Groupe Bull, Hitachi and IBM said that they too would ship next year. George Lepicard from Groupe Bull said that after evaluating AT&T's Unix System V.4, his company "could see no justification to go to V.4 - it is an unnecessary step. In terms of architecture and functionality, OSF/1 is clearly above V.4." IBM, in a rare mood of pre-announcement, said that OSF/1 would be available on its PS/2 platform next year, and promised to reveal more details in the third quarter of this year. In contrast to IBM, putting its toe in the OSF waters on a marginal Unix platform where it can do little harm, DEC was aggressively promising to make OSF/1 its mainstream Unix offering, saying that it would appear next year as a new release of Ultrix, under the Ultrix brand name. The same companies said they had offered "extended financial commitment" to the Foundation, the actual amount depending on OSF's need. "Our financial plan is clear to the end of 1991" said Tory, "but planning more than a year ahead is always a risk, and there may be some shortfall in 1992. We are driving towards complete self sufficiency".

Gloomy outlook for users

Given the acrimony caused by the rift on both sides - Unix International is particularly annoyed that after working on and agreeing to issue only an extremely lame joint press release on the row OSF immediately supplemented it with its own more strongly worded missive - it seems extremely unlikely that any meaningful talks will be possible in the foreseeable future. And despite the fact that the two sides will both conform to Posix and X/Open specifications, that is a situation calculated to undermine the confidence of users and slow down the acceptance of the Unix standard in the marketplace. It is a topic very likely to be raised at the forthcoming X/Open user conference in Luxembourg next month (UX No 277). OSF's Tory, however, denied that the move would have a negative effect on the industry. "I think there is general relief that discussions are ended - it puts the operating systems movement back onto a multiple choice basis".

INTEGRATED MICRO PRODUCTS SEALS JAPANESE PACT

Integrated Micro Products Ltd, Consett, County Durham has signed CJK Corp to market its line of multiprocessor Unix systems throughout Japan in a \$10m three-year agreement. CJK already takes the IMP XR fault-tolerant Unix line, which has so far installed over 30 for point-of-sale applications, stock control and order processing. IMP recently announced that it had sold its 250th fault-tolerant Unix box, and expects the fault-tolerant market to grow faster than any other market sector, with much of the growth associated with demand for on-line transaction processing on open systems, rather than traditional proprietary platforms.

AMDAHL ADJUSTS 5990, 5890 PRICES TO MATCH NEW IBM TAGS

Taking advantage of IBM's price umbrella, Amdahl Corp has responded to the Armonk 3090 price adjustments with similar ones of its own on the 5890 and 5990 IBMulators. The changes are effective immediately and include increases of 3% for all basic 5890 and 5990 models with minimum processor storage and for such optional features as additional channels and Amdahl's Multiple Domain Feature. Prices for incremental main and expanded store have been cut by from 10.6% to 20%, so a fully-populated 5890 would work out 4.3% cheaper, a fully-populated 5990 10.3% cheaper.

XEROX 6085 MODEL 2 DOUBLES PERFORMANCE OF VIEWPOINT

Xerox Corp is ploughing on with its Star-derived ViewPoint family of information management workstations and has launched the Xerox 6085 Model 2, claiming that it doubles the speed performance of the ViewPoint graphical user interface. The 6085 Model 2 continues to have the capability to run MS-DOS applications concurrently within ViewPoint. In the US, the 6085 Model 2 is being offered this month at a promotional price of \$8,300 with 40Mb hard disk and \$9,800 with 100Mb disk; those prices rise to \$10,300 and \$11,300 in May. Upgrades from the existing 6085 models will cost users \$3,750.

ENCORE TO RUN HARRIS VOS, CONCURRENT OS/32 ON NEW 90

Having created an architecture for its new Encore 90 family of 88000-based RISC systems that enables it to run both the proprietary MPX from the Gould Concept/32 minis, and its own uARTE real-time Unix (UX No 277), Encore Computer Corp is looking around for alien operating systems to support on the multiprocessor machines, and is talking in terms of declaring war on its southern Florida neighbour Harris Corp, and on Concurrent Computer Corp by supporting their proprietary VOS and OS/32 on the machines. It is also looking at the VRTX virtual real-time executive for embedded systems from Ready Systems Inc.

DISK ARRAYS: NOW TANDEM ACQUIRES ARRAY TECHNOLOGIES

Tandem Computers Inc has now acquired privately-owned Array Technology Corp of Boulder, Colorado, the company that provides the software and hardware disk subsystems based on redundant arrays of inexpensive disks that caught Tandem's eye a couple of years back. It will continue to offer its products OEM as well. Terms were not disclosed.

DEC PACT WITH EXCALIBUR

Excalibur Technologies Corp, the Albuquerque, New Mexico firm that was founded by a dyslexic scion of the outlaw Dalton Brothers, has won agreement from DEC that the minimaker will sell and distribute all of Excalibur's present and future products, including its PixTex integrated electronic filing system for text and images and pay Excalibur \$500,000 in advance royalties. Excalibur a leader in fuzzy matching technology, says it is looking for other sources of finance as well.

LOTUS AGREES TO ACQUIRE LAN MAKER NOVELL

After several small and less than convincing attempts to diversify away from its almost total dependence on the 1-2-3 spreadsheet, Lotus Development Corp has gone for the big one in its efforts to secure its future as a broad-based software company, reaching agreement in principle to acquire local area network operating software specialist Novell Inc in an exchange of shares. The agreed price - 1.19131 Lotus shares for each Novell out values the Provo, Utah company at a whopping \$1,508m at the time the announcement was made, but represents only a tiny premium on the \$42.875 at which Novell shares were trading, suggesting that a hostile bidder may well step in to spoil the party. The marriage of 1-2-3 and NetWare would create a group with annual sales well in excess of the \$978m combined figure reported by the two companies last year - \$556m for Lotus, \$422m for Novell. With 1-2-3 Release 3 now shipping and version for IBM 370, Sun Microsystems and DEC VAX computers announced, Lotus is again on the up-and-up after a spell of slumping profits and dull sales caused by delayed product introductions. Novell has had troubles of its own, with business turning weaker last summer. On the operational front, Novell chief executive Ray Noorda will become vice-chairman of Lotus on completion, set for July if all the usual hurdles are cleared.

* Adding the leading US word processor to NetWare and 1-2-3, Lotus Development Corp and its proposed subsidiary Novell Inc have persuaded the privately-held Orem, Utah-based Wordperfect Corp to combine its service operations with those of Lotus and Novell, so that customers with queries get a one-stop shop.

ULTRA HAS VMEbus ULTRANET CONNECTION FOR DECSTATION 5000

Ultra Network Technologies Inc, San Jose creator of the super-fast fibre optic UltraNet that has just found favour with Fujitsu Ltd in Japan, (UX No 276), is to offer a VMEbus connection to UltraNet for the new DECstation 5000 family of MIPS Computer Systems Inc RISC-based workstations, enabling users to link at high speed to workstations, servers, mainframes and supercomputers from the likes of Sun Microsystems Inc, Silicon Graphics Inc, Convex Computer Corp, Alliant Computer Systems, Cray Research Inc and IBM: the DECstation version is planned to be ready by the autumn.

News from Japan

Fujitsu prepares to enter fault-tolerant market

Fujitsu Ltd says it plans to follow DEC and Hewlett-Packard Co into the fault-tolerant high-performance transaction processing market against Tandem Computers Inc and Stratus Computer Inc and that it will be making an announcement in April or May. The company denied gossip doing the rounds in Japan that it would be buying the machines OEM from Tandem, insisting that the announcement will be of a new operating system and hardware developed in-house - but the prospects for the new line would seem to be limited if the operating system for it is not Unix-derived.

NCR, ICL fight over Asian Unix market

The independent research organisation IDC says NCR delivered more Unix systems in 1988, and had more Unix systems installed, than any other vendor in Hong Kong. IDC's report, "Unix in the Pacific Rim," says NCR delivered 52 small and medium-scale Unix systems that year, representing nearly 40% of all sales. It says NCR's installed base rose to 82 systems, one-third of all Unix systems in the territory, its nearest competitors being Altos and ICL, with 24% and 16% of the market respectively. When 1988 shipments were taken into account, ICL and Altos reversed their positions, ICL taking 22% and Altos 15%. Most 1988 Unix sales were at the lower end of the market, but, the report says, "Due largely to a reasonably large installed base of NCR Towers, it is likely that at least some customers will upgrade to medium scale systems over the next few years." The report goes on to say several factors will favour Unix-based systems in future, not ably Hong Kong's role as a window on China, since China has already demonstrated a clear preference for such systems. It says the Hong Kong government's decision to standardise on Unix for mid-range systems has had little impact so far, but is expected to be a major influence in the future. Building on this opportunity Newsbytes reports that ICL Asia's new regional director of marketing, Owen Kam, says his company plans to become Asia's leading force in Unix during the 1990s. Dr Kam says ICL Asia is determined to take the investment and technical expertise developed by its parent company in the European Unix market and transplant it to Asia. And ICL says it will launch the DRS 6000 in Japan, Korea and Taiwan between May 12 and 19 and the launch is believed to be the result of a joint venture between ICL and Japanese systems integrator Chiyoda Information Machinery which will provide hardware, software and system support for the box.

Matsushita "to develop its own Unix for Sparc"

Matsushita Electronic Industrial Co may not get a licence for the Japanese language version of SunOS from Nippon Sun Microsystems for its Sparc-based workstations, Newsbytes reports: Matsushita has been selling the Solbourne Computer Inc workstations using the American version of SunOS; insiders say Nippon Sun's licensing arrangement was not acceptable to Matsushita, which may develop its own Japanese language Unix for the machine.

Omron works on Chinese

language software for the Luna

Omron Corp, which decided that Omron Tateisi Electronics was too much of a mouthful so it changed it, has set up a software development company in Shanghai Technology Park. Here it will carry out development work on Chinese language software for its Luna Sigma Project-conformant Unix workstation for the overseas Chinese market in South East Asia. Omron owns 76.5% of the company, and the Shanghai International Science and Technology Company 23.5% and the plan is to sell the workstation packaged with Chinese version of Unix and design applications; the company was actually formed in April a year ago, but after the Tiananmen Square massacre, the Japanese government put a temporary ban on exports to China, which was lifted at the beginning of this year. Omron's Advanced Systems Division, based in Cupertino, California, was showing Mach-based workstations using Motorola 68030 and 88000 chips at UniForum earlier this year, and has recently announced its membership of 88open.

Foreigners welcome as Japan eyes new 10-year R&D plan

Japan's Ministry of International Trade & Industry has a budget of \$125,000 for a 12-month study to identify appropriate technologies from fuzzy logic, massive parallelism, neural and optical computing for a new 10-year national effort starting 1992. This time, foreign firms would be permitted to join.

OSF previews OSF/1 in Japan

The Open Software Foundation put on a very bullish face at the Japanese preview of its OSF/1 Unix variant last month, claiming that membership, currently standing at 185, was growing at 10 organisations a month. In Japan, six new members signed up last month, it said, of which two - Nippon Kokan KK and Keio University - announced their membership at the conference. No-one will dispute another claim, that a large number of Unix International Inc members have signed for OSF/Motif licences. A major theme of the announcement was the superior technical features of OSF/1 compared with the technical complexity - "spaghetti code", "old-fashioned architecture" - of System V.4; the OSF environment will eventually enable multiple operating systems to run on top of the Mach-based micro-kernel, thus providing backwards binary compatibility essential when a vendor is migrating users to OSF/1 from a proprietary operating environment.

...denies Hitachi defection rumours

OSF also disputes any suggestion that Hitachi Ltd is thinking of withdrawing from the Foundation (UX No 275) and pointed to a statement by Hitachi enclosed with the press kit, in which it supports the delivery of the OSF Snapshot in January this year, OSF/Motif, and incorporation of Mach into OSF/1; Hitachi has established a facility near Boston and has been working with the OSF Portability Lab. Hitachi is to offer the OSF/Motif user interface on its HIDIC V90/5 series process control computer, and will begin shipments from July: Hitachi is already shipping a Japanese version of Motif on its 2050 Unix workstation, and will unify the user interface to be the same on the HIDIC and on the 2050.

Alliant buys into Japan

Alliant Computer Systems Inc is to take control of its Japanese destiny, buying out Advent Techno-Ventures' 95% holding in Nippon Alliant, but the terms were not disclosed.

FRONTLINE WINS LOTUS ON SUN DISTRIBUTION DEAL

PC distributor Frontline Distribution Ltd, the Basingstoke, Hampshire company that has agreed to sell effective control to Computer 2000 GmbH, announced something of a coup last week, winning exclusive rights to market Lotus 1-2-3 on Sun Microsystems Inc workstations and servers following an agreement with Lotus Development UK Ltd. The long-awaited Unix versions of the 1-2-3 spreadsheet will begin shipping from Lotus' Dublin plant on April 18. There are stand-alone, server and node editions of 1-2-3 Release 3 available for Sun's SPARC, Motorola and Intel-based systems, though other Unix versions are planned, first for other people's SPARCs, followed by other flavours of the operating system. Running under the SunView X-Windowing environment, Sun versions use core 1-2-3 v3 code re-written in C, are compatible with MS-DOS versions and use the same interface. Data can be transferred between the different versions where more than one type of Sun system is present, and they will also support PC interface products. At the same time Frontline also announced a marketing deal with Sun; it is to begin selling the workstation builder's desktop and low-end server systems. Lotus 1-2-3 for Sun is £550 in a stand-alone configuration, £795 for a server edition, and £395 for the node version, which provides networked users with an additional license and documentation. It runs on SunOS 4.0 or higher requires 4Mb of RAM and 5Mb of disk. Support, including a Sun hotline is £95 for the stand-alone, or £195 for the server version.

GIPSI SA HAS NEW MOTOROLA-BASED X-TERMINALS AND PRINTERS

Paris-based Gipsi SA has added two new models to its range of high-end X-terminals launched at the end of last year, (UX No 261), and has reached an agreement with Digital Design, also in Paris, for distribution of Le tX family in the US, France, West Germany and Spain. Le tX range comes in six models built around the Motorola 68030 processor with from 2Mb to 8Mb memory using X11 Release 4 X server software, and operating system technology based upon Chorus Systemes' Unixlike. New additions are the 19" monochrome tX-M with a resolution of 1280 by 960 pixels, and the 17" colour tX-C6, which with eight planes, has a resolution of 1280 by 1024. Existing models are the 17" and 19" monochrome tX and tX-Me, the 17" colour tX-C4 and 19", eight plane color tX-C8. Prices go from \$3,600 to \$8,800. Gipsi also offers a range of three PostScript printers designed for use with its X-terminals. Le tX-Printers - which use Motorola 68000 and 68020 chips - go from £3,900 to £5,400. Gipsi - which hopes to capture 20% of the European X-terminal market in the coming year, and sell 2,000 of its terminals into the US - came into being in March 1988. 60% of the company is owned by its staff.

NOKIA DATA ON THE LOOK-OUT FOR RISC

Nokia Data, which markets Sun Microsystems workstations and servers as its Alfaskop System 20, and Intel 80286 and 80386-based personal computers running SCO Xenix as its Alfaskop 10 system, is casting its eyes around the marketplace for a RISC-based system to top off the line. According to Nokia's UK marketing manager Nick Bromley, the choice is between Sun's own SPARC machines, SPARC systems from clonemakers, or alternatively, Intel i860-based architecture. A decision is expected by the summer. Additionally Nokia's Xenix-based 80486-PC announced in July last year, (UX No 240), is available in the UK from this week. Running a 25MHz versions of the part, it comes with from 8Mb to 32Mb memory. And following its deal with Network Computing Devices last November, (UX No 257), Nokia will be offering X-terminal solutions based on NCD's hardware from the middle of the year.

CETIA ADDS 68040 WORKSTATION RANGE

Thomson-CSF's Unix systems manufacturing subsidiary, the Toulon-based Compagnie Europeenne Des Techniques De L'Ingeniere Assistee, or Cetia, has added uni- and multi-processor 68040-based systems to its CORA Unigraph range of Unix workstations which use Motorola microprocessors based on Apollo technology. The Unigraph is offered in a single processor configuration - the 1425 - and with two or three 68040s - the 2000, 3000 and 6000. The same 68030-based models can be upgraded to use the 68040, and all software on the 68030 line can be used on the new systems. Cetia's CORA architecture has been designed for the development upwardly-compatible Motorola-based systems and software from the 68020 up to the 88000. The 1425, running a 25MHz version of the 68040 is rated at 20 MIPS and 3.5 MFLOPS, with from 4Mb to 16Mb memory, up to 200Mb disk and Ethernet. It runs Unigraph/X 3.2 - Unix V.3 and BSD-compatible - and UNI/RT, which supports Wind River Systems' VX Works, Ready Systems' VRTX 32 and Software Component Group's P.SOS software. Cetia is also offering a board-level 68040 option, the VMTV2d, in 25MHz and 33MHz versions, with up to 32Mb RAM. Cetia signed a five year agreement to develop Apollo workstations back in July 1987, (UX No 138). Cetia has also signed with Neuron Data to port the Nexpert Object expert systems generator to its workstations. Berkeley, California-based Franz Inc's Allegro Common Lisp, Windows and Composer artificial intelligence software is also now available across the Unigraph range.

ADDAMAX FIRST WITH 386-BASED TRUSTED B1 UNIX

Addamax, the secure Unix house, has jumped into the race to launch the first commercialized 386-based trusted Unix workstation. Under an exclusive marketing agreement, Addamax will be taking over and productising Harris Corporation's Compartmented Mode Workstation - CMW - technology, now years in development and currently under evaluation at the National Computer Security Centre, NCSC, and the Defense Intelligence Agency, DIA. The project is targeted at an Orange Book B1 security rating and includes trusted X-Windows, known to be a difficult item to secure. The evaluation is expected to be completed later this year. This new CMW software, still unchristened, will constitute a second product line for the Champaign, Illinois concern, independent of its own internally developed B1st technology which was recently rejected by the Open Software Foundation as the way to secure the OSF/1 operating system. Secureware, Addamax's competitor and OSF's choice for security, already has CMW, which was believed to have been a factor in its selection at the very least because it is likely to be specified in a number of large upcoming governments procurements. However, according to Secureware president Michael McChesney, OSF did not purchase his CMW technology, only the ability to secure the OSF/1 kernel. Addamax, which has just received \$2.5m in third-round funding from existing investors to retire debt and launch the new product, believes it is at most 45-60 days away from a solid beta version and reportedly already has purchase orders in hand for it. Addamax reckons a 386-based product will give it a leg up in the security market because of the vast number of Intel-based machines in government sites, the principal client for trusted systems. These boxes could be retrofitted with Addamax's new technology, the company said. Secureware, on the other hand, has not given a 386 port from its current Macintosh II base platform a high priority because it lacks a procurement vehicle.

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Unix International's little trip to India, which was almost derailed last week because of the fracas with OSF, has born fruit anyway, according to UI president Peter Cunningham. The Indian government and the major banks and financial institutions there have agreed to set in motion policy aimed at implementing System V throughout their computer installations. UI marketing vice president Dave Sandel, who substituted for Cunningham on the trip, reported that the Industrial Bank of India, for instance, as well as the State Bank were attracted to Unix particularly because of scalability and want to look at everything from mainframes to personal computers. India's CMC Group, the government's consultative wing on information technology policies, is also interested in the export of locally written Unix system software and networks and will work on the scheme to encourage - and perhaps fund - the development of this industrial base. Bombay's National Centre for Software Technology, which threw its support behind the adoption of Unix, would be charged with implementing the policy, Cunningham said, indicating that the Indians are also heavily in favour of Unix V.4. Wipro, an Indian systems supplier, has joined UI's membership role.

Unix Solutions, the new exhibition that Comdex owners' at the Interface Group are putting together for later this year, could turn out to be the biggest first-year show the organisers have ever staged - even though initial expectations of 200 to 250 exhibitors has been pared internally to a more achievable 125-150. So far about 70 companies have said that they would come, according to show manager Ron Scott, including IBM, Lotus, Bull, Unix Software Operation, Unisys, Texas Instruments, Toshiba, Uniplex, Fourgen, Sequent, Sequoia and Pyramid. And Interface is hoping to attract some 50,000 to 60,000 attendees, including folk from Europe and the Pacific Rim, brought in from a direct mail and advertising campaign that's about to break. Interface still has a number of key exhibitor accounts to land that have either been sitting on the fence waiting for their competition to make the first move or simply looking over their budgets, but there is still plenty of time between now and the show, scheduled for October 3-5 in Anaheim, California, for Interface to sew them up.

Paris-based Esker has a new TCP/IP-based Unix-to-MS-DOS communications application called Tun*Plus available for £440: it is also offering Tun terminal emulation software for £190 - a file transfer system for an additional £100, Tun graphics for £340 and a graphics library at £590.

This week or next, Solbourne Computers is expected to announce and OEM agreement with Network Computing Devices and trot out the latter's mono and colour X terminals under its own label. Solbourne is expected to tout the performance gotten from the displays hooked to its multi-processor servers. Prices should be competitive.

A bilingual English/Arabic version of Uniplex has been developed by MIS, Safat, Kuwait, it can be accessed through either an English or Arabic interface.

At the Open Software Foundation's Paris briefing during which the breakdown of talks with Unix International over the future of Unix was announced, IBM revealed that it will have the OSF/1 operating system running on the PS/2 next year as its first implementation - more details in the third quarter.

Also stepping up to reconfirm commitment to OSF/1 were soon-to-be-one Nixdorf Computer AG and Siemens AG: Nixdorf is says it is currently implementing OSF/1 for its Targon family of Unix machines, and promises compatibility next year; Siemens is more circumspect, saying only that it is already offering OSF/Motif with its Sinix Unix.

Hitachi Ltd, "eager to remain ahead of the times, incorporates the Open Software Foundation's offerings into its product development process and introduces OSF/1 and OSF/Motif as the mainstream of its open systems products, ranging from workstations to supercomputers", it says, adding that implementation is already under way, and programmes to support independent software vendors and users are in place.

Philips, one of the Foundation's sponsor members, was again not mentioned during the OSF announcements and endorsements: it appears to be too busy sorting out the future of its computer systems division (UX No 273, 275).

The plunge in the Tokyo stock market reflects growing worries that all is not as well as it has been in the Japanese economy, and Sony Corp has announced that it is battering the hatches: having increased capital investment by in excess of 10% in each of the past three fiscal years, it says it intends to hold the figure steady this year at around \$1,900m or so.

The passion for coining unhelpful new terms runs unabated in the computer industry, and the Financial Times relates that a visitor to a US-run research station admired the splendid windows in the computer suite, only to be told coldly, "Those aren't windows, they're environment awareness panels," - soon to be cut to EAPs, no doubt.

Although Microsoft boss "billionaire" Bill Gates - now reportedly richer than Donald Trump - has been buzzing around the offices of UK X-Windows software outfit IXI Ltd in Cambridge, there is no truth to the rumour that he is making a play for the firm: however long-term alliances with the MS-DOS and BASIC inventor are not ruled out.

The company that planned to bankroll Multiflow Computer Inc but walked away from the deal, leaving the minisuper maker seeing no way out but to liquidate, was none other than DEC, Electronic News believes.

Motorola Inc has opened talks with Hitachi Ltd in an attempt to settle the unpleasantness between them over alleged patent infringements: Judge Lucius Bunton's stay of his order barring Motorola from selling the 68030 and Hitachi the H8 runs out on June 18 - the bar will be reinstated unless the two agree.

CONTACTS

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OSF/1 "MAY NOT BE COMPLETE BY NOVEMBER"

Reports filtering out of OSF - from people who ought to know about such things - clearly suggest that development on OSF/1, the operating system promised for November, may have slipped by at least six months. Substituting MACH for AIX code is reputedly a much more herculean task than anything so far suggested in the press and one former OSF manager described the engineering schedule as "100% to the wall starting," allowing for "no slippage - and that can't happen." Others claim that OSF's development team hasn't gelled yet, hindering a difficult situation still further and giving rise to talk that what OSF may be forced to deliver in November, whether it admits it or not, will be either an enhanced snapshot or a partial product. Furthermore, the commitments to using OSF/1 that OSF's founders gave in the wake of terminating the Unity talks with Unix International are being viewed in some quarters as merely cosmetic and temporary, most likely because of suspicions raised over why OSF walked out of the talks in the first place.

SUN WARNS OSF MEMBERS

OVER OSF DISTRIBUTED COMPUTING CHOICE

Meanwhile, the Open Software Foundation is preparing to make the decision on the technologies that will make up the Distributed Computing Environment portion of OSF/1 - a prospect that is causing anxiety amongst the contenders ahead of the announcement, scheduled for May 15th at the OSF members meeting in Boston. Clearly worried that the Foundation would favour its membership and choose the Apollo/Hewlett-Packard Network Computing System remote procedure call over Sun's Network File System, Sun was moved last week to write a letter to Foundation members urging them to unite the industry behind a "common platform for distributed computing", based around the widely used Sun Open Network Computing (ONC) architecture. The letter, signed by Sun general systems group vice president Eric Schmidt, pointed out that ONC is already included as a standard part of System V Release 4, and that choosing it would "spur the development of distributed applications". Rick Corbin, from Apollo/Hewlett-Packard, called the letter "a matter of half-truths favourable to Sun's side." Full story, page 7.

NEW SPARCS FROM OPUS, LSI AND CYPRESS

With Spring now upon us, the fortunes for Sun Microsystems' Scalable Processor Architecture - SPARC - are positively blooming. Firstly, Opus Systems, Cupertino, California, and LSI Logic Corp, Milpitas, California, are working on a commercial design method for building SPARC-based workstations running SunOS. The design is based around LSI's recently announced SparcKit building block chip set for developing systems compatible with Sun Microsystems' SparcStation 1, (UX No 275). Opus will design a workstation and port SunOS to the design, LSI will licence the design and software to manufacturers, which will eliminate the need for company-specific design strategies and should reduce significantly the time required to bring compatibles to market. The idea is to create a SPARC-based workstation-compatible market similar to the personal computer market - or - "one-stop shopping for processors, peripheral chips and operating systems" according to LSI's Gene Hill. Separately, Cypress Semiconductor says it is now set to begin deliveries of the first SPARC chip specifically designed for embedded systems this week - it comes in a 25MHz configuration.

SONY UNVEILS LAPTOPS IN

68030-BASED NEWS UNIX FAMILY

Laptop Unix machines have not so far played well in Peoria or anywhere else, but, following the hallowed Japanese maxim "if it's possible, do it", Sony Corp has come out with two laptop models of its News Unix workstation. The machines are built around a Motorola 68030 processor claimed to deliver 3.9 MIPS and come with 1,120 by 780 resolution screen and SCSI and Ethernet interfaces. The NWS-1230 with 4Mb processor and 200Mb hard disk is \$7,900, the NWS-1250 with 8Mb memory and 240Mb disk is \$9,600. Sony also announced that it has signed a pact with Oracle under which the Belmont firm will do a version of its Oracle relational database for Sony's News line and market the version to Sony's customers.

DEC OFFERS AT&T-TYPE UNIX ON IAPX-86 BOXES

There has been gossip doing the rounds that DEC would come out with an 80486-based box running Unix, and it seems to be well-founded. Despite its commitment to the Open Software Foundation and to its own Ultrix implementation of Unix, in the US, the company has picked up Santa Cruz Operation Inc's SCO Unix System V.3.2 for its Tandy Corp-built 80386-based personal computers to create a multi-user business system. It had to go outside for the Unix because there are so few business applications for Ultrix, and according to *Electronic News*, it may pick up SCO Unix System V.4 for the low-end machines when the thing is ready.

UNISYS A-FRAME UNIX "OUT ANY DAY"

Unisys Corp promised a few weeks back that it would be allying its Scamp microprocessor implementation of the A-Series mainframe with Unix (UX No 274), and the first incarnation is expected to make its appearance any day. The company is reportedly ready with a dedicated Network Applications Processor derived from the A series and running under Unix. Unisys reduced its debt in its just-announced first quarter results, coming in with a net loss of \$3.2m - with new president and chief executive James Unruh saying that the company's priority for the 1990s would be to make business operations profitable and to bring down the company's debt level.

TRANSPUTER KING BARRON RE-EMERGES AT DIRECTION

Ian Barron, credited with the invention of the UK's innovative Transputer chip, has re-emerged as the non-executive chairman of a new company offering software and hardware consultancy for companies implementing parallel systems. Barron left Inmos under a cloud last year (UX No 254), claiming that he had been "fired" by the new owners of Inmos, SGS-Thomson Microelectronics BV. Division Limited, based in Chipping Sodbury, not far from the Inmos headquarters in Bristol, was formed back in August last year by three key engineers from Inmos - Phil Atkin, Stephen Ghee and Ray McConnell - and one from Perihellion, Charles Grimsdale, who had a major role in the development of the Helios multi-processor operating system. One of the company's first tasks has been the implementation of a high performance parallel computing module for the Transtech group of Penn in Buckinghamshire, which took over the Transputer development projects of Niche Technology at the end of 1988 (UX No 210). The new TTM100 module, said to be the first in a series of system products, uses the Intel Corp 40MHz i860 processor, 4-16MB shared DRAM, an Inmos T805 floating point transputer and subsystem control as a building block for parallel processing systems that is fully conformant with the Inmos TRAM Transputer module specification, and using the communications capability of the Transputer to distribute data amongst a number of i860s. The module delivers up to 60MFlops peak double precision performance, described by the company as "a magnitude improvement over the fastest transputer modules". The i860 can be used as a vector co-processor in existing transputer applications, or as a system master running a conventional operating system such as Unix. Division also provided the software demonstration suite for the recent launch of the Inmos IQ range of Transputer modules.

NCD ADDS COMPACT 68020 MONO X STATION

Network Computing Devices Inc has added to its monochrome X-terminal family with a new 16" model using Motorola's 68020 processor running at 15 MHz. The new model doubles the performance of the NCD16, which uses a 12.5 MHz 68000, and has the same performance as the larger NCD19, which has a 19" screen. It is aimed at users wanting the power of the larger system in a smaller package with a 13" square footprint, and putting a heavy load on the system with a large amount of window manipulations and several communication protocols - TCP/IP and DECnet, for instance. The system is rated at over 20,000 Xstones, according to NCD. Available within 30 days of order, the NCD16e starts at \$3,200 with 2Mb RAM.

PYRAMID TARGETS PICK MARKET

Pyramid Technology Corp is expanding its presence in the Pick marketplace with a sales representation agreement with Bonneco of Tustin, California. Bonneco will be the exclusive representative of Pyramid's MIServer line to the Pick reseller marketplace, and a non-exclusive representative for Unix value added resellers. Bonneco also has sales representation agreements in place for Motorola Unix and ScanOptics Pick products, and claims to have helped over 165 resellers install 3,500 systems to date.

PEROT GROUP TAKES ATLANTIX/COCONET STAKE

Technology entrepreneur Ross Perot's Perot Group has made an equity investment in Atlantix Corporation of Bona Raton, Florida, a firm specialising in Unix networking. Atlantix, founded in 1989, may be more familiar under its original name of CocoNet Inc, highlighted here last October (UX No 254). Running on standard 386-based Unix platforms, CocoNet is claimed to be the only product on the market supporting Unix with Novell Netware and NetBios PC local area networks. It allows DOS and OS/2 workstations to access virtual DOS drives, peripherals and applications on the Unix system, and provides facilities for integrated systems management. The CocoNet development was the result of three years development work on the integration of multiple operating systems and LAN environments. Founder and chief technical officer Tony Ardolino claimed that "Unix makes the ideal application, file and communication server, because it is open, multi-tasking, multi-user and proven". He quoted an IDC report predicting that 40% of all network servers would be Unix-based by 1992. Kevin O'Neal of the Perot Group said that CocoNet "has been well received on the marketplace, and we expect it to grow rapidly". Financial details were not disclosed, but the Perot Group has expanded the Atlantix board of directors with the appointment of Tom Walter, former chief financial officer of EDS.

GLOCKENSPIEL READY WITH C++ 2.0, PLANS OSF/MOTIF VERSION OF COMMON VIEW

Glockenspiel, the Dublin-based C++ object oriented programming company, reports that its release of C++ 2.0 is now shipping, with the first version for IBM's RS/6000 (UX No 270). Also released are versions for SCO Unix, Interactive Unix, VAX Ultrix, DECstation Ultrix and VAX/VMS. Next month the company will have ready versions for Sun workstations, and DOS and OS/2, supporting Microsoft Corp's C version 6.0. The product is based on AT&T's C++ 2.0 (UX No 236), which adds multiple inheritance, tightened type checking and bug fixes to the original release, and includes Glockenspiel's own pre-processor, drivers, document and support. The company says it has seen sales of C++ "treble or quadruple" over the last year, and has doubled in size. IBM has joint marketing agreements for the compiler in Europe and the US. Glockenspiel's other major product line is Common View (UX No 214), described as an "object oriented applications framework", based on C++ libraries, which is claimed to reduce the number of lines of code needed to implement an application by a factor of four. Currently available for Presentation Manager and Windows, Glockenspiel is about to announce a version for Hewlett-Packard's New Wave, and will follow this with its first Unix version for OSF/Motif. IBM has also shown an interest in Common View, and is currently selling the product in France, an arrangement which Glockenspiel hopes will spread to the rest of Europe. Prices for the C++ products start at £840 for the SCO and Interactive versions, and range from £1,050 to £6,300 for the RS/6000, depending on machine size. Glockenspiel distributes its products in the UK through QA Training of Cirencester in Gloucester, and in the US through Imagesoft Inc of Port Washington, New York.

SPECTRAGRAPHICS, GRAPHIC SOFTWARE IN MERGER TALKS

Spring is in the air, and following hard on the banns called by Lotus Development Corp and Novell Inc, Spectragraphics Corp, San Diego and Graphic Software Systems Inc, Beaverton, Oregon say they are going steady and discussing marriage. If consummated, Spectragraphics would acquire Graphic by means of a share exchange, and would then operate it as a subsidiary. Graphic Software is a developer of display and printer controllers, programming tools for developing portable graphics applications and X terminal emulation software, and Spectragraphics is a maker of networked graphics systems for IBM mainframe applications and networked workstations.

TELESOFT OFFERS "EASY" TELEUSE INTERFACE BUILDER FOR MOTIF

TeleSoft Corp, the San Diego company best known for its Ada products, claims that its new TeleUse is "the industry's most advanced user interface management system". TeleUse is designed for interactive creation of user interfaces built on the OSF/Motif schema, and is claimed to reduce the time - by 50% to 90% - effort and cost of designing user-friendly Unix software. A key feature of TeleUse is that it separates interface code from application code, making the software easier to use and easier to maintain, as well as conferring a high degree of portability across hardware and windowing systems. It frees the developer from having to learn the details of OSF/Motif and the underlying X-Window intrinsics toolkit, since the screen layout editor enables the interactive creation of screens, using the WYSIWYG approach to paint the static screen layout on graphics workstations using building block interface objects - buttons, scroll bars, pop-up menus and dialogue boxes. The thing comes with a rule-based dialogue language cheekily called D, used to model the run-time behaviour of the user interface. From the D language, the developer has access to functions for dynamically changing the user interface at run-time. The interface can be tested and modified interactively without concern for the associated application code. TeleUse consists of four components. The first is the VIP graphical layout editor, which enables the developer to combine, edit and modify predefined widgets, as well as widgets created by the developer, by painting them on the screen. The screen description is then stored in a file, allowing the screen to be changed using VIP without recompiling. The D language enables the developer to control the dialogue between the user and the computer by specifying rules or actions to be performed when screen events, such as a button being pressed or a window being activated, occur; it comes with interactive D debugger, D interpreter, and a D compiler, which compiles D language source code to C code. An application interface model is also generated, which specifies the interface between the application code and the D code, enabling D to call functions in the program and the application code to interrupt the dialogue, or both. The User Interface builder takes the description of the screen layout, the dialogue control component, and the application interface model and integrates it with the run-time component and the application code, and it comes with a Run-time Library with everything the User Interface builder needs to convert the description files generated by TeleUse tools into a working program. Out now; no prices.

WEITEK RELAUNCHES 4167 MATHS CO-PROCESSOR FOR 80486

Weitek Corp, having been mucked about by Intel delaying its shipment of 80486 chips, has finally decided that the time is ripe to come out with its 4167 maths co-processor. It did launch the chip last May (UX No 231) but pulled back from ramping up production because of Intel's problems with the 80486. Weitek claims that the Abacus 4167 when used with Intel's 80486 doubles the processing speed of CAD/CAM applications from a performance to 12MWhetstones from 6MWhetstones. The 4167 is upwardly compatible with the 3167, supported by 50,000 applications. Each 4167 costs £1,000, volume shipping has begun and Weitek has already sold the next couple of months' worth to companies such as Compaq, Olivetti, AST and Dell, and will have to ramp production up faster than planned to meet demand. Last year the company shipped £15m worth of 3167 chips and expects the demand for them to continue for the next couple of years. However, such co-processors constitute a mere 20% of Weitek's business and as it also provides chips for Sun Sparcstations, it has no particular axe to grind in the market. The Abacus co-processors each take about a year to design and develop, but as the Sunnyvale, California-based company is relatively small, with a turnover of \$49m, it has to subcontract manufacture out. At present Hewlett-Packard produces the 25MHz 4167, although these co-processors will soon be tailored so that Matsushita can make them, leaving Hewlett free to manufacture any 33MHz, 50MHz versions as they arrive. Weitek is also talking to Toshiba about the possibility of setting up a manufacturing agreement for future Weitek products not made using CMOS technology. But that is all in the future. As for now, Kiltie has the headache of finding an appropriate master distributor for the 4167s in the UK. Any offers?

AMDAHL DEUTSCHLAND HAS HIGH HOPES FOR GOVERNMENT UNIX AFTER STORMING 1989

While Amdahl Corp saw a modest increase in sales accompanied by a 40% drop in profits, its Amdahl Deutschland GmbH subsidiary has turned in record figures for 1989, with turnover up a massive 132% to \$177m, reports Computerwoche. Until 1989, the best year for the Munich-based arm of the Sunnyvale, California IBMulator had been 1987 with sales of \$108m, which then fell to \$76.5m in 1988. 1989 is the first year sales have surpassed DM300m but Amdahl Deutschland chief Hans Reihl would not be drawn on profits for the year, implying only that they had not increased at the same rate as sales. Processors accounted for 69.7% of turnover, while 13.3% came from disk systems and other peripherals, 14.9% from support and training, and 2.2% from remote data processing services. Amdahl installed 57 IBM 3090-type mainframes in 1989, against 42 the year before, giving the company around 6% of the West German market, compared to IBM's 70% share. Reihl was, however, disappointed with the performance of Amdahl's disk systems, saying that under-estimations of European demand had led to supply shortages. For 1990, Reihl first objective is to increase Amdahl's Unix activities, and he claims to have already received four orders for UTS Unix mainframes; Amdahl Deutschland is looking particularly keenly at the German government sector.

BULL PAYS ZENITH AN EXTRA \$15m FOR ZENITH DATA

Zenith Electronics Corp and Groupe Bull SA have come to a compromise on their differences over the balance due on the sale of Zenith Data Systems to Bull and the French company seems to have come out on top. Bull, which had wanted \$49m back from Zenith of the \$496.4m it had paid upfront, will now pay an additional \$15m plus interest, but Zenith, which had been demanding \$49m more, originally agreed a price of \$635m for the business and ends up getting only \$511m. It will also have to take an \$11m charge to correct the resulting overstatement of the value in its figures for 1989.

***** SPECmark Results *****

Mips retains top spot despite strong showing by IBM's new RS/6000 line

The Systems Performance Evaluation Co-operative has come out with a new set of results from running Release 1.0 of its Benchmark Suite on 47 computers and workstations, which seems to suggest that the latest RISC machine from Mips Computer Systems Inc, the RC6280, and the Control Data 4680 variant of it, sweep all before it in the performance stakes. The co-op also announced that Fujitsu Ltd and Bull SA are its latest members and bring the total to 19, although one of those is Multiflow, in the process of liquidating. The co-op also has a new methodology and metric for comparing performance that is particularly appropriate for multi-processing systems. The new SPECthruput measures and characterises how much work a system can do given a certain workload - in this case, multiple copies of the Release 1.0 benchmarks. The Co-op asked us to include the results of the full 10 set of benchmarks, saying that users will then "receive a more complete assessment of performance by looking at the results of individual benchmarks". "Small statistical differences between machines are considered nominal" it adds. One helpful little test that the benchmarks really do work is to compare the results of machines that are essentially the same - the Control Data 4680 60MHz Beta and the Mips RC6280 60MHz Beta - and lo and behold, the results are identical. The same applies with the Silicon Graphics and Control Data machines in the second table, which shows multiprocessor performance - Control Data buys the Mips RISC-based machines OEM from Silicon Graphics. The strong showing for Mips is good news for DEC when it gets around to using the latest versions. The SPECmark is a measure of how fast a system executes a given workload while the SPECthruput is a measure of how much work a system can perform.

April 1990 SPECmarks	gcc	esprso	spice 2g6	doduc	nasa7	li	eqnt	mtrx 300	fpppp	tmcatv	SPEC mark
Control Data 4680	44.5	43.7	37.7	38.3	39.6	44.9	35.6	52.4	52.2	36.8	42.2
MIPS RC6280	44.5	43.7	37.7	38.3	39.6	44.9	35.6	52.4	52.2	36.8	42.2
IBM RS/6000 540	21.0(a)	24.9	33.2(a)	33.1	43.4	23.7	26.7	26.5	65.8	91.0	34.7(a)
Stardent 3010	17.8	20.3(a)	14.7(a)	19.7	62.9	18.1(a)	18.2(a)	108.5	29.1	61.9	29.0(a)
IBM RS/6000 730	17.5(a)	20.7	27.6(a)	27.7	36.6	19.8	22.5	22.4	54.7	76.1	29.0(a)
IBM RS/6000 930	17.5(a)	20.7	27.6(a)	27.7	35.5	19.8	23.0	21.8	54.7	76.1	28.9(a)
IBM RS/6000 530	17.8(a)	20.7	27.6(a)	27.7	35.5	19.8	23.0	21.8	54.7	75.7	28.9(a)
IBM RS/6000 520	13.6(a)	16.3	19.8(a)	21.5	26.7	15.6	18.0	17.5	42.7	56.7	22.3(a)
IBM RS/6000 320	13.7(a)	16.3	19.8(a)	21.6	26.6	15.6	17.7	17.5	42.9	56.5	22.3(a)
DECstation 5000-200	17.3	18.5	13.7	18.2	22.6	21.8	18.4	17.0	22.0	17.3	18.5
Control Data 4380	18.8	18.1	13.5	17.4	18.4	23.9	18.4	13.4	20.1(a)	17.1(a)	17.7(a)
Control Data 4360	19.2	18.0	13.5	17.1	18.4	23.9	18.4	13.3	20.0(a)	16.9(a)	17.6(a)
MIPS M/2000	19.0	18.3	12.1	17.6	18.4	23.8	18.4	13.3	20.4	17.7	17.6
Hewlett DN10000	12.8	12.9	11.9(a)	23.0	20.5	11.1	11.1	22.0	32.0(a)	19.9	16.6(a)
Control Data 4340	15.3	17.3	13.6	15.8	18.1	20.3	17.2	13.6	17.5(a)	14.2(a)	16.2(a)
Silicon Graphics 210s	18.1	16.7	10.0	14.7	14.4	16.3	16.2	9.7	16.1	10.8	14.0
Silicon Graphics 25S	13.4	13.9	10.6	11.1	12.6	15.5	13.3	9.9	12.2	10.7	12.2
Control Data 910B-621	18.1	16.7	10.0	14.7	14.4	16.3	16.2	9.7	16.1	10.8	14.0
Control Data 920B-450	13.4	13.9	10.6	11.1	12.6	15.5	13.3	9.9	12.2	10.7	12.2
DECsystem 5400	11.0	14.1	9.1	12.8	12.8	12.2	13.6	10.4	13.4	9.9	11.8
DECstation 3100	10.9	12.0	9.5	11.3	13.2	13.1	11.2	9.8	12.5	9.9	11.3
MIPS RC2030	8.6	11.8	9.0	9.9	13.3	14.2	11.5	9.6	4.9	11.0	10.0
Data General AV 410	9.6	12.8	8.2	6.7	8.9	12.9	10.3	10.3	8.0	8.0	9.4
DECstation 2100	7.6	8.9	7.0	8.3	9.7	9.7	8.8	7.2	8.9	7.3	8.3

To give the benchmarks a bit more meaning, here follows a short explanation of each test, together with the company that originally proposed it. The suite was chosen from around 50 submissions from member companies.

- gcc - engineering, GNU compiler, Sun.
- espresso - engineering, PLA simulator, Apollo.
- spice 2g6 - engineering, CAD analog circuit simulation, Hewlett-Packard.
- doduc - scientific, high energy physics program, Mips.
- nasa7 - scientific, synthetic modelling, Apollo.
- li - engineering, CASE tool, Sun.
- eqntott - engineering, CAD, Apollo.
- matrix - scientific, Monte Carlo, DEC.
- fpppp - scientific, maxwell equations, DEC.
- tomcatv - scientific, fluid dynamics, Hewlett-Packard.

SUN BOOSTS PERFORMANCE IN NEW SET OF SPARC COMPILERS

Sun Microsystems claims that new enhancements to its language compilers - now dubbed SPARCCompilers - has upped the run-time performance of its SPARC-based systems by around five percent, and performance of Fortran applications by up to 15%. Tweaking compiler software for increased performance is particularly appropriate for RISC machines as there are fewer instructions built into the hardware, so more can be achieved by improving the software. Sun has also unveiled its first C compiler that will be sold separately from SunOS, and although the compiler will continue to be bundled with the operating system, future enhancements will be made to the unbundled version only. Both Sun C and Sun Fortran have a new window-based search tool called Sun SourceBrowser - allowing developers to perform global searches for specific program components - a new edition of the dbx debugger and an enhanced dbxtool window-based debugger. As the compilers have been designed primarily around the SPARC chip set - but will nevertheless run on any Sun system - programs written in one language can access the libraries of other languages as well as the libraries of SunOS and OpenWindows. Sun plans to have a new release of the compilers every nine months, and each SPARCCompiler is now available separately for SunOS 4.0 and 4.1. Sun C, C++, Fortran and Pascal are 1,800, Modula-2 is 1,950.

SILICON GRAPHICS CHALLENGES ALLIANT, CONVEX WITH 234 MIPS

4D/300s Included in the new figures from SPEC are results of Silicon Graphics' recently introduced top-end multi-processing 4D/300 workstations and 4D/300S servers in its Power series of graphics systems. With up to eight 33MHz Mips Computer Systems R3000 RISC chips the 4D/380S is rated at 234 MIPS and 32.7 MFLOPS, comes with from 8Mb to 256Mb memory - using 4Mb DRAM chips - and, with the full complement of eight CPUs, costs £173,950. The 4D/340S runs four of the parts, whilst the 4D/320S employs two, performs at 59.2 MIPS and 11.6 MFLOPS, again comes with from 8Mb to 256Mb memory, and costs £64,350. All the 300 family run Silicon Graphics' symmetrical multi-processing Unix implementation known as IRIX, which includes some real-time enhancements and allows multiple tasks to run on individual processors or one job to run on all processors simultaneously. Each system can be configured with 36.7Gb disk, 64 ports, SCSI interface and Ethernet. They come with Silicon Graphics' new implementation of the IPI2 disk subsystem - IPI2X - which is claimed to double the input/output performance of existing 4D/200 Power machines, supporting disk striping with a transfer rate of 6Mb per second. The 4D/300s are binary compatible with all Silicon Graphics systems and existing 4D/200 users can board-upgrade from now. Over the last few months Silicon Graphics has re-vamped its entire line of 3D workstations in response to new releases from the likes of IBM, Stardent and Hewlett-Packard, and is meeting the so called 'wide-word' vendors of 64-bit graphics superminis such as Alliant and Convex head-on.

The second table, below, measures multi-processor and parallel processing performance by running multiple copies of the Release 1.0 benchmark. Once again, the Mips chips come out on top, but the Hewlett-Packard Apollo DN Series 10000 really begins to show off its paces in a multiprocessor configuration. The "a"s mean that the code was modified to enable it to run - but not to enhance performance!

SPECthruput	gcc	espresso	splice	doduc	nasa7	li	eqntott	matrix	fpppp	tomcatv	SPEC
Control Data 910B-634	4@18.6	4@23.1	4@12.7	4@19.1	4@12.1	4@25.7	4@21.0	4@10.2	4@23.8	4@11.3	67.6
Silicon Graphics 340S	4@18.6	4@23.1	4@12.7	4@19.1	4@12.1	4@25.7	4@21.0	4@10.2	4@23.8	4@11.3	67.6
Hewlett DN10000	4@11.5	4@12.7	4@11.2(a)	4@22.3	4@17.5	4@10.7	4@10.7	4@15.3	4@24.5(a)	4@17.4	58.8
Solbourne 5/804	4@12.4	4@15.5	4@13.6	4@11.5	4@15.5	4@7.0	4@15.6	4@20.7	4@16.0	4@11.7	54.0
Stardent 3020	2@16.7	2@19.4(a)	2@13.7(a)	2@18.4	2@51.7	2@17.2(a)	2@17.4(a)	2@70.4	2@27.0	2@48.0	51.0
Hewlett DN10000	3@11.8	3@12.7	3@11.3(a)	3@22.4	3@18.5	3@10.8	3@10.8	3@17.4	3@28.9(a)	3@18.3	46.2
Motorola 188K-QP	4@11.2	4@16.1	4@8.7	4@8.7	4@7.1	4@16.7	4@15.0	4@7.4	4@8.2	4@8.8	41.2
Solbourne 5/803	3@14.5	3@15.8	3@13.4	3@10.9	3@14.9	3@8.4	3@16.0	3@20.8	3@14.8	3@11.2	41.1
DECsystem 5840	4@7.6	4@14.5	4@7.8	4@12.5	4@8.9	4@9.3	4@11.7	4@7.4	4@11.8	4@8.5	38.8
VAX 6000-460	6@5.7(a)	6@5.9	6@6.0	6@7.4	6@6.8	6@5.6	6@6.6(a)	6@5.9	6@6.5	6@6.5	37.8
Control Data 910B-632	2@19.8	2@23.1	2@13.6	2@20.4	2@14.3	2@26.4	2@21.6	2@13.0	2@23.6	2@15.1	37.0
Silicon Graphics 320S	2@19.8	2@23.1	2@13.6	2@20.4	2@14.3	2@26.4	2@21.6	2@13.0	2@23.6	2@15.1	37.0
Hewlett DN10000	2@12.0	2@12.7	2@11.5(a)	2@22.4	2@19.3	2@10.8	2@10.8	2@19.5	2@31.0(a)	2@18.9	31.8
Solbourne 5/802	2@17.3	2@15.9	2@14.2	2@11.6	2@16.8	2@12.9	2@16.6	2@21.4	2@15.7	2@12.1	30.4
Motorola 188K-DP	2@16.1	2@18.1	2@11.5	2@9.6	2@12.1	2@18.7	2@15.6	2@13.0	2@12.6	2@11.0	27.0
Data General AV6220S	2@12.8	2@16.8	2@10.3	2@8.9	2@10.3	2@16.7	2@13.5	2@12.5	2@10.9	2@10.2	24.0
Data General AV412W	2@8.5	2@12.2	2@7.2	2@6.7	2@6.7	2@12.6	2@10.2	2@8.6	2@7.5	2@7.1	17.0
Solbourne 5/801	1@19.5	1@16.0	1@15.0	1@11.9	1@17.8	1@17.8	1@16.9	1@22.7	1@17.0	1@12.4	16.4
Data General AV4020S	2@7.4	2@10.2	2@6.0	2@5.6	2@5.8	2@10.5	2@8.6	2@7.8	2@6.5	2@6.1	14.6
DECsystem 5810	1@8.7	1@15.0	1@8.0	1@13.3	1@9.3	1@10.9	1@13.4	1@8.1	1@14.2	1@8.8	10.7
VAX 6000-410	1@6.6(a)	1@6.4	1@6.4	1@7.4	1@8.2	1@7.4	1@6.7(a)	1@6.4	1@7.5	1@7.2	7.0

NEGOTIATION BREAKDOWN - THE STORY CONTINUES

Maureen O'Gara continues to look into the gradually unfolding story behind the breakdown in talks between Unix International and the Open Software Foundation.

The Open Software Foundation cancelled the meeting Unix International's negotiating team was expecting to have last week with its OSF counterparts during which, UI maintained, it hoped to find out the real reasons OSF left the "Project Unity" bargaining table (UX No 278). The meeting was set for last Tuesday, April 17th, in London where an X/Open board meeting was also scheduled, and would have involved some people flying out on Easter Sunday so that they could meet amongst themselves and then go to dinner with the opposing side Monday night. On Thursday, April 12, OSF chief David Tory reportedly called UI president Peter Cunningham to tell him that OSF's team would not be there. Tory offered to meet with UI's people instead. His suggestion was rejected as non-productive, since Tory was not party to any of the negotiations that had taken place in the last 90 days. The impasse left UI to try to contact the OSF negotiators, including chief negotiator Tom Uhlman of Hewlett-Packard, Glenn Johnson of DEC, Rick Corbin of Apollo and John Paul of Nixdorf, individually to see if a face-to-face sit-down is still possible. One OSF negotiator, who said UI must either be "disingenuous or stupid" in maintaining that it could not fathom the reasons OSF halted the talk, said nothing had been scheduled as of late last week. He suggested that the rancour and bitterness his team still feels over UI's attitude and the uncompromising stance it maintained during the talks would make any further discussions between them fruitless. However, he thought it proper for Tory and Cunningham to meet again to chew over further technology accords.

Consensus "had been reached"

Then, adding to the widely held suspicions of agendas within agendas, bad faith and Indian-giving surrounding the collapse of the Unity talks, comes the contention from UI's side that a consensus on the spin-out of AT&T's Unix operating system into a brand new publicly held company - as opposed to a closely held one - had been reached by the two sides as early as the beginning of March. It is further alleged that the negotiating teams had yet to delve very deeply into issues such as when this would happen or how it would be structured - the kind of issues OSF alleges caused them to walk out - at the time OSF pulled the plug on the talks. One OSFer, who personally believes that AT&T Data Systems president Robert Kavner broke the spirit of the non-disclosure agreements protecting the substance of the talks from public scrutiny in some of his comments to the press last week, maintained that there was no consensus on a public company on OSF's part. OSF, he said, did not want the new company to go public immediately because of the fiduciary responsibility incumbent on the board of such an entity to operate for maximum profitability.

Instead OSF believed it was necessary for the company to be closely held at the outset so that decisions and investments could be made based on the "good of the industry" rather than gross profits.

"Enormous concessions"

This contention seems to fly in the face of charges that OSF was pressing to sell Unix off right away and that AT&T was backing a timed release. The OSFer did not mention an item believed to have been contained in at least an original proposal discussed by both sides that there be two entities: a for-profit company and a foundation into which X/Open and UI's membership would have been subsumed, which would have been charged with doing Requests For Technology and would have been capable of going off on its own to do its own software should insurmountable problems arise (UX No 256). The OSF source maintained that the OSF group made "enormous concessions" during an early March meeting, and that in the next meeting in Palo Alto, California, March 19-20 the other side "rejected everything - anything substantive to a common ground." The reaction shook the OSF negotiating team, he said, but maintained that they felt "a strong obligation to the OSF board to look for anything" that they could agree on. UI's behaviour was such, he claimed, that even UI people were surprised that OSF was still talking after two days. He said they heard no "win/win" scenarios, only why the proposal would be a win for UI's independent software vendors, users and employees. When UI was flatly accused of trying to "subvert OSF's decision-making process," UI allowed that that comment was "a good summary". When UI added a new requirement late in the day and OSF protested that it was a violation of OSF principles, they were told "that's why it's there." And in the seeming opposition to UI's story, the OSFer maintained that on March 20th investment banker Morgan Stanley, acting for AT&T's side, offered a proposal for how the board should be constituted. Further, the OSFer said, the equity division consistently floated by AT&T throughout the months of talks was 46%, 46% and 8%, with AT&T claiming the 8% set aside for employees as theirs for decision-making purposes. Lastly, the OSFer claimed that short shrift was given to how OSF employees would be handled and the effect on their morale, and focus put on Bell Labs and Unix Software Operation folk, a "tender-hearted concern developed by AT&T over the last few months", according to OSF suspicions. The OSFer said that the problem of how to handle staff, although an intricate one, was solvable, but that AT&T never addressed the issue with any imagination.

DISTRIBUTED COMPUTING CHOICE COULD ADD YET MORE FUEL TO INDUSTRY DIVISION

OSF faces its hardest technology decision so far

by William Fellows

Bitter as the battle for supremacy in the graphical user interface has been, a similar acrimonious split over a standard for distributed computing could be much more damaging for the industry. Whilst users have proved able to put up with a choice between two user interfaces, two different standards for running distributed operating system environments would not only present serious compatibility problems for both manufacturers and users, but would be divisive for a community that is already reeling from the news that for the foreseeable future there is to be no reconciliation between Unix International and the Open Software Foundation (UX No 277).

Given the prospect of this scenario, temperatures are now rising across the industry in anticipation of the Open Software Foundation's announcement to be made at its members meeting during the second week of May, where the choice of technology - or technologies - for its Distributed Computing Environment platform will be revealed. Although 28 projects were originally submitted to the Request for Technology, (UX No 255), the strongest contenders - and those making the most noise - are based around technology that supports Apollo's Network Computing System, and Sun Microsystems's Open Network Computing. Whilst NCS has the backing of Foundation sponsors Hewlett-Packard, DEC and IBM in their submission known as DEcorum, Sun Microsystems and Netwise Inc, with platforms based around ONC, are also believed to be on the shortlist of contenders.

Sticky situation

The OSF is in a sticky situation. For starters its sponsors have fared extremely well in its other technology choices so far - such as in the graphical user interface RFT which led to Motif. Coming out in favour of its sponsors again could seriously damage the Foundation's claim to have an open, and vendor-independent selection processes. To compound matters, there is reckoned to be some, not inconsiderable disagreement, between the OSF's business and technical fiefdoms about which path to follow. On the one hand NCS - as even Sun admits - has some technical advantages and extra features. On the other, the Apollo-developed technology still has some way to go before it is fully developed and stable, and Sun's ONC-based technology is both widely used and has strong industry support from the likes of Novell, (UX No 249). Indeed the key Remote Procedure Call - RPC - and eXternal Data Representation - XDR - parts of Sun's ONC were jointly developed in conjunction with AT&T and are included in Unix System V.4. If the OSF opts to go with the RPC element of NCS, this would put users of its distributed computing environment technology in serious jeopardy of being incompatible with Unix System V.4 and its portfolio of distributed applications. Indeed, Eric Schmidt, vice president of Sun's general systems group said, "it would be a travesty if the de facto [ONC] standard is not approved and OSF goes and creates a competitor instead".

One way that the OSF may attempt to get around this, according to its European director Paul Wahl, is that "more than one technology will be chosen". However the likelihood is that this could lead to more headaches than it cures.

Merging the two technologies is likely to take at least a year - a year during which ONC will become further established as a de facto standard - and even then, observers say, such an effort may mean having a less capable technology in the long run. Netwise's Larry Lytle's view is that it "would depend on what they [OSF] have in mind", he added, "we'd have to walk away from it if we had to merge with NCS". Although the NCS- and ONC-based submissions look the strongest contenders, newer technologies could be a practical - if less proven - means of incorporating both. One such submission is a joint effort by Transarc Corp, IBM, Hewlett-Packard and Locus Computing, based around Transarc's Andrew File System that was originally developed by Carnegie-Mellon University in Pittsburgh. It runs on top of the NCS file system, but also includes support for ONC/NFS clients.

Hot potato

However according to the companies involved - even founder members - the OSF has not yet reached a decision. It is presently engaged in business negotiations with the various firms - yet another hot potato - over marketing terms and rights, a choice is expected in Boston between May 15 and 17. Looking further ahead, the decision will also have serious implications for de jure industry standards such as X/Open's XPG. It has already laboured unsuccessfully for more than a year with rival offerings from the Unix camps to establish guidelines for developing graphical user interfaces. A similar rift over the choice of a distributed computing standard can only seriously undermine the credibility of an industry that is pressing for the adoption of open systems across the computer world.

The problem of integrating the RPC elements of NCS and ONC into one protocol set is not the time and expense required, but the fact that they have evolved from entirely different directions. However a good assessment of their relative merits and constraints is contained in an independent study of the two by Joshua Levy of Atherton Technology, Sunnyvale, California. Tests he carried out showed that Sun's and Apollo's RPC products performed comparably for small packets of data, but Apollo's system degraded for increasingly large packets. However for lightly loaded machines, the two are equally dependable, but as the load increases, Sun's system becomes less reliable. One of Levy's interesting findings is that most distributed programs "can be modified to use any RPC system very quickly, in as little as a week."

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The National Computing Centre Ltd in Manchester has become a distributor for the X/Open verification suites testing conformance to XPG2 and XPG3 portability guide compliance, necessary before X/Open branding can be granted (UX No 256): the VSX2 and VSX3 test suites will be offered for licence by suppliers developing new products, and the NCC will also be operating a formal testing service for products using the test suite at the client's site.

Ashton-Tate Corp looks set to make a splash at the forthcoming Unix Expo West show in Los Angeles (May 7-9th): it will be sharing the Sun Microsystems stand for a display of dBase 1V on Sun workstations (UX No 267), although the actual launch might not be for a month or so, as it can't happen until the release of dBase 1V Release 1.1.

Its need to diversify, and the dangers of being a one product company are highlighted in Ashton-Tate's first quarter figures, which saw sales plunge 36.5% to \$57m, leading to a \$1m loss for the period: the company puts the slump in sales down to the fact that sales of the 1.0 release of dBase 1V have ground to a halt - the consensus of opinion appears to be that it doesn't work too well - as users anxiously wait for the 1.1 release, for which there is still no delivery date.

Making it more certain that those sceptical about the potential of optical computing - among them, it seems, IBM - will be confounded, AT&T Co's Bell Laboratories says that it has succeeded in shrinking the tabletop microcontroller-comparable optical processor that it demonstrated earlier this year onto a quartz glass disk 1" in diameter and 0.125" thick: it demonstrated the device at an optical computing conference in Kobe, Japan, and says that it is easily manufacturable.

Informix Software Inc has DataLink RetroPack, priced at £39, to enable Mac users to access SQL databases via the Wingz graphical user interface: with Wingz-DataLink, users can "point-and-click" to create SQL queries and data can then be presented in a Wingz worksheet or an executive information system written in HyperScript, which can also call in multimedia data from Informix' OnLine database; users can access data from any databases on a network using point-and-click since the RetroPack connects to software running on Unix, MS-DOS and OS/2 through the Apple CL/1 interface.

The UK Central Computer & Telecommunications Agency, that part of the Treasury which provides information technology services to government departments and helps formulate government policy, has been ordered to make more extensive use of private sector resources in developing and maintaining its own services, and to focus its efforts on areas where the private sector is unwilling or unable to participate. The Government review of the CCTA has also called for a number of management reforms at the Agency, including new accounting systems and performance indicators, systematic charging for direct services to government departments, and improved corporate and strategic planning. A new board will be established under Treasury chairmanship to keep senior management informed on the scale and type of work the computer and communications unit is doing.

Unisys Corp is crowing over a recent report from US research company, the Aberdeen Group which praises the company's BTOS/CTOS family of workstations which are merging under the CTOS/Open banner (UX No 240), and Unisys has announced that the first merged version of the Convergent operating system is available for its new XE530 server. Unisys' OEM customers have agreed to comply with the common standard, and the company has published the second version of of the Applications Programme Interface guide. The Aberdeen Group says CTOS already has integrated workgroup capabilities that MS-DOS, OS/2, and several local area network managers are merely begging to contemplate.

Informix Software Inc has a pact under which Lockheed Corp's Lockheed Integrated Solutions Co will remarket customised document and image management applications based on the Informix- OnLine multimedia database engine: with OnLine, users can integrate unstructured information such as digitised images, word processing documents, graphs, spreadsheets, facsimiles and speech into an SQL relational database.

Microsoft Corp has come out with Microsoft C Professional Development System 6.0, an integrated system of programming tools for MS-DOS 3.0 up, Windows and OS/2 programmers: the new release automatically manages a variety of project details that were previously handled manually and provides new views into developers' code. Compiled programs are claimed to be typically 7% to 10% smaller and 10% faster than with Microsoft C version 5.1 and the new Source Browser enables programmers interactively to browse through a project database, reviewing the relationships and use of variables, functions, definitions and macros in their code. An integrated Programmer's WorkBench provides an extensible foundation on which all tools are run; the thing costs \$500, \$125 to 5.X users, \$250 for earlier users Microsoft also added version 2.5 of its QuickC and QuickC with QuickAssembler development systems to ensure that programmers using the products can reuse their code under C 6.0; it costs \$200 combined, \$25 for 2.01 users, \$60 for 2.0 users, \$95 for 1.0 users; QuickC alone is \$100, \$35 for 2.0 users and \$65 for 1.0.

Objectivity Inc of Menlo Park, California, has released what it claims is "the first database management system designed to meet the functional and performance requirements of engineering applications": Objectivity/DB "provides substantial extensions to address the engineering market, including support of all data types (including variable size arrays, versioning) and active support of associations between objects. Available immediately, development Systems are priced at \$30,000. Run-time systems, quantity discounts and OEM discounts are available.

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OSF "HAS CHOSEN DECORUM" FOR DISTRIBUTED COMPUTING MODEL...

The Open Software Foundation's choice for its Distributed Computing Environment (DCE), not expected to be made public until May 15th, looks to have gone in favour of the DEcorum initiative, according to industry sources. By selecting DEcorum, the Apollo-based technology offered the Foundation by the combined weight of IBM, Hewlett-Packard and DEC, and using a commercialised version of the Carnegie-Mellon Andrew File System from Transarch Corp (UX Nos 255, 264), OSF may be opening itself up to charges of bias in favour of its founders, despite its assurances of a vendor independent decision process. The decision would also slam the door on one more chance for some kind of rapprochement with its AT&T rivals, by effectively refusing to adopt the same Network File System/Open Network Computing technology as System V.4, supplied by Sun Microsystems and reckoned to be the de-facto standard, with an installed base of some 1.2 million nodes. Sun and OSF reportedly tried to come to terms on NFS during the fourth quarter of last year, but negotiations were terminated by the OSF board, reputedly due to Sun's terms. OSF is set to make its decision public at its members meeting in May, but has been having one-on-one briefings with selected analysts on a non-disclosure basis since April 19th. But despite all the hype, the common consensus is that the distributed computing vision is still at least two years away from mainstream use, while Unix International's Network Computing Plus release of System V.4 is scheduled for 1994.

...AS SUN FIGHTS BACK WITH DISTRIBUTED COMPUTING ROADMAP
Stung by reports that the HP/Apollo Network Computing System technology underlying DEcorum is technically superior to its own NFS/ONC products, Sun Microsystems is this week issuing its own distributed computing "roadmap", which outlines the future development of Open Network Computing, emphasising that it will be built on the existing installed ONC base. The document outlines improvements that Sun will be making to its Remote Procedure Call, the RPC compiler, and naming, time/synchronisation and authentication services, as well as "significant" enhancements to NFS itself. An enhanced RPC, called Transport-Independent RPC, will run on a variety of transport networks, including TCP/IP and OSI (RPC mechanism allows an application to share computing resources available on a network). Already being shipped as part of Unix System V.4, TI RPC is supported by PC-LAN vendors such as 3Com, Novell and Banyan. This, and the RPC Tool compiler Sun is developing with Netwise Inc, will be available on Sun platforms from the second half of 1990. Sun's Network Information Service naming system (previously Yellow Pages until British Telecom objected - UX No 274) will also be enhanced to provide stronger consistency between servers and improved security, and Sun also plans a distributed location/binding service similar to NCS by mid-year 1991. Other features, including the addition this year of Time/Synchronisation services (to synchronise worldwide networks) and next year of the Kerberos security and authentication model, also mirror the DEcorum offering.

ABRAXUS RESURRECTS INTEL UNIX HOUSE MICROPORT
San Jose-based Microport Systems, the Unix for Intel software company that fell into a serious decline last year, (UX No 223), has been acquired by Abraxus Software International Inc of Lincoln, California, a developer of integrated business software for the Unix and Xenix markets. Terms were undisclosed. Abraxus intends to build on Microport's Unix operating system business, which was established in 1986, and at one time held third place in the Intel-based Unix operating system stakes behind Santa Cruz Operation and Interactive Systems Corp. Since then, however, Intel Corp itself has entered the operating systems market following its acquisition of Bell Technologies Inc (UX No 233), and competition is fierce. Microport Unix is currently available for 286 and 386 systems, and a 486 release is planned. New President of Microport is Sherman Kaspar, described as "a seasoned software industry executive", who was previously president and chief executive officer of Document Systems Inc. According to Kaspar, the Microport product "is still well respected, the customer base still loyal and the growth potential still great".

SUN UPGRADES SPARCSTATION 1 - NO PRICE INCREASE

Sun Microsystems Inc has re-vamped its SPARCstation 1 and SPARCserver 1 RISC-based workstation and server on the first birthday of its best-sellers, (UX No 227). According to the firm, users can expect 20% more processing power and 25% faster graphics for the same price with the introduction of the SPARCstation 1+, SPARCstation 1+GX and SPARCserver 1+. Each use a 25MHz version of Sun's SPARC chip, and are rated at 15.8 MIPS and 1.7 MFLOPS, and carry a SPECmark rating of 10.0. The original SPARCstation 1 launched last April, ran a 20MHz SPARC and was rated at 12.5 MIPS. The new models come with from 8Mb to 40Mb memory, supporting up to 208Mb internal disk space, and with a new 699Mb drive, they can be coupled with up to 2.7Gb of external storage. The SPARCstation 1+GX is reckoned to perform graphics applications up to 25% faster than the existing SPARCstation 1GX. It will do 540,000 2D or 270,000 3D vectors per second. A SPARCstation 1+ with 8Mb memory, and a 17" monochrome display comes in at £8,000 - \$9,000 in the US - a SPARCserver 1+ with 8Mb RAM, 699Mb disk and 150Mb tape back-up is £12,500. Both have been shipping to VARs and distributors for some time and are available immediately. Sun has also halved the price of an additional 4Mb of RAM to £900, reduced the cost of a 327Mb disk drive from £5,050 to £3,000 and dropped the price of a 699Mb device to £4,600 from £6,300. The faster version of the SPARCstation is thought to be the first move in Sun's plan to retain its top spot in the workstation market, where, at least in performance terms, it lags well behind IBM's RS/6000 320 and DEC's DECstation 5000 Model 200. A diskless SPARCstation is set to follow in June priced at around \$5,000, and a 25 MIPS SPARCstation 2 is rumoured to appear in August, tagged at the same price as the SPARCstation 1.

DEC MAY TAKE A STAKE IN INGRES

Ingres Corp, Alameda, California accompanied third quarter figures showing a return to profit with the news that to cement the agreement that makes its eponymous relational database the one that DEC supplies with Ultrix, DEC is discussing taking a minority stake in Ingres in a broader technology and business relationship. Ingres holds the lead position in sales of database technology to the DEC marketplace. Last week, Ingres supplemented its product line with a new object-oriented development environment, Ingres-Windows - see page four.

ADOBE PICKS MIPS RISC FOR POSTSCRIPT CONTROLLER

Underlining the way in which RISCs are increasingly usurping the role of complex instruction set microprocessors, and delivering a blow to National Semiconductor Corp's hopes of rescuing the NS32000 microprocessor family by coming up with versions dedicated to graphics and laser printing applications, Adobe Systems Inc has chosen MIPS Computer Systems Inc's R3000 RISC microprocessor and R3010 floating point unit as the basis of its new Emerald PostScript controller. Set for launch at a print trade show in Dusseldorf next week, the Emerald controller has already won OEM contracts from Agfa-Compugraphic Inc, Autologic Inc, Canon Inc, Monotype Corp Plc, Scangraphic Dr Boger GmbH and Varityper Inc. The controller has been designed to accelerate the output of a new generation of typesetters, colour printers, and high-speed black-and-white printers from three to seven times.

AMT UPGRADES DAP - PROMISES GALLIUM ARSENIDE

In addition to announcing 8-bit co-processor upgrades to its massively parallel DAP Distributed Array Processor systems, Active Memory Technology Ltd, Reading, Berkshire, has revealed it will have a Gallium Arsenide DAP out by early next year, thanks to the \$3m of funding that it received from the US Department of Defense. The four-board upgrade set adds an 8-bit floating point co-processor to each of the proprietary single-cycle 1-bit CPUs in a DAP. The co-processor combines an arithmetic and logic unit with a 32-bit shift register and accumulator, and on-chip operand RAM. Attached to each of the UK-designed parts is a new micro-sequencer controller. DAP chips are fabricated by NCR in the US. The new machine is being offered in two models, the DAP/CP8 510C, with 1,024 processor combinations and the 610C with a maximum of 4,096. They are rated at 5,000 MIPS, 140 MFLOPS and 20,000 MIPS, 560 MFLOPS respectively. In the UK the 510C is priced from £87,000, the 610C comes in at around £300,000. US prices are \$200,000 and \$415,000 respectively. The new systems are also available as board upgrades from existing 510 and 610 models, though software will have to be recompiled to move to the new models. Applications for DAPs are coded in an extended form of Fortran, a new version of which - Fortran Plus Enhanced, including a new compiler - is now available from AMT. It relieves the programmer from having to work to a specific number of processors - the compiler works it out automatically. Each DAP is front-ended by Sun Microsystems workstations or DEC VAXes, and are based on Single Instruction Multiple Data - SIMD - technology, in which each processor performs the same task. AMT reckons to have sold around 75 DAPS since 1987, the majority in the US and UK, however whilst defence and industrial markets in the US have been eager to pick up on the technology, in the UK AMT has had little success in selling into anywhere but the academic sector. Competing in the same SIMD market are Thinking Machines Corp with around 50 installations, and Maspar Computer which has a handful of sites for its recently announced MP-1. Competing technology in the massively parallel system marketplace are MIMD - or Multiple Instruction Multiple Data - machines from the likes of Meiko Scientific, in which the processors perform separate bits of the same task, but need message-passing facilities within the processor block to ensure that each is doing what the another requires. In the future, AMT plans to increase the number of processors the DAP can handle, and the long-term intention is to split the compute and communications processes across separate units. AMT says that Apple Computer Inc is using one of its DAPS in the development of speech and text recognition systems at its research labs.

COMMODORE MOVES ONE STAGE CLOSER TO UNIX WORKSTATION WITH AMIGA 3000

Commodore International's UK Business Systems Division chose Which as the venue for its introduction of the Amiga 3000 "multi-media" workstation, which was also launched at SICOB in Paris and at a press conference in New York. The 16 or 25MHz 68030-based system is Commodore's bid to be taken seriously in the business marketplace, and it includes a 68881 floating point co-processor and Commodore's custom Amiga chipset to offload the processing of graphics/animation, video and sound. The Amiga 3000 also features the "MCA-like" 32-bit Zorro expansion bus, and the ability in the future to add additional processors, such as the 68040 or RISC chips, to boost the power. Initially, the machine runs under the multi-tasking AmigaDOS 2.0 operating system, but Commodore is promising Unix "within a few months", once it finalises its work on Unix System V.4. A new icon-driven authoring system, called AmigaVision, will tie in the multi-media capabilities of the 3000 for applications developers under both AmigaDOS and Unix, providing the facilities for developers to produce multi-media applications for video production, computer-based training, animation and graphics and in-store training or customer information services. Showing just how seriously it was hoping to be taken, Commodore compared the Amiga to Sun and HP-Apollo workstations on the stand, where it outperformed both running a CAD application. Commodore also claimed it had beaten Rediffusion in a bid for simulation equipment from the Civil Aviation Authority. UK prices start at £2,500 for the Amiga 3000 16-40, including 2Mb main memory and 40Mb hard drive, up to £3,300 for the 25-90 with 100Mb drive.

PLEXUS IMAGING SOFTWARE TO RUN ON SPARCSTATION 1

Plexus Software, now a subsidiary of Santa Clara, California-based Recognition Equipment Inc, is to port another component of its XPD Extended Data Processing imaging product to Unix. The Plexus Applications Designer toolkit, previously only available on PCs, will be developed to run on the Sparcstation 1 workstation as the result of a joint development effort between Plexus, Sun Microsystems and imaging specialist and systems integrator Grumman InfoConversion, it was announced at the recent Association for Information and Image Management in Chicago. As its name suggests, Applications Designer is aimed at software developers working on document image applications, and on the Sun platform it will use the Open Look graphical user interface. The client/server based XDP system also consists of a back-end relational database management system that already runs on Unix-based servers, including Sparc servers. A prototype of the product was demonstrated at the Show, and the completed product should be introduced in 1991.

IBM CONFIRMS IT REALLY IS SERIOUS ABOUT OSF/1

IBM is preparing to dump AIX.3 as its base Unix operating system and shift over completely to OSF/1 following the termination of Unity talks between the Open Software Foundation and AT&T/Unix International. The move appears to be another huge strategic gyration, particularly in view of UI's continuing claims that the two sides had agreed to accept System V.4 as the basis for future development before negotiations broke down. IBM sources say that an internal game plan is being written under the direction of Advanced Workstation Division general manager Bill Filip that will put OSF/1 on the PS/2 machines first, then on AIX 370s and RS/6000s. IBM Unix spokesman Doug Delay, who confirmed Big Blue's intentions, estimated that the implementation of OSF/1 on the RS/6000s would not be earlier because the machines are so new. The company, he said, is not anticipating any marketing or revenue stream hiccups from the shift because "so much of AIX.3 is in OSF/1". Although the OSF kernel is no longer IBM's, it still retains the AIX libraries and command set. The operating system IBM deploys will not simply be OSF/1 compliant, Delay confirmed, but will be OSF/1 - albeit with some IBM value-added bells and whistles. OSF's long term intention is to break entirely with its System V progenitor, so that no royalties will be owed to AT&T.

CUBE OF CAMBRIDGE BUYS TORCH HARDWARE ARM

Although the body of former X-Windows software and Unix hardware outfit Torch Technology could not be kept together as a going concern, its ashes are to remain in Cambridge, where they have been scattered amongst the community of small, and innovative hardware and software firms that have made homes there. Unipalm Ltd bought up Torch's X-technology division at the end of March, (UX No 275), and now communications specialist Cube i.t. - part of the Cambridge-based Cube Group - has stepped in for the hardware side of the company, which includes the 68030-based QX VME board and Torchstation workstation projects that Torch was working on at the time it went into receivership, (UX No 269). Cube i.t. has taken 12 former Torch employees into its fold, which ups its roll to 36, and will concentrate on developing and manufacturing the VME board for high-performance workstation applications. Cube i.t.'s sister company Control Universal, which manufactures board-level industrial microprocessor control systems, will be responsible for marketing the boards, whilst Cube i.t. will concentrate on supplying the Motorola-based workstation line. Cube i.t. was formed in December 1988 after Control Universal took over Barkway Electronics. Managing director Martin Sebborn says that new products will emerge over the next few months, and that part of the reason for Torch's downfall was that heavy research and development investment was made at the expense of sales and marketing efforts, an imbalance that Cube i.t. and Control Universal will be addressing. In addition Cube i.t. will be working with Unipalm on support Torch's Y-Opentop graphical user interface - which Unipalm acquired with the X technology group - though Unipalm's long-term aim is to sell source code and rights to the interface, and not an end-user product. Unipalm's XTECH division has completed the Motif development work begun at Torch, and will release Motif, a development kit and X11.4 server software for Sun Microsystems Inc workstations at the end of this week. It has appointed Aurora Technology as its distributor in the US, and is currently looking for European outlets. The remaining part of Torch - the highly successful Apple Macintosh frame-grabber product known as RSVP - has gone to Graphics Unlimited.

X/OPEN OPENS UP TO SMALLER COMPANIES WITH ASSOCIATE MEMBERSHIP DRIVE

Aware for some time now that it is no longer the only consortium of open systems hardware vendors in town, X/Open Co has been under pressure to increase the involvement of users and independent software vendors in its standards activities for some time. Last week, X/Open granted associate membership status to its User and ISV Councils, and at the same time added a new Council for System Vendors, allowing smaller systems vendors to participate in the development of X/Open's Portability Guide specifications, and the Xtra Process for determining future open systems requirements. As a member of one of the Councils, an organisation is represented on the main X/Open board of directors, technical and marketing committees and technical working groups. The new Systems Vendor Council currently has five members, and is chaired by Ross Summers of Sequent Computer Systems Inc. The ISV Council has 18 members, with Novell Inc the latest to join. The User Council now has 23 members.

LEGATO BOOSTS NFS NETWORK PERFORMANCE WITH PRESTOSERVE 2.0

Legato Systems Inc, of Palo Alto, California, has introduced the second release of its Prestoserve accelerator for Sun's Network File System, a hardware and software product that claims to speed up the response time of heavily loaded NFS servers. Prestoserve 2.0 supports Sun's new top-end Sparc-based servers, the 390 and 490, which use Sun's IPI disk controller. It also includes an improved window-based network performance monitor. The boost in performance comes from eliminating the common NFS input/output bottleneck by buffering the NFS server's file system state in fast non-volatile memory, and scheduling asynchronous writes to the server's hard disks. According to Legato, the product is effective on large and complex NFS networks and with diskless clients. System managers can add more client workstations to their existing file servers with no performance loss, and in some cases can eliminate the need for additional servers. Because of the synchronous nature inherent in NFS writes, NFS could not previously take advantage of the Sun IPI disk controller, said Legato founder and principal engineer Joe Moran. "By buffering NFS writes, Prestoserve can use IPI disk controller features such as the ability to optimise seeks, improving write speeds on the Sun 490 by a factor of six or more", he said. Prestoserve includes a software tape, VMEbus board and documentation, and costs \$8,000. The first release of Prestoserve was introduced in June 1989, and Legato claims 150 installations in the US.

FUJITSU HALTS WORK ON TOP-END SPARC CHIP

Fujitsu Ltd's ambitious plans for a high-speed version of Sun's SPARC processor have been shelved in favour of the embedded systems market, following the company's realisation that top-end design wins would represent only a limited market. Fujitsu announced its Sparc H implementation plans back in November 1988 (UX No 207), claiming it would be the first Sparc to break the one cycle per instruction barrier. The chip was to feature a Harvard architecture with separate 64-bit instruction and data buses. It will now join companies such as Cypress Semiconductor and LSI Logic in concentrating on Sparc applications for laser printers, fax machines and scanners, rather than workstations and servers. Others still targeting the top-end market include Bipolar Integrated Technology, Motorola Inc spin-off Ross Technologies (in conjunction with Cypress), and Texas Instruments. Unconfirmed reports suggest that Sun's own reluctance to enter the high-end server market was a factor in the Fujitsu decision. Fujitsu was working with Via Technologies Inc on the Sparc implementation, and took a financial stake in Via (UX No 223).

CYPRESS UNVEILS SPARC VERSION FOR EMBEDDED APPLICATIONS

Cypress Semiconductor Inc yesterday announced the Sparc RISC microprocessor designed for embedded applications: the part delivers 18 MIPS at 25MHz, and costs under \$80. The CMOS CY7C611 Sparc RISC Controller, from Cypress' Ross Technology subsidiary, is aimed at the next generation of copiers, laser printers, X-terminals, communications controllers and input-output controllers. It communicates with external memory via a 24-bit address bus and a 32-bit instruction+data bus. The CY7C157 Cache RAM can be used directly with the CY7C611 to provide a zero wait-state memory system and the CY7C289 64K by 8-bit Registered PROM is designed to interface directly to the CY7C611, and also delivers zero wait-state performance. And the CY7C602 Floating Point Unit can interface directly to the CY7C611 to speed floating-point system performance. Ready Systems' VRTX32 real-time operating system will be available on the CY7C611 in the second half. Samples are out now, volume in the third quarter, at \$76 for 1,000-up.

INGRES HAS GRAPHICS INGRES/WINDOWS 4GL DEVELOPMENT SYSTEM

Ingres Corp yesterday launches Ingres/Windows 4GL, a visual programming tool and applications development system claimed to accelerate creation of applications on workstations "dramatically". The company claims it is the first development system to combine the benefits of an object-oriented fourth generation language with a graphical user-interface management system for workstations. The Alameda, California company says that developers can build and modify database applications by choosing objects with a mouse and arranging them on the screen and can create forms and complex menus without any programming. Versions for the Sun Microsystems Sparc machines and DEC VAX/VMS arrive in the third quarter at \$1,000 per node with two to eight nodes. Versions are planned for Hewlett-Packard HP-UX, DEC Ultrix and Santa Cruz Operation Open Desktop.

NOW DATA GENERAL JOINS PICK RUSH WITH UNIVERSE ON AViiONS

That vast base of business applications is proving so seductive as to be irresistible to manufacturers new to the Unix world, and Data General Corp has joined the rush to put Pick up on its Unix boxes, going to the pioneer, VMark Software Inc, Natick, Massachusetts for its UniVerse Pick environment and offering it on its 88000-based AViiON machines as DG/UniVerse. Data General, which will market the thing both direct and via resellers, highlights the fact that DG/UX Unix supports logical disks so that large files can be spread over multiple drives. DG/UniVerse costs \$330 per user for one to 63 users, \$275 users when there are 64 or more. Separately, Data General reports that its new proprietary architecture Eclipse MV/5500 DC and MV/9500 use a 5 MIPS CPU that is the first microprocessor implementation of the MV CPU.

EMERALD ADDS HANDSHAKE TO LINK HEWLETT HP9000-800s TO IBM AS/400

Bothell, Washington-based Emerald Technology Inc, dedicated to bringing about an intimate relationship between the closed world of IBM's AS/400 and the Open Systems world of Unix, has added a version of Handshake that links Hewlett-Packard Co's 9000 Series 800 Unix minis with the AS/400 - or System 38s and 36s. It emulates the 5250 and does Unix file transfer; there are IBM RS/6000, AT&T 3B2 and 6386, SCO Xenix on 80386, NCR Tower 32 and Unisys 6000 versions. Handshake-Emulation is \$2,340 to \$5,400, while Handshake-Express is from \$1,050 to \$1,600.

DTI/SERC FUNDS GO TO FAULT TOLERANT, PARALLEL AND DISTRIBUTED COMPUTING PROJECTS

The Department of Trade and Industry and the Science and Engineering Research Council are jointly providing funds for three new information technology research programmes the UK. A four-year £25m project to develop safety and mission critical software is expected to lead to the creation of applications as well as a set of standards. A three-year £40m parallel processing programme will explore the suitability of parallel processing environments for industrial applications. Third, a two-year £12m, open distributed processing project will investigate ways and means of integrating heterogenous computing environments - the techniques used will be offered to UK firms. The three programmes will be launched in the summer, and form part of the DTI/SERC Joint Framework for support in Information Technology - JFIT - which aims to bring together industrial users, IT manufacturers and the academic science base. The DTI and SERC are together providing £130m support for research and development programmes. In addition the UK contributes £200m towards the cost of the present European Commission's Esprit II programme.

UNIWARE'S EAST-WEST VENTURE "IS NOW UP AND RUNNING"

Gesellschaft für offene Kommunikations und Informationssysteme mbH - or GKI - the joint venture between West Berlin-based Unix software outfit UniWare GmbH and East Berlin firm VEB Leitzentrum für Anwendungsforschung, LfA, (UX No 272), is now up and running, according to UniWare's managing director Henning Wilke. However, a result of the recent selection of a new East German government has meant that legal frameworks for the establishment of private enterprise are not yet in place, and UniWare, like all other hopefuls, is waiting for new legal guidelines to go on to the statute books - they are expected soon. Undaunted, the new venture has already started winning orders, supplying a more powerful UniWare C compiler to LfA's customers in East Germany whose P8000 Unix systems use Zilog Z8000 microprocessor technology. Though this kind of hardware is likely to be obsoleted soon with the advent of more advanced computer technology after trade barriers are lifted, GKI believes that if it can win customers over to UniWare software now, loyalty to its products will carry over when users begin to get their hands on new systems. Indeed, according to Wilke there is already a great deal of off-the-shelf 386-based hardware in East Germany which has arrived by the backdoor needing software support. To promote Unix in East Germany, the East German Unix Users Group has organised an exhibition in East Berlin on May 22nd, at which more than 40 companies will be showing Western Unix hardware. Unigram can also reveal that IBM's new RS/6000 system has already made a foray Eastwards - one of its workstations running a set of graphics applications was used during the March 18 elections to analyse returns and plot the fortunes of the various parties. RISC-based technology in all its forms is still banned from export to the East, but IBM was granted a licence by CoCom to take an RS/6000 into East Berlin specifically for the election. The proviso was that IBM had to have a big blue henchman physically watch over the system every minute it was on East German soil, and return the thing, complete with all the software untouched by East German hands. We also understand that IBM is gearing up for a big push to get the AS/400 established in the East German market. UniWare has published a 65 page report on the state of the East German data processing marketplace - it costs £500.

DECORUM DECISION MARKS FURTHER SPLIT IN STANDARDISATION EFFORTS

The Open Software Foundation looks to have decided upon the DEcorum as its choice for the Distributed Computing Environment Request for Technology. Here we look at what the product consists of, and at some of the background issues behind the choice.

DEcorum - some way off from being a product - is based on a blend of technologies from OSF members. The components include Hewlett-Packard/Apollo's NCS protocols, and Locus Computing's Transparent Computing Facility for process transparency, developed in conjunction with IBM. The distributed file system is Transarc Corp's AFS - which is based upon Carnegie Mellon University's widely respected Andrew File System. DEC provides the Massachusetts Institute of Technology-derived Network Time Protocol, and the Kerberos security model - also from MIT, is also included. Finally comes Hewlett-Packard and Microsoft's jointly developed LM/X Lan Manager for Unix-to-PC connectivity product, as well as other administration and directory services.

Although a decision on the technology is not expected to be made public until May 15th, OSF has been holding interviews with selected analysts under non-disclosure. One analyst who was briefed - and was not asked by this paper to break the non-disclosure pact - simply said that "a decision has been made". Sun, allegedly a finalist in the runoff, apparently offered OSF a 50% discount of OSF's own royalty terms if OSF acquired not only Sun's ONC technology but also its partner Netwise's Remote Procedure Call compiler, in an effort to forestall any blending of technologies by OSF. According to Sun's figures, the NCS, DEcorum installed base is around 200,000, while its own ONC has 1.2 million nodes, with 800,000 already including the ONC RPC.

What happens now is likely, in the words of Bishop, to be a "replay of the graphical user interface war", a protracted struggle over a distributed computing standard will be much more intercut for the industry than graphical user interface, GUI, sideshow - see below. Moreover the future ability - and despite the hype it remains in the future - to transparently distribute processing and applications around a heterogeneous network of computer systems is a cornerstone of the industry's argument for taking the open systems road. For software developers, having a choice between fairly similar interface technologies - Open Look and Motif - is one thing, but to be faced with two totally incompatible methods for implementing distributed operating system technology is quite another. Open systems vendors are now faced with a decision to go with one or other of the competing technologies - or both. But what is more likely, and what has happened with the GUI, is that they will delay product development and introduction until a clear leader emerges. And if the OSF's decision goes ahead, a choice will have to be made at some point. For although all that is needed to bring the rival interface offerings together under a common programming interface is political will on the part of the Unix clubs and standards organisations, no amount of dialogue can bring the technically dissimilar NFS and NCS together. They are as unlike as synchronous and asynchronous transmission, having different byte-ordering methods and presentation technologies.

THE REASONS WHY A COMMON PROGRAMMING INTERFACE FOR GRAPHICS IS STILL PIE-IN-THE-SKY

As reported several weeks ago, AT&T's Unix Software Operation has developed a common programming interface that will run with both the Open Look and OSF/Motif graphical user interfaces (UX No 277). This work took place under the auspices of a Posix 1201 project known as N3, which was presented to the 1201 committee at its January meeting in New Orleans. It was subsequently demonstrated to sceptics such as X/Open, and to users who have already despaired of a solution and opted for one or the other technologies. In this case it was to Walter de Backer, chairman of the European Commission - a body which has chosen the Motif route - who is said to have been "shocked". The problem is that there are currently two camps of thought. One is that a distinct application programming interface for each look and feel is needed, the second that one application programming interface should be sufficient for both look and feels. A common approach to other parts of the technology is not really a problem, because both are based upon standard X-Windows functionality.

Hold-up

There are two factors holding up acceptance of a common programming interface. The first is intransigence on the part of the Open Software Foundation. At first it didn't believe that the task could be accomplished, and now doesn't want to develop a common application programming interface for the respective look and feels. Secondly, Unix International also rejects the common API approach because it believes it to be too restrictive. Both Open Look and Motif are based on the X-Windows Intrinsics toolkit. Intrinsics are object-orientated programming services within X-Windows that enable the creation of graphical objects represented on the screen as push-buttons, scroll bars and the like, and are known as widget sets. Currently there are variety of widget sets that are manufacturer-specific, such as those from Sony Corp, and Hewlett-Packard's set, which is included in Motif. Unix International wants to see a common API that is not tied to Intrinsics, and which therefore includes scope for future interfaces that may not use Intrinsics as their base. Indeed it claims that an Intrinsics-free interface specification will be included in the multi-processing plus extension to V.4 which is due for early access release in the middle of next year. The way forward is unclear. Present consensus seems to be that a solution is unlikely in the near-term, and not assured even in looking further into the future. Certainly X/Open is firmly ruled out as the vehicle for change. Unix International's Tom Bishop says that "if it (X/Open) were to play the moderator between the Open Software Foundation and Unix International - then it would fail". The only way Bishop sees X/Open as exerting any pressure is if the group truly "becomes the voice of the users in the open systems marketplace", a clear message to X/Open that it should rid itself of any pretensions to power and get on with the job of representing the people that should ultimately be heard - users. Indeed he believes the time is now ripe for users and independent software vendors to take these organisations to task for "it is they (users and ISVs) that will either tolerate the situation, or force it to change ... because if users and ISVs say "we want a common API for look and feel", then it will happen".

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US press reports are suggesting that Apple Computer Corp has at last made up its mind on which RISC processor to use in a new series of top-end workstations and servers, and has opted for the Motorola 88000: the company would not comment.

Borland International's Turbo C++ compiler is set to be launched on May 14th, but unlike Glockenspiel's recently launched product (UX No 279) will not support Microsoft Windows or OS/2.

Tyne and Wear-based Mari Group Ltd has won a dealership for North East England and Scotland for Network Computing Devices Inc X-Terminals and X related products, supplied by NCD's UK distributor Logitek.

The European X User Group, formed at the end of last year, will be holding its Spring conference next Friday, May 4th, in Cambridge: the theme will be X User interfaces, their origins and evolution, and anyone interested in attending should contact the EXUG Secretary on 0954 211860.

C++ inventor Dr Bjarne Stroustrup of AT&T Bell Laboratories is to visit London to speak at a one-day technical seminar on C++, organised by AT&T's Unix Software Operation Europe: the seminar will be held at London's Olympia Conference centre on June 12th, and costs £175.

Ratheon Co-owned Data Logic Limited of Harrow in Middlesex has been awarded a £500,000 one-year contract by the UK Government's Communications and Electronic Security Group to work on an intensive study into secure Unix systems: the company - which is design authority for the MoD CHOTS secure office automation project - will review Unix security work carried out to date, and in an expected second year extension will develop a detailed design for security within Unix, taking into account the requirement for a base implementation in the near future.

Boston Business Computing Ltd, Andover, Massachusetts, is now shipping a new version 5.0 of its EDT+ text editor, an emulation of DEC's VAX EDT+ for MS-DOS and Unix systems. Claimed to be up to 50% faster than its predecessor, it also supports multiple windows. Licences start at \$300.

Intunix AG of St Gallen in Switzerland has a new document search and retrieval package designed as an add-on to the Uniplex office automation suite (although it also supports ASCII files): Userarch runs on all Unix versions and is available in English, French and German - it is fully integrated with Uniplex, allowing the search for information in up to 78 different Unix folders and sub-folders.

Dansk Data Elektronik AS, maker of the RISC and CISC-based multiprocessor Supermax minicomputer has signed up London-based Telecomet International as an OEM partner.

Interleaf's Technical Publishing Software is now available on Hewlett-Packard's 9000 Series 300 workstations running HP-UX, the TPS range starts with CorePlus which is £2,500.

OCLI Optical Coatings Ltd, Fife, Scotland, has introduced MultiGuard, an anti-glare VDU glass filter which fits all monitors: available in two models, ProfessionalPlus and Vantage are claimed to eliminate 99% of all glare and low-frequency electromagnetic radiation.

Accell/SQL, BBx, Progress 4GL and AcuCobol-85 are now available on Cupertino, California-based Opus Systems' range of Motorola 88000-based Personal Mainframe computers.

Interphase International Inc, Oxford, has introduced three new input/output controllers for Sun Microsystems workstations: a V/4460 IPI Level 2 disk controller which has two IPI ports, each capable of controlling eight IPI-2 disk drives with a total of 20Gb; a V/4401 EDSI disk controller can control up to four EDSI disk drives; and the V/4410 SCSI host bus adaptor can be implemented with two SCSI buses in one slot, and includes Interphase's BUSpacket interface - no prices given.

Fujitsu Ltd has answered DEC's fault tolerant VAX systems launch back in February (UX No 273) by introducing its own duplex version of the A Series minicomputer, which runs the SX/UTS Unix operating system derived from Amdahl's UTS, an SX/UR real-time variant and Fujitsu's proprietary OSIV/S operating system.

MAI Basic Four Inc, Tustin, California reckons that there is now much more value in its software than in its proprietary hardware, and it has ordered \$7.5m of Hewlett-Packard Co HP9000 Model 800 Unix minicomputers. It plans to offer the machines as turnkey systems running its Manbase manufacturing resources planning software, which is also offered on its 80386-based GPX uni- and multiprocessor machines. The new Hewlett systems will start at \$50,000.

And Hewlett-Packard has landed a more substantial one - \$75m - from McDonnell Douglas Systems Integration Co under which the latter will offer Hewlett's HP9000 Motorola- and RISC-based workstations with its Uni-graphics CAD/CAM software for automotive, aerospace and manufacturing work.

IBM is to offer Unify Corp's Accell family of Unix-based application development technologies to users of its AIX Unix families: Accell/SQL enables developers to choose any leading back-end Unix database engine - Oracle, Informix, SCO/Integra, Sybase as well as Unify, and front-end user interface - character-based, Microsoft Windows, Open Look and OSF/Motif. The agreement also covers Accell IDS for Unify and Accell/CP for integrating MS-DOS-to-Unix applications.

IBM Japan claims sales of over 1,000 of its new RS/6000 workstations in the first month since its announcement in February - pretty clever since the things are not available yet so it must mean orders: most of the machines will be going to users of the RT, but it also has orders from financial institutions such as securities and insurance companies; at the announcement, IBM set itself a sales target of 10,000 units for this year, but this was revised downwards due to import problems and the putting back of the initial shipments in the Japanese market to the third quarter.

MIPS Computer Systems Inc has reported first quarter net profits up 306% at \$3.5m on turnover up 57% at \$32.2m. Net per share rose 180% to \$0.14.

Datapoint Corp, San Antonio, Texas has added a 7850 server using two 25MHz 80486 microprocessors and intelligent input-output adaptors and able to take up to four ARCnets. It comes with up to 32Mb of shared memory, 2.4Gb of disk, 2.2Gb tape, and can support up to 64 simultaneous Oracle database users with sub-second response times; \$45,000 buys 16Mb, two CPUs, 300Mb disk, 150Mb tape and support for two networks.

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X/OPEN COMPLIANCE FOR ICL'S VME, MULTI-PROCESSOR SPARCS IN THE PIPELINE

ICL launched two new SX systems at the top-end of its VME-based Series 39 mainframes last week, claimed to be the most powerful general purpose mainframe uniprocessors currently available. Although there are no plans to offer a native-mode Unix operating system on the Series 39, ICL is currently working on an implementation of X/Open Co Ltd's Common Application Environment interface which will be offered on the line next year, enabling compliant applications to be transferred between VME and Unix environments. But mainframes may now account for less than 50% of ICL's total turnover, and elsewhere in ICL's business, the company is actively seeking OEM deals on its new DRS 6000 Sparc-based Unix box - and it reports that the "world's fastest-growing computer company" is about to sign - could be Japanese, but who can tell. The company says it will have multiprocessor versions of the DRS 6000 Unix machine out in the third quarter of this year and that models using a faster version of the Sun Microsystems-designed RISC microprocessor are to be announced in the first quarter of next year.

SPARC INTERNATIONAL HAS SPARC COMPLIANCE DEFINITION 1.0

The Sparc International supporters' club has published the Sparc Compliance Definition 1.0, which provides the guidelines for assuring binary compatibility of applications on Sparc-based Unix systems. Compliance with the 1.0 Definition will facilitate migration of applications to the System V.4 Compliance Definition 2.0 and allow the products to carry the Sparc logo.

SUN TO REVEAL EUROPEAN SOURCE FOR MILITARY SPARC..

In London for a briefing on Scalable Processor Architecture - SPARC - development last week, Bill Keating, Sun Microsystems Inc's director of corporate technology marketing revealed that a second European source for its RISC microprocessor will be announced towards the end of the month. Sun has already signed up NV Philips in the Netherlands to fabricate commercial versions of the part due for delivery next year - the second unnamed manufacturer will be making SPARCs exclusively for the defence industry, based upon military specifications. As far as the competition from IBM with its RS/6000 systems is concerned, Keating revealed that a new super-scalar high-performance version of the Sparcserver currently under development will have the kind of performance that "will make IBM think again". Commenting on the wider implications of the OSF's decision to adopt the NCS-based DEcorum technology for its Distributed Computing Environment, (UX No 280), he said that whilst the OSF's executive committee had "unanimously rejected" NFS, he expects that the rival Unix club will have to offer Sun's RPC to its members in some form, due to the sheer number of NFS users in the Unix community. Furthermore he believes it inevitable that the two dissimilar RPCs will converge over time.

..AS FRENCH DEVELOP SPARC FOR DEFENCE PROJECTS

Also at the briefing, Sun's European business development manager, Thierry Le Roy, announced that French military systems manufacturers Electronique Serge Dassault and Sagem are developing a new generation of real-time embedded systems based on the SPARC, for controlling large defence projects, known as Iliade. They will be using Alsys' range of Ada compiler and development tools that are currently being ported to the SPARC environment following a recently signed agreement between Sun and Alsys. The Alsys compiler and toolset will be commercially available for the SPARC from March 1991. EDS and Sagem are both members of the 15-strong EuroSparc group of European manufacturers that are developing SPARC-based systems. EuroSparc includes five UK manufacturers, three in Italy, others in Germany, the Netherlands and Switzerland. EuroSparc's next meeting is in Eindhoven, Netherlands, in June.

PIXAR TO CONCENTRATE ON SOFTWARE,

OPENS EUROPEAN HQ

Steve Jobs' other company, San Rafael-based Pixar Inc, is so pleased with its RenderMan three dimensional image rendering software that it is not interested in its graphics hardware business any more and has agreed to sell that side of the business to Vicom Systems Inc, Fremont, on undisclosed terms. And the company has set up a European operation in Windsor, Berkshire. Pixar Europe will manage OEM and VAR relationships for its RenderMan picture-making software. Headed up by Leonard Backus, first task of the new division was to announce European availability of Developer's RenderMan, the MS-DOS and Unix-based software development kit based on the RenderMan Interface for three-dimensional scene description - it is priced at \$4,000. MacRenderMan for the Apple Macintosh will cost \$1,250 in Europe.

..AS CONVEX TAKES STARDENT'S VISUALISATION SOFTWARE

Stardent Computer has signed up its rival Convex Computer Corp as the second licensee for its Application Visualisation System software, following a similar deal with DEC back in March (UX No 275). The AVS software, which originated from the Stellar side of the business (UX No 227), will allow Convex to target market areas such as the petroleum, computational chemistry, government and aerospace, and computer-aided engineering application areas. The company hopes the software will help it win business where customers are looking to integrate Convex supercomputers with graphics workstations.

GRUPE BULL TO UNVEIL 68040, RISC MACHINES IN PARIS SPRING

Later this month, Groupe Bull is going to try and steal a march over the rest of the industry when it announces a general purpose mid-range machine based on Motorola's 68040 chip. The box, which is set to debut in Paris on May 29th, is tagged the DPX2360. Reports, which are still a bit hazy as to the precise specs, indicate that it will be a single processor, but that it can be expanded to support up to four processors. A base machine will reportedly offer 16Mb of memory and simultaneous support for up to 256 users. The Spring event will also witness Bull's first foray into RISC architecture, with the unveiling of the DPX2510, a reputed 55 MIPS to 65 MIPS box built around the Mips Computer Systems Mips chip, supporting 32Mb to 416Mb of memory and 512 users. No word on pricing or availability yet.

US USERS REBEL OVER UI/OSF TALKS BREAKDOWN

The disappointing news about the breakdown in talks between the Open Software Foundation and Unix International will not please Unix users, who do not wish to see a slowdown in growth of the Unix-based open systems market. In the US the long-running argument has already prompted a number of large users to club together in an effort to persuade vendors that one standard is enough, according to a report in Unix Today. The vendors - including such names as Du Pont, Exxon, 3M, Kodak, Boeing, General Motors and NASA - first met in Atlanta early February, and at the end of May are planning a further meeting in Houston, Texas, with seventy or so other companies invited to attend. The group - which represents a large proportion of computer equipment sales in the US - could tie up with existing standards organisations such as X/Open and the Corporation of Open Systems, and present vendors with a common set of requirements, which would guard against the tendency for the two groups to diversify technology for differentiation purposes.

THIRD PARTIES PRE-EMPT DEC-APPLE MAC-TO-VAX LINKING SOFTWARE

It has taken Apple Computer Inc and DEC so long to get their interoperability software out the door - and it still won't be out till September - that third parties have stolen a march. Network Resources Corp, San Jose, California has just added software that will enable Macintosh users to edit and exchange files on a VAX or Unix host, without the need for a terminal emulation programme. MultiGate Access comprises four modules, MacEdit, MacFTP, MacTerm and LocalTerm, residing on the host, giving Apple users access to VAX and Unix files from within the native Mac user interface. MacEdit automatically configures files for use with one of 11 popular Macintosh word processors. MacFTP gives a Macintosh interface to the TCP/IP-based File Transfer Protocol conversion, whilst MacTerm and MacLocalTerm provide the conventional terminal emulation sessions with the host. MultiGate Access is priced at \$80, it is also bundled with Network Resources' MultiGate Mac software router, which is \$800. Other similar products are Mak-easy and Macnix for VMS and Unix from the Italian software developer List SpA.

UNIX AT \$100 FOR INTRIGUED PC USERS

US software house, Mark Williams Co, Lake Bluff, Illinois, has developed a chopped-down Unix clone for PC users who are intrigued with Unix and would like to experiment with it - for less than \$100. Dubbed Coherent it comes with five disks and a single manual, works in 640K of memory with 10Mb of disk and is reckoned to take 30 minutes to install. It allows read/write access to DOS files on a shared system, and the multi-tasking, multi-user development system has a 64K kernel, a C compiler with lex and yacc utilities, Unix communications programs and 200 commands. The kernel is source-code compatible with Unix and means that many Unix programs can be compiled and run. As well as single users, Coherent is targeted at schools, network sites needing E-mail gateways to Unix, value-added resellers and PC support groups developing small multi-user applications. Out this month, Coherent costs \$99.95.

VERDIX EXPECTS B2 SECURE LAN BY MID-SUMMER

The first B2 secure rated multilevel local area network is expected to emerge by the end of the summer from Verdix Corp, Chantilly, Virginia. Verdix submitted the system to the National Computer Security Centre in October 1988, which will allow users with different security clearances use the same network, even the same workstations, while preventing access to information with a higher security rating. The system has a plug-in board for each computer on the network, plus a secure local area network interface unit, which allows secure communication on Ethernet networks connecting different types of computers. Boards include an Intel 80286 and 512K of on-board memory, and are available for a range of Unix and proprietary systems. The boards start at \$2,500, the interface unit costs \$15,000, but the network eliminates the need for separate networks to carry different types of data. It works by defining security windows, access to which is controlled by a series of data access rules. The rules define what information users can send or receive through a window. The system also provides end-to-end encryption for all data moving on the network, including user data, control data, security markings and initialising messages sent between nodes and the secure interface unit. Verdix already has deals with Harris Corp, Sun Microsystems and Apple, and expects to sign up other interested parties in the near future. Verdix also sells a modified PC-compatible network security centre that monitors network activity.

SKY HAS INTEL RISC BOARD TO BOOST WORKSTATION PERFORMANCE

Sky Computers Inc, Chelmsford, Massachusetts, has announced SKYbolt, a co-processor board for VME-based workstations using Intel's i860 and i960 RISC processors with enhanced MetaWare compilers, providing up to 40 MIPS and 80 MFLOPS of performance. It includes a vectorising module which, as in supercomputer compilers, automatically produces vectorised code for maximum performance. The i860 is used exclusively for accelerating applications, whilst the i960 acts as a direct memory access engine and handles all input/output functions. The SKYbolt has a data transfer rate of 54Mb per-second and is available in the third quarter. Prices range from \$12,450 for a version with 500Kb of SRAM to about \$20,000 for a version with 16Mb of DRAM. Sky is also planning a Turbochannel bus-compatible version of the board that will have as much as 64Mb memory for the first quarter of next year. In the UK, SKYbolt will be distributed by MicroSystem Services Ltd, High Wycombe, Buckinghamshire.

HEWLETT CONNECTS WITH ICL MAINFRAMES

Hewlett-Packard has introduced a new ICL communications product known as Sonnet, developed by Hytec Information Systems. It allows Hewlett's HP 9000 Series 800 Unix systems and its Series 300 workstations to link up to ICL mainframes using ICL's open system local area network, OSLAN. Sonnet offers virtual terminal emulation, file transfer, and application programming interface for network communications across OSLAN, CO3 and X.25 communications protocols. Prices go from £2,500 to £6,000.

SUN PROFITS UP**DESPITE INCREASED COMPETITION**

Commenting on its third quarter figures, Sun Microsystems Inc highlights the fact that it achieved the 18% increase profits on 27% rise in turnover in its fiscal third quarter at a time when "the industry has never been more competitive", and that the gross profit margin was the company's highest in 18 months. Almost 95% of the business came from products 12 months or less old - with 85% from Sparc-based products against just 25% a year ago, and that as a result, manufacturing efficiency has improved dramatically - and it has at last got its new management information systems working properly. As with Compaq Computer, foreign business is fuelling the growth, accounting for more than half - 53% - of the total, with US sales down slightly in the quarter - but US orders were above the second quarter and year-ago levels. Europe alone accounted for 31% of the total and Sun looks to start deliveries from its new plant up in Scotland during the current quarter. The company has shipped more than 50,000 Sparcstation 1s, 8,000 Open Look developer's kits, and it looks for 300 Open Look applications going up by June. It is also particularly pleased with its results because they were achieved despite a big change in the exchange rate for the Japanese yen late in the term. Net profits were \$36.7m on a turnover of \$632.2m; net profit for the nine months fell 23.5% to \$62.1m on turnover that rose 32.4% at \$1,766.1m. Net per share, up 5% to \$0.40 in the quarter, fell 30% to \$0.70 in the nine months.

**DEC, APPLE FINALLY ANNOUNCE
THEIR MAC-VAX SOFTWARE**

First fruits of an agreement between Digital Equipment Corp and Apple Computer Inc which we originally revealed back in January 1988, (UX No 161), are due to come to market this autumn, with the release of DEC LanWorks for Macintosh. The client-server software is built upon networking protocols which integrate AppleTalk with the DECnet networking environment, and bring the Apple Macintosh into DEC's Network Application Support - NAS - distributed computing environment, which already supports Ultrix, MS-DOS and OS/2. The main impetus of the project to develop interfaces between the Macintosh and DEC's VAX computers is the fact that up to 40% of VAX sites include Macintosh users - a relationship which has remained fairly constant over the last couple of years (the figure was 36% when the agreement was originally announced). With DEC LanWorks, Macintosh systems will essentially use VAX systems as servers. LanWorks comprises VMS server software, Macintosh client applications and networking technology, enabling Macintosh users to share printers and other networked resources, exchange files and electronic mail, and access common applications and databases with Unix, MS-DOS, OS/2 and VMS users over local and wide area networks. The software also supports MacX, Apple's X Window server implementation, enabling MacX users to access DECwindows applications, including the ones that run under the Open Software Foundation's Motif graphical user interface. Mail facilities included in LanWorks are PCmail and All-In-1-Mail for Macintosh, and also announced is DEC's SQL/Services for Macintosh, enabling Mac applications to access DEC's Rdb and IBM's DB2 databases. The software also includes a Digital Document Interchange Format converter for MacWrite with PICT, which enables Mac users to exchange compound documents with other NAS environment users. DEC LanWorks costs £290 per Macintosh, documentation is £375 per site. According to the firms, DEC LanWorks is only the first in a range of Mac-to-VAX services being developed under the agreement - they hope that third party software developers will soon begin converting applications to run across it.

**MICROSOFT HAS KIT TO
CONVERT WINDOWS CODE FOR OS/2**

In a move that should lift a little the flagging prospects for the OS/2 operating system, Microsoft Corp has introduced a Windows to OS/2 Software Migration Kit for converting Windows applications quickly and easily to OS/2 Presentation Manager. The new kit provides a layer of code that makes converted Windows applications look, feel and work like OS/2 Presentation Manager applications and enables the applications to use OS/2 features. The company also promises to add the technology in the Software Migration Kit to the next version of OS/2 to enable off-the-shelf Windows applications to run under OS/2 Presentation Manager. The kit provides a run-time translation layer that maps Windows application programming interfaces into OS/2 interfaces: it consists of a set of dynamic link libraries which the developer links into the Windows application, which then appears and works like a Presentation Manager application - but 5% to 10% slower than native Presentation Manager ones; if developers want to take advantage of other OS/2 features they must add OS/2-specific interfaces such as long filenames, extended attributes and multiple-execution threads to their Windows source code. No prices were given.

**FUJITSU TO SHIP AMDAHL UTS UNIX
ON SUPERS THIS AUTUMN**

Fujitsu Ltd is ready to start shipments of Amdahl Corp's UTS version of Unix System V.4 for its VP-2000 supercomputers this autumn: it said it would be putting the thing on the machines three years ago (UX No 137). UTS is already on the M-series mainframes and Fujitsu is embracing Unix in its System Integration Architecture answer to IBM SAA.

**IBM TO TAKE UP TO 49.9%
OF VALID LOGIC SYSTEMS OVER TIME**

Chip design software specialist Valid Logic Systems Inc, San Jose, which plunged into losses on falling sales in the first quarter of 1990, is being given a helping hand by IBM Corp, which is to make an initial investment of \$11.2m in the company by buying convertible preference shares at a 40% premium to the market price. This will give it a stake of between 5% and 8.3% in the company, which had sales of \$174m last year. IBM will also pay \$1.2m for warrants for another 4.75m shares, exercisable at \$11 a share. And if it needs it, Valid will be able to tap IBM for more money over the next five years: IBM has agreed to a deal under which Valid can require it to put up as much as \$90m in four yearly installments starting next year - but will not require IBM to take a stake greater than 49.99%. The amount and price of each capital call will depend on Valid's performance in marketing its Electronic Design Automation software on IBM workstations. The software currently runs on PS/2s and RTs and is to go onto the new RS/6000.

ROUNDUP

Encore Computer Corp has reported first quarter net profits of \$282,000 against a loss last time of \$8.4m, on turnover up 1.7% at \$59.6m. Net earnings per share were \$0.01; comparisons are with 1989 figures restated to include those of Gould Computer.

Sequoia Systems Inc has reported third quarter net profits of \$1.3m against a net loss last time of \$517,000, on turnover up 133.3% at \$13.4m; nine-month net profit was \$2.3m, up from a profit last time of \$218,000, on turnover that rose 51.1% at \$31.4m. Net per share was \$0.17 in the quarter, and at \$0.34 up from \$0.04 in the nine months. Sequoia reports that it has sold its 100th computer system - to CSC Comtec, an Ultimate Corp reseller.

ShareBase Corp, the Los Gatos, California in process of being acquired by **Teradata Corp** claims that its ShareBase III is the first SQL relational database management system to be validated as 100% ANSI compliant by the US National Institute of Standards & Technology, including passing the optional integrity constraints test suite: the tests were conducted with Sharebase software running on the company's Server/8000 supporting a Sun Microsystems Sun 3/50 workstation.

Novell Inc, Provo, Utah has taken a stake of a little under 20% in **Gupta Technologies Inc**, Menlo Park, California developer of SQL gateway, database server and database front-end technologies. Novell paid an undisclosed sum in cash and becomes the largest outside holder.

A version of the famous **Peter Norton Computing Inc** utilities has been introduced by **Interactive Systems Corp**, Santa Monica. Norton Utilities for System V runs on 80386- and 80486-based machines, and is \$300.

True database networks are still practically impossible due to the numerous varieties of the Structured Query Language that exist, with the result that most large companies have a series of disparate database management systems each containing a large amount of redundant data, but **Computerwoche** reports that this could change with the formation of an industrial committee known as SQL Access Group Inc, which has taken it on itself to come up with either a standard for SQL before the end of the year, or gateways to link up products of the various database manufacturers.

As part of its Co-operative Computing Environment, **NCR Corp** has added support for Token Ring and Ethernet TCP/IP in the proprietary ITX operating system, so that users can operate their systems with NCR Tower Unix machines, personal computers, top-end NCR 9800 main-frame systems and non-NCR systems in an enterprise-wide network: ITX runs on NCR's System 10000 small main-frame line, to which it added a top-end Model 85 last week.

AT&T Co has now picked up East Rochester, New York-based **Moscom Corp's** Unix call accounting software products for small businesses for marketing as part of AT&T's General Business Systems' Integrated Solution II which also includes speech processing software and System 25 PABX administration, all of which run on AT&T's 6386 Intel WGS Computer with the System 25; it comes in model sizes capable of supporting 120 and 250 telephone extensions at \$2,100 and \$4,100.

AT&T Computer Systems has added an entry-level desktop workstation for use on local area networks or as a stand-alone personal computer: the 6286/EL WorkGroup System comes in diskless or one floppy configurations or can be fitted with a 40Mb hard disk drive: based on a 12.5MHz 80286 it costs \$1,500 to \$2,500.

Andersen Consulting has announced that work is underway to port its Foundation full life cycle application development environment to run under Unix.

Tektronix Inc announced a management re-shuffle last week, appointing Richard Hill as vice president and general manager of the company's Oscilloscope Group which, is being formed from part of the existing Test and Measurement Group, Stephen Kerman to vice president and director of worldwide marketing and sales, and Pat Kunkle as vice president for human resources. Tektronix is also reported to be looking outside the company for the first time for a new president and chief executive to replace David Friedly, who was recently replaced by two board members in a shakeup.

Legent Corp, the MVS software company that resulted from the merger of **Duquesne Systems Inc** and **Morino Associates Inc**, is working on a major Unix research and development project, according to UK general manager Ian Cartwright, who believes that it would be unwise to confine development to IBM's AIX.

The **Object Management Group** is looking for DEC to announce that it has joined the group next month.

No sign of **IBM** joining the **Object Management Group** - but that doesn't mean that the company is not interested - it has object management coming out of its ears with no fewer than six groups - including the RS/6000 group, the AS/400 group, the Systems Application Architecture team, the Entry Level Systems group and IBM Europe - working away on it and squabbling among themselves about what exactly object oriented programming means - word is that they are observing Object Management Group meetings closely to try to reach an internal decision on what it all does mean.

Scoop-Europe is the latest in a series of conferences on object-oriented programming, taking its name from previous events held in California and Massachusetts: the three day event, to be held at London's Imperial College between 16-18th July, will include contributions from the likes of Dr Adele Goldberg, one of the creators of SmallTalk, and Stan Lippman and Robert Murray from AT&T's Bell Labs C++ development team.

CANADIAN SOFTWARE COMPANY COGNOS INC LETS COGNOS LTD TAKE THE LEAD FOR THE NINETIES

Cognos Inc, the Canadian software tools company based in Ottawa has a computer-aided software engineering product called PowerCase up its sleeve, to be launched this month, which, if it can crack Oracle's hold on the mindshare of mid-range users, looks a strong contender in this market and may return Cognos to its former growth pattern. However, Cognos, like so many technically strong companies in the computer industry has among other worries, a profile problem. It is currently about the same size as Ingres and Informix and yet is far less known.

It entered the software products market in 1979 with a report writer for the Hewlett-Packard 3000 minicomputer which metamorphosed into the Cognos PowerHouse fourth generation language. The company has since grown from a \$3m (Canadian) concern then to the equivalent of a \$96m company in 1990. In fact the group as a whole appears to be going through a sticky patch at present, reporting nine month net losses of \$15.6m in January. The problems seem to stem from the application of North American sales models throughout the world and from the late delivery of products. Some parts of the group are prospering, however, and one of these is the UK operation which has grown at 48% during the current year. Indeed recognition of Cognos Ltd's success has come with the appointment of its managing director Mike Hensman as group vice-president at the end of this financial year. Similarly, the Bracknell-based operation is heading the research and development of the group's computer-aided software engineering product and the push into the Unix market. The group has also responded to its declining fortunes by implementing field marketing control in its different regions. Before these problems, which only became visible over the past year, Cognos was doing very nicely. Indeed, UK technology director Mike Baggott believes that two factors were crucial in establishing Cognos's success, differentiating it from also-ran fourth generation language companies: firstly it has always operated on the principle that users do not want to be locked into a database any more than they want to be locked into an operating system, so in the mid-range PowerHouse will integrate with a variety of databases and, secondly, it has always operated by striking alliances with hardware vendors such as Hewlett-Packard, DEC and Data General, working with them to run PowerHouse on their proprietary hardware. Of course some cynics might argue that such a philosophy is politic if you haven't got a database of your own to sell. Nevertheless, Cognos has done well so far by supporting bundled databases such as DEC's RMS and Rdb and Hewlett-Packard's Turbo Language. However, a year ago Cognos licensed Interbase's database (UX No 211), which it sells as Star-Base, in a move to branch into "open systems". Indeed, Cognos products now also run under HP/UX and Data General's DG/UX for AViiON, and the company is committed to supporting "notable" third party databases. To this end a version of PowerHouse is currently in field test to support Oracle.

InQuizitive

For a company hither-to so committed to the bastions of proprietary hardware vendors it is surprising that Cognos has no IBM product as yet. This is possibly because Cognos has a history of working with hardware vendors and IBM has only recently come to a relationship with Cognos. However, now the two companies have got together and PowerHouse will be available on AS/400s in the summer. It seems likely that Cognos products will soon also run under DEC's Ultrix and IBM's AIX operating systems although in both cases the timing depends on the whims of the hardware giants. Cognos has not rested on its success with PowerHouse and, aside from the development of the soon-to-be-unveiled PowerCase, it branched into end-user technology by launching two information analysis tools in January.

One called InQuizitive runs on terminals and addresses warehouse information needs, the other called PowerPlay caters for middle management (whose companies will not shell out thousands of pounds to provide them with an executive information system) and runs under Microsoft's Windows. They both work off whatever the business's core management information system is and PowerPlay could be hooked into something like All-in-1 or OfficeVision to offer a full-blown executive information system accessing external information. In the UK these two products between them have generated just under £1m in sales in the last financial quarter helping to fuel Cognos Ltd's growth. If Cognos's undoubted technical expertise continues unabated then it has only its sales strategy to blame if it doesn't bloom this decade.

Unix in the UK

P&P PLUNGES INTO UNIX WITH PERRIN ACQUISITION

Hungry P&P Plc last week announced plans to take its first step up into the Unix market with the acquisition of Perrin Systems Ltd, which distributes Hewlett-Packard Co work stations, its Unix minicomputers, and Informix products for Hewlett-Packard machines. P&P has agreed to pay £3.5m, to be satisfied by the issue of 1.555m new shares, 1.467m of which are being placed at 215 pence a time. P&P will pay up to £1m more provided Perrin turns in gross profit of at least £1.485m in the first year after acquisition. The acquisition is to change its name to P&P Power Systems Ltd and will become the core of P&P's onslaught onto the Unix market. The company did £739,000 pre-tax on sales of £6.3m in the year to August 31 last and its growth rate can be gauged from unaudited figures suggesting that it did £423,000 pre-tax on £4.8m in the seven months to March 31 - and its second half is traditionally the stronger of the two periods. Net assets are warranted at not less than 551,000 and the firm employs 26.

DEC, MOTOROLA APPLAUD HAWKE MANAGEMENT BUYOUT

Computer services and equipment distributor Hawke Systems announced its management buyout from parent company Lex Electronics last week. Hawke saw sales slump 14% to around £11m last year; profits were wiped out, according to Managing Director Peter White, by the expense involved in trying to expand from being a franchised distributor and value added reseller for Motorola and DEC: the fruits of these efforts - most likely a franchise for the distribution of workstations - are expected to be announced within two months. DEC's Nigel Carruthers endorsed the buyout by saying that it would leave Hawke more room to react to DEC's new marketing strategy, possibly in the role of a value added wholesaler, selling DEC kit with hardware and software add-ons to value added resellers. Motorola Computer Systems' Rob Jefferson argued that in a "people-related" sector such as computer services and distribution, the view now was that "small is beautiful". Poyle, Slough-based Hawke Computer Systems, in whom venture capitalist 3i Plc has an equity holding of some 30%, will be chaired on a part-time basis by Dr Peter Harrop, formerly of Plessey Plc and now chairman and chief executive of Brighton, East Sussex-based Computer Security Ltd. Harrop said he was approached by Peter White when it became obvious that the buy-out was going to succeed, and decided to become involved because "nowadays small firms need all the help they can get."

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Sun Microsystems has scheduled May 15th for its next Sparc announcement, where it will add to both the client and server sides of its network computing strategy: one of the announcement is expected to be a bottom-end diskless workstation.

But the next boost of the Sparc architecture itself, in the shape of the Sparcstation 2, is not expected to be revealed until August.

SCO Europe expects to see a 300% increase in turnover during the next two years: after three years of operation the division, which is responsible for the UK, Europe, Africa and the Middle East now has a staff of over 200. 1989 revenue was \$24m, representing 30% of SCO's total worldwide revenue. The Unix software outfit has appointed Bernard Hulme to be director of marketing, Geoff Saebrook as international vice president and sales director of SCO Europe, and Nigel Harding as director of human resources.

Following its Pick pact with X-Soft, Mitsubishi Electric has signed up with Interactive Systems Corp to distribute Interactive Unix products throughout Europe.

Ingres Ltd has signed a marketing agreement with Acuity Management Systems Ltd, which used Ingres SQL links in the development of its Executive Information System for Unix and VMS.

DEC Europe and Honeywell Europe SA have signed a Cooperative Marketing Program agreement to provide integrated solutions for manufacturing industry throughout Europe using Honeywell's CM50S interface application to link its TDC 3000 process control system to DEC VAXes and DECnet/OSI networks.

Miami, Florida-based Equinox Systems Inc's Megaport multi-user input/output boards have been incorporated into Opus Systems' 8000 series of Motorola 88000-based Personal Mainframe Unix systems: configured with four of the boards they can support up to 96 users.

And Force Computers, Campbell, California is the latest addition to the 88000 supporters club 88open Consortium Ltd.

Hewlett-Packard is ready to add two mid-range systems to its product line: these are the HP 9000 Model 822 and the proprietary MPE-based 3000 Series 920.

Don Phillips, workstation marketing manager for Hewlett-Packard, is not particularly impressed by the performance of IBM's RS/6000 box, and in an interview with HP Chronicle claims that the Apollo DN1000 with its multi-processor capability can generate up to 88 MIPS: "within three months our DN10000 will produce 44 MIPS, and multi-processing will quadruple that speed", he said.

Sequent Computer Systems has also been boasting about future performance leaps in its latest company report: "we expect to begin revenue shipments of our first 486-based multi-processor around the beginning of 1991 - a fully loaded, 486-based S81 should be capable of processing more than 350 transactions per second".

Locus Computing Corp has an agreement with AT&T for the inclusion of the Locus PC-Interface server source code within the latest release of Unix System V.4 for Intel processors: it will allow users to connect DOS-based PCs to Unix host systems either directly or as part of a local area network.

IBM has set up a joint marketing agreement with Unify Corp under which it will market the Accell 4GL system to AIX customers: the deal covers Accell/SQL, the Accell IDS design system and Accell/CP co-operative processing option.

The first members of the new system vendor council of X/Open (UX No 280) are Arix Corp, Pyramid Technology, Sequent Computer Systems, Omron Corp and Sony Corp.

Texas Instruments has released version 2.0 of its Speech System V Toolkit for Intel 386-based computers running SCO's Xenix and Unix operating systems: it includes an interface to the TI 1500 computer allowing developers to write their speech applications on the 1500 and implement them on its 386-based systems - out in June, a development package is \$2,000, the run-time version is \$1,000.

Borland International Inc is set to announce its Turbo C++ compiler any time now, but unlike rivals Microsoft, will keep it as a separate product rather than offer it as an upgrade to Turbo C 3.0.

For what it's worth, gossip doing the rounds in the US has Apple Computer Inc at the receiving end of a friendly takeover bid from a US multinational giant - with General Electric Co the name in the frame; any such move would likely trigger a hostile counter-offer.

Xerox 4030 laser printer users now have a wider range of fonts available following the launch of Rank Xerox's Adobe PostScript emulation cartridge, which adds 35 fonts to the 11 already available on the 4030 - its out at the end of the month.

Xylogics International Ltd has released Version 5.0 of its Annex range of terminal servers, which include SNMP support, macro commands, menus and Telnet and enhanced security.

ALL CHANGE

As you may already know the London STD dialling code changes from May 6th. All Unigram.X telephone and fax numbers will now be prefixed by 071.

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OSF SOLIDIFIES PLANS TO PURGE AT&T CODE

The Open Software Foundation is working to produce an AT&T-free version of its operating system by December 1992, according to OSF Vice President of research and advanced development Ira Goldstein. Goldstein told Unigram X that he will unveil the "roadmap" leading to the production of an OSF/2 operating system requiring no royalty payment from AT&T at this week's OSF members meeting in Boston, where the distributed computing environment decision is also expected to be officially revealed. Goldstein indicated that OSF's effort depends heavily on the work being done at Carnegie-Mellon University to write an AT&T-free Mach kernel. OSF is collaborating with the school, and intends to take the "pure research and development" done there and commercialise it. OSF is not the only organisation bent on producing a Unix-like operating system owing nothing to AT&T. The nearby Free Software Foundation, also in Cambridge, Massachusetts, has been working for years on its Unix-like GNU (meaning "Gnu's not Unix" if that makes things any clearer). GNU is also hoping to use the Carnegie kernel, which is now running in alpha test with the AT&T originated BSD code separated from the Mach kernel. The Free Software Foundation, whose declared charter is "to eliminate restrictions on copying, redistribution, understanding and modification of computer programs", has received \$25,000 in donations from OSF, and OSF uses the GNU C Compiler as part of OSF/1. Observers, reflecting that the real Unix operating system must be protected by trade secrets and patent laws as well as by copyright and intellectual property legislation, wonder whether any of these attempts to reverse engineer Unix can be legally successful. On the other hand, AT&T is not a litigious company, and has not challenged other re-writes from the likes of Whitesmiths, Mark Williams, Charles River Data Systems and Lynx. This factor leads the industry's amateur lawyers to question whether AT&T can legally press its ownership rights, or whether under the legal notion of Estoppel it has already forfeited some of its claims by tolerating some clones.

AT&T LAUNCHES AT&T ISTEL COMPUTER SYSTEMS FOR UK..

AT&T Co formally announced its direct entry into the UK computer market last week with the creation of AT&T Istel Computer Systems Ltd to market its Unix systems, workstations and servers. AT&T bought Istel for \$180m in September last year. It has retained Intel to offer third party maintenance, starting life with 15 employees and will sell direct and through the entire gamut of indirect channels. British Olivetti will be free to continue marketing the 3B line and future AT&T products if it so chooses. The MIPS-based 7000s, the 3B2 and the various 80386 systems will be offered here, and a new Intel (80486?)-based server is promised for next month.

..CONFIRMS IT HAS DROPPED SPARC, AND PLANS UNIX EQUITY SALE THIS YEAR

At the launch AT&T also confirmed that the Sun Sparc RISC no longer figures in its plans. Gordon Bridge, AT&T computer systems president responsible for network computing said that the Sparc "is not something that is strategically important to us". Also at the event, Robert Kavner, chief of AT&T's Data Systems Group said that despite the rift between Unix International and the Open Software Foundation, AT&T will press ahead with plans to sell equity in the Unix Software Operation to other companies this year, and envisages a flotation in two years - and he said he would be happy for IBM and DEC to take stakes "with integrity", though at present the interested parties are in "disarmament-type negotiations".

TOSHIBA LAUNCHES SPARC LAP-DENTER

Toshiba Corp has duly unveiled its long-promised Sparc-based Unix laptop as the Sparc LT or AS1000/L10, positioning it as an engineering workstation rather than a personal computer. Weighing in at a lapdentering 17 lbs 11 oz, the mains-powered box comes with 8Mb of main memory using 16 Toshiba 4M-bit memory chips, 64Kb cache, 180Mb disk, active-matrix monochrome LCD display putting up 1,152 by 900 pixels, and a 3.5" floppy. Rated at 13.2 MIPS, it costs \$13,200 in Japan. The machine runs SunOS Unix and features the Sun Microsystems SBus, making it fully compatible with all SPARC applications according to Toshiba, which sees it being used for CAD/CAM, desktop publishing systems and software engineering. First shipments will be in July, but Toshiba US said that no decision had yet been made on selling the machines outside of the Japanese marketplace.

SANTA CRUZ TO BUY CANADA'S HCR CORP

The Santa Cruz Operation Inc of Santa Cruz, California is expanding with the acquisition of Toronto-based HCR Corp, the former Human Computing Resources, which will be renamed SCO Canada Inc, operating as an independent subsidiary. The takeover, financial terms of which were not disclosed, will be effected via a share exchange that will dilute Microsoft Corp's "under 20%" shareholding in the privately-held Santa Cruz. Founded in 1976, HCR Corp does Unix implementations and offers custom and packaged software in the areas of Unix development tools, operating systems and networks.

EUROPEAN COMMISSION SETS OPEN SYSTEMS CONTRACT IN MOTION FOR 1990s

Already a well-known supporter of open systems, the Commission for the European Community is planning to purchase servers, workstations, portables, X-terminals and software under a contract that will be worth up to \$10m a year through the 1990s, according to Walter De Backer, director of informatics at the Commission. Whilst the Commission plumped for the OSF/Motif graphical user interface some time ago, the operating system and distributed computing environment will not be decided upon until the evaluation stage. Plans were published in a report called "Guidelines for an Informatics Architecture" last week. The Informatics Directorate, which has offices in Brussels and Luxembourg, plans to have 16,000 users on 15,000 workstations by 1995. The Commission currently has an eclectic mix of hardware from NCR Corp, Ing C Olivetti & Co, Bull SA, Sun Microsystems and ICL. Apart from these, IBM and Hewlett-Packard are also expected to bid.

INFORMIX SHIPS WINGZ FOR SUN AND NeXT PLATFORMS

Informix Software Inc last week began shipping its Wingz spreadsheet for all Sun Microsystems workstations running under the Open Look graphical user interface, and for Steve Job's NeXT computer. Wingz comes with 3-D graphics, and the HyperScript graphical application development environment. Wingz for Sun version 1.0 is \$700 for a single user licence, additional licences for one and four users are \$500 and \$1,500 respectively. And at the same time Informix has also begun shipping Wingz for the NeXT box - it is file compatible with Wingz on the Macintosh. Available through Businessland, it is priced at \$700. The Menlo Park, California company says an international English-language version of Wingz for NeXT is near completion, and that the spreadsheet will run on MS-DOS under Windows 3.0 and on OS/2 under Presentation Manager by the end of June.

EQUINOX SUPPORTS RISC SYSTEMS WITH MEGAPORT I/O BOARDS

The Megaport series of multi-user serial input/output boards from Florida-based Equinox Systems Inc are now available for users of MIPS M/120 and RC3240 RISC systems, it was announced at Unix Expo West. The deal comes out of joint development work with the Canadian MIPS reseller the Sobeco Group of Montreal, which wrote the device driver software and will be selling on the systems. The 24-port boards obviate the need for more expensive Ethernet terminal servers, and allow the MIPS systems to support up to 96 interactive terminals, according to Equinox. And the company has also finished work on the integration of the Megaport boards into Motorola 88000-based Personal Mainframe 8000 systems from Opus Systems Inc. Both systems use the PC/AT bus necessary to support the board. Also at the show, the company introduced new software for the boards, adding support for two "hot-key" sessions on each terminal, and also allowing up to eight Megaport boards to share the same 128kb space in main memory. Equinox, now an \$11m corporation employing 70 people, claims it is the only vendor of "super smart" serial I/O boards, pointing out that it has implemented a custom chipset it calls the Intelligent Communications Processor, which replaces the ageing UART (Universal Asynchronous Receiver and Transmitter) chips and low power Zilog or Intel controller chips found on competitive boards. In this way, Megaport boards can handle large blocks of data in hardware, minimising the load on the CPU. In price/performance terms, this can mean four to six times the performance and 50% more ports for the same price, according to Equinox figures - though it's worth noting that benchmarking multi-port boards is a particularly controversial issue, and the Equinox figures are hotly disputed by its competitors. Up to eight boards can be installed in a PC to support up to 192 ports. Software drivers are available for SCO Xenix and Unix/386, Interactive, Everex, Dell and other Unix versions.

MKS EXPANDS THE ROLE OF ITS UNIX DOS UTILITY LIBRARY

Another company working on non-AT&T sourced "Unix" code - see page 3 - is Mortice Kern Systems, based in Waterloo, Ontario in Canada. MKS has been a long term supplier of Unix-like utilities to run on PCs and compatibles, mostly aimed at Unix users frustrated at having to return to the limited world of DOS when using PCs at home or in the office. MKS recently launched version 3.1 of its Toolkit with improved documentation, and including such utilities as the VI text editor and AWK, LEX and YACC programming languages, as well as 150 or so others. There is also a new revision of the RSC Revision Control System, MKS Make, an implementation of the Kornshell, SoftQuad document formatting and OSF/2 implementations of the software. But MKS is gradually finding new business in different directions. One area is Unix training. As the toolkit becomes more closely allied with the real thing, companies are finding the software is useful as a training aid for users available on a low-cost platform. More interesting perhaps, is the company's licensing deals with vendors such as DEC, Informix Corp. DEC has chosen the MKS version of Awk to include within Ultrix, as part of its move to comply with the IEEE Posix 2 standard for operating systems and utilities. MKS has implemented the 1987 "new Awk" version required by Posix 2, rather than the original 1970s version that comes with Ultrix. And Informix Corp has licensed MKS YACC - which stands for yet another compiler compiler - to produce part of its Informix-4GL fourth generation language. The move involves porting MKS YACC to Sun workstations, the primary development environment for the Informix product. MKS admits to talking with the Open Software Foundation, but says no deal has been struck so far.

DOLPHIN SCIENTIFIC USES AT&T'S DSP32C CHIP TO CREATE THE DESKTOP "SUPERCOMPUTER"

Dolphin Scientific Inc, Long Beach, California has harnessed the AT&T's DSP32C signal processor chip to create the DSP450 Desktop Signal Processor, a multi-purpose "supercomputer" delivering 450 MFLOPS when hosted by an Apple Macintosh II or AT-alike as host. The DSP450 packs in 18 DSP32C chips, each on its own 1.0 Gbps bus so that the thing can sustain a total system throughput rate of 1.6 G-bytes per second. It is pitched at a wide range of applications such as input-output-intensive robotics, control and monitoring and speech and other sound processing and compute-intensive applications such as meteorology, biochemical analysis and scientific simulation. It costs \$60,000 and includes a complete development package with AT&T C for coding or transferring existing code and a library of maths, matrix, filter and Fast Fourier Transform functions to reduce development time. The Dolphin DsiView package, included, contains a library of subroutines that enable viewing and processing of external signals through the input-output ports. It also contains a window interface that enables users to down-load programs, run applications and retrieve results from specific DSP32C processors. The DSP450 is one of 16 Dolphin Scientific signal processors that use the AT&T chip. A five-slot enclosure enables configurations with up to 40 analogue channels, four 32-bit digital ports, four serial ports and four RS-232 ports. Future interfaces will include Macintosh SE/30, Sun-3, Sun-4, Sun Sparcstation, IBM PS/2 and DEC Q-Bus. Prices for the DSP450 start at \$12,500 for the DSP25 with one DSP32C processor and 10 analogue channels.

FOUNDATION DETAILS SCHEDULE FOR OSF/1 RELEASE

The Open Software Foundation claims that its development of OSF/1, due out in November, is on track. Ira Goldstein, OSF's vice president of research and advanced development, told Unigram X last week that the effort, believed by many to be significantly behind schedule, would produce its third snapshot this month. "There are no red flags now", he said. According to Goldstein, the operating systems will be "functionally frozen" in July. The last snapshot, effectively the OSF/1 beta version, will be delivered in September. Some OSF members, however, are already in the process of porting code, as it is developed, over to their machines.

USO "CHANGES NAME TO UNIX LABS"

The Unix Software Operation has apparently changed its name to the Unix Software Laboratories, according to sources at Unix International. USO - or USL - apparently uses the new name on its presentation slides. Although unconfirmed, the move could be in preparation for the proposed spin-off of the organisation from AT&T's Computer Systems Division, see front page, and also ties in the organisation more closely with AT&T's renowned Bell Labs, the original source of Unix.

HEWLETT ADDS HP9000 822S RISC-BASED UNIX MACHINE

Hewlett-Packard Co has again fleshed out its HP9000 RISC-based Unix family at the lower end with the launch of the Model 822S, aimed at distributed client-server office and lab environments. US list price is \$27,900, and it is to ship in June. It comes with up to four disk drives and a digital-audio-tape cassette drive storing up to 1.3Gb, in a desk-side unit. The 13th Hewlett RISC machine to run HP-UX Unix, the processor board can be swapped on-site to upgrade the thing to a Model 832S, doubling the performance. The company also said it cut the entry HP9000 Model 808S by 19% to \$18,000 and of the Model 815S 34% to \$19,500.

ASHTON-TATE SHOWS PRE-RELEASE SUN AND VAX dBASE VERSIONS

Ashton-Tate was showing its version of dBASE IV for Sun workstations on the stand at Unix Expo West in Los Angeles last week, along with a version of the MultiMate word processor running under Unix by courtesy of the XDOS translation program from Hunter Systems Inc. And at DECUS in New Orleans, the company revealed a beta test version of dBASE IV for VAX VMS Systems. dBASE IV for Sun is not out yet, despite the fact that Ashton-Tate claims to have dBASE running on at least five Unix platforms in-house - one of them thought to be for DEC's Ultrix system, and another for SCO Unix. It appears the new release must wait for the launch of dBASE IV.1 before it appears, an event expected during the next month. Currently character-based, Ashton-Tate is working on a graphics version of the product, but senior product manager Ken Rhie would not commit to a timescale. The product will support Sybase and other databases in future releases, he said. Ashton-Tate was also emphasising the role of Interbase Software Corp in its future dBASE plans - it became the majority shareholder at Interbase in April 1989. Interbase is likely to play a key role in future dBASE releases for the Unix and minicomputer marketplace. Other likely Unix platforms for dBASE IV are thought to be HP/Apollo workstations and NCR hardware.

CONCURRENT UNVEILS

FAULT-TOLERANT REAL-TIME SERVERS

Concurrent Computer Corp is doing a splendid job of disguising the origins of its new line of fault-tolerant real-time Unix servers. Announced from the old Masscomp facilities in Westford, Massachusetts, the AP/Servers comprise the complex instruction set AP/600 series for input-output-intensive work, which is the Motorola 68030-based 6000 system; the AP/800 series compute-intensive RISC system, built around the Mips Computer R3000 chip on boards supplied by Silicon Graphics; and the AP/320 series communications, terminal interface and database server from Concurrent's proprietary 3200 family based on the MicroThree and MicroFive processors. The range has the RPC (Remote Procedure Call) tools from Netwise of Boulder, Colorado, bundled with the operating system as well as additional software from Concurrent. Dubbed Fault-Tolerant Network Computing, Concurrent claims the software controls all aspects of the network transparently, including network and server failures, where client requests are automatically re-routed, and it also allows users to select the level of fault-tolerance they require. In addition Concurrent's NetHarmony Computing Environment allows a range of systems and networks to access FTNC, provided that they run the RPC. Both the AP/600 and 800 series run under the company's RTU real-time Unix, and all three support mirrored disks. The databases supported include Ingres, the company's own Reliance Plus, Oracle, Informix and Unify. All models support TCP/IP, Network File System, Ethernet, DECnet, X25, Systems Network Architecture and Open Systems Interconnection - Netware and Token Ring will be announced within the next twelve months. Prices range from £35,000 to £250,000 and the AP/600 is available now. The AP/800 is due in August and the AP/320 in December. US prices go from \$48,000 to \$320,000.

STRATUS MAKES UNIX BREAKTHROUGH WITH MAJOR LONG-TERM ERICSSON DEAL

Stratus Computer Inc's move to do an implementation of Unix for its fault-tolerant XA2000 machines has paid off quickly, winning the company another major customer to rank alongside IBM and Ing C Olivetti & Co SpA. Despite starting out by recommending Sun Microsystems workstations for its new Unix suite of TMOS Telecommunications Management & Operations Support applications, the Swede has signed a strategic long-term worldwide agreement with Stratus to market the new TMOS system on the company's machines to operators of public fixed and mobile telephone networks.

NCR OFFERS UNIX ON 33MHz

80486-BASED WORKSTATION, SERVER

NCR Corp's plans to enter the market for Intel Corp iAPX-86-based systems running Unix (UX No 278), have matured with the launch of a family of 80486-based systems using the new 33MHz version of the part. The Micro Channel-based NCR 80486 line includes high-performance workstations and servers rated at 27 MIPS. The line comprises the PC486/MC33 33MHz desktop personal computer starting at \$14,200; the S486/MC33 desk-side server, starting at \$16,200; and the 80486 Technology Upgrade, which enables users of NCR Micro Channel-based 386SX personal computers the ability to add the board for \$3,500. The new machines come with NCR Super VGA graphics and SCSI controller, and feature an NCR-designed Micro Channel chip set that enables users to upgrade the system BIOS via software, without changing the system chips. Both models support Unix, OS/2 and MS-DOS. The new products will be out in July.

LEAN AND HUNGRY ARIX BACKS CISC OVER RISC

There is little argument that Arix Corp - described as "an eight year old \$85m start-up" by recently recruited product marketing director Jamie Enns - is currently going through difficult times. Only a year ago the company was still deriving around 70% of its revenues from a single OEM deal with Unisys Corp - business that has stopped abruptly since Unisys decided it should be making more of its own hardware, and concentrating on Intel-based lines rather than Motorola.

That business is now largely maintenance, and Arix has found itself struggling to re-position itself as a manufacturer under its own badge. That means it must become a market-led company, rather than the engineering led outfit it was before. But according to Enns, anyone looking beyond the bottom line would see that non-Unisys business has been expanding healthily - details are set to be revealed next quarter. The key to the company's future must now lie in its new generation System 90 hardware, which according to Enns has been built to handle the performance requirements of the next three to five years, with a 160 Mb/sec bus, parallel processing expansion for I/O and an architecture as independent as possible from the CPU. By the end of the year, Arix hopes to be selling multi-processor 68040-based versions of the System 90 that will boost the current performance by at least eight times. But in the meantime, Arix salesmen have a problem convincing potential buyers that the 68020 processors in the System 90 will make the machines competitive. "We had to take the decision to build a platform for the future, and spent a lot of time on the architecture and operating system, rather than moving to a new chip". Enns claims he has the figures to show that the System 90 "is right up there already in performance terms because of the I/O offloading the CPU", but Arix will no doubt breath a sigh of relief when the 68040 versions become available.

RISC

In fact Arix has carried out most of the work on a Sparc-based System 90 in the labs, and has also tried a 486 version. But the major effort to get these systems to the marketplace is the software. "It would take years of effort to build up the robustness we have on the Motorola line", said Enns. Sparc or Intel versions of the machine are unlikely to see the light of day unless Arix can find partners willing to take on some of the load. "RISC technology," says Enns, "is not so important in the commercial environment, where some operations, such as Cobol strings, can actually take longer." Instead of RISC, Arix is looking to its Edgecore Technology division - acquired last year, (UX No 240), to provide a boost in performance beyond the 68040. Edgecore's Motorola-compatible "super chip" promises up to 15 times the performance of the 68020, and Arix is working closely with Hitachi on high performance processors that retain binary compatibility with the 68040 line. Arix is also looking for partners to move it into the commercial arena, and Enns is currently working to expand its distribution and VAR channels. "We're lean and hungry and very easy to work with at the moment", he said.

ICL SOURCES DRS 75 80486 BOX FROM ALL OVER WORLD

ICL last week added the 25MHz 80486-based DRS Model 75, claiming it to be the most compact 80486 system "from a total systems supplier". Using a motherboard designed with the help of Acer Corp, the machine is made by Acer on an "ICL production line" in Taiwan; the ICL-designed keyboard is made in Thailand and the screens are from Tatung UK Ltd's Telford plant. Using an AT bus the machine is £5,300 with 1.44Mb floppy, £5,800 with 40Mb disk, £6,900 with 200Mb. It is offered with MS-DOS 3.3 and 4.01 and OS/2, and will also run SCO Unix. Ships start June and an EISA bus server using the 80486 is planned for August. ICL says that its personal computers did £70m last year and it looks for £140m in 1990.

UNISYS REORGANISES AFTER DEPARTURE OF ITS MAINFRAME CHIEF HOLLIS CASWELL

Unisys Corp has taken the opportunity of the unexpected departure of its respected mainframe chief, Hollis Caswell to rearrange the furniture in a big way. Instead of appointing a new president of the Computer Systems Group, the company has combined the mainframe arm with the open systems product operations to create a new Computer Systems Product Group under Cyril Yansouni as president; he is also appointed Unisys' second executive vice-president; he was previously president of the Network Computing Group. The other executive vice-president, also just appointed, is Reto Braun, head of a new group that combines all the Blue Bell, Pennsylvania-based marketing operations - US Information Systems, Pacific Asia Americas Division and Corporate Marketing; Braun had been president of Pacific Asia Americas Division. The thinking behind the merging of mainframes with Unix systems, workstations and personal computers is that the two "are becoming increasingly interdependent as we create in the 1990s the seamless cooperative network computing environment that will provide total solutions users want". Meantime Dr Caswell has joined Hypres Inc, Elmsford, New York as chairman and chief executive. Hypres is a 40-employee, \$5m a year company working on applying superconductivity to microelectronics.

PYRAMID ADDS TWO SERVERS, DROPS ONE

Pyramid Technology Corp has expanded both its proprietary and Mips Computer-based lines downwards with the launch of new low-end servers. Built around the Mips R3000 RISC chip, the MIS-1e+ comes in at \$30,700 and is rated at 18 MIPS, although at the same time the company has taken the R3000-based MIS-1 server off the market. The MIS-1/1 pushes the entry price for Pyramid's proprietary servers under \$100,000 for the first time. Running Unix, the 14 MIPS machine supports up to 32 users, comes with 16Mb memory and 300Mb hard disk. Priced from \$55,000 to \$150,000 it is out in the third quarter and is object-code compatible with the rest of the proprietary MiServer line.

PRIAM ADD-ON DISK DIVISION REBORN AS PRIAM SYSTEMS

A group of investors has bought the assets of bankrupt San Jose-based Priam Corp's Enhanced Products Division, the assets including the Priam name, and has brought the unit back to life as Priam Systems Corp. The new company will continue the business of selling the full Priam line of add-on disk drives for the MS-DOS, Novell NetWare, Unix and Pick markets through most of the current Priam distributors worldwide. The company offers drives with formatted capacities of from 40Mb to 660Mb with AT, SCSI, ESDI and ST 412 interfaces. The team is led by Wil Cochran as president - he was a founder of Domain Technology Inc, and Dick Reiser, a founder of Priam, as vice-president, marketing and sales. Priam Systems will re-hire key members of the former company's core technical, operations and marketing staff and will continue to honour its customers' warranty agreements.

TOP 20 US COMPUTER MAKERS SELL MORE ABROAD THAN AT HOME FOR FIRST TIME - GARTNER

The US market in 1989 was so weak that for the first time ever, the 20 largest US computer companies did more business overseas than at home, Gartner Group estimates. The Stamford, Connecticut research company says that sales abroad by the 20 largest firms - which produce 70% of US computer hardware - increased to 50.1% of their total from 48.4% in 1988. Domestic sales by the 20 largest computer manufacturers rose only 3.5% in 1989 after increasing 5.9% in 1988 and 5.8% in 1987. Their sales to the Asia-Pacific region, including Japan, slowed to a 12.7% growth rate from 25.1% in 1988; European sales growth slowed to 9.5%, the first time since 1982 that their growth in Europe has been under 10%. Of IBM, Gartner says that IBM's mainframe market share in the top 100 companies was 74.2%, up from 73.1% in 1988, and that its personal computer share grew to 36% from 35.9% - but it had been 50% in 1985, and the company lost market share in several areas, including software and peripherals.

UNIWARE STUDY DETAILS EAST GERMAN UNIX MARKET

UniWare Computer GmbH's report on the state of the East German computer market is now available, (UX No 280), entitled "The Data Processing Landscape In The German Democratic Republic". It begins with an assessment of the types and numbers of systems installed across the country, including ESER mainframe machines. ESER - or Einheitliches System Elektronischer Rechentechnik der sozialistischen Lander - is a standard computing platform used by the Eastern Bloc socialist countries. The study continues with a focus on the East German Unix marketplace and includes a list of users, hardware and software manufacturers and products, together with an introduction to the EAG - Unix Entwickler und Anwendergemeinschaft - Unix users and developers group. It indicates which products are compatible with those from Western computer companies, and which they most closely resemble or are copied from. There is also a list of what East German-developed technology is currently being exported, and what hardware and software has been brought in. It has a profile of the largest East German computer manufacturer - Robotron - and examines what kinds of research is being done where and by whom, and the types of courses, training and literature available commercially and in education. The 65 page report costs £500.

PLESSEY'S NEW CHIPS

CAN BE REPROGRAMMED REMOTELY

Plessey Semiconductors, currently planned to be wholly-owned by GEC Plc after an interregnum under the GEC Siemens Plc banner, is claiming a breakthrough with what it describes as the world's first intelligent, user-customisable remote-programmable integrated circuit. The Plessey chip can be programmed so that it intelligently and independently changes its own wiring, enabling it to correct any problems and adapt to new circumstances. A remote personal computer can also rewire the chip, which, notes Plessey, makes it just the thing for satellite applications - and others where the chip becomes inaccessible. Plessey also reckons that costs are low enough that it could wind up being used in vending machines - "in both cases, repairs can be made without picking up a screwdriver". Plessey calls the new devices electrically reconfigurable arrays, and says they differ from the field programmable gate arrays that are one of the hottest chip properties right now in that once in use, they can be rewired in less than a thousandth of a second - while the chip is still operating. Plessey says it intends to be the first vendor to ship field-programmable gate arrays with equivalent gate counts of up to 100,000. No price or availability details were given.

DEC SIGNS FOR UNIPLEX IN PREFERENCE TO ITS OWN SOFTWARE

DEC is to begin offering customers of its Ultrix Unix implementation Uniplex's business software as the preferred office automation solution following a worldwide marketing agreement whereby DEC will sell and support the software both on its Mips Computer Systems RISC-based line of workstations and servers and on the VAX range. From July, DEC will start shipping the full portfolio of Uniplex version 7.0 applications, which now run under OSF/Motif and include IXI Ltd's X.desktop manager, as well as a front end to Oracle, Informix and Ingres relational databases. DEC will install, maintain and offer start up services for the software, which is embraced by its Network Application Support - NAS - distributed computing environment. Ultrix users running Uniplex will be able to exchange E-mail and documents with DEC's VMS-based All-in-1 office software on the VAX range, and further gateways between the two environments are currently being developed by Uniplex in the areas of ReGis graphics, DECwindows, printer sharing, X.400 communications and compound document exchange. Pricing is on a per-user basis - a single licence for the full set of version 7.0 applications is £1,500, a four-user version is £3,200, and an eighty-user licence will start at around £90,000. Uniplex says it expects to double its revenue over the forthcoming year.

** DEC is also reported to have signed up SecureWare, Atlanta, Georgia, in an attempt to bring its Ultrix Unix-like operating system up to a B1 security rating, which will enable the company to sell its Mips RISC-based systems into the military and intelligence markets. DEC will use SecureWare's Compartmental Mode Workstation software - some of which will feature in OSF/1 - to do the job. SecureWare expects the Apple Macintosh running CMW to get a B1 rating by the end of the year.

LIANT'S FUSION COBOL PICKED BY G-MICRO TRON GANG

Cobol remains one of the most widely-used programming languages in Japan, and the G-Micro Group collaborating on the development of a family of microprocessors optimised for the Tron operating system has turned to the Ryan McFarland Corp arm of Liant Software Corp, Framingham, Massachusetts for its needs. The G-Micro Group - Fujitsu Ltd, Hitachi Ltd and Mitsubishi Electric Corp - has signed for Ryan McFarland's Fusion Cobol development system. Fusion Cobol will enable end users to develop hardware-independent Unix applications for the G-Micro microprocessors. The pact also covers the Code Watch source-level debugging tool. The Tron group is hedging its bets by also supporting Unix on G-Micro.

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Sales of NeXT Inc's NeXT Computer System have been disappointing so far, so the company will be all the more pleased with an order to be announced shortly for 250 systems from the famous Hollywood talent agency, William Morris. According to Microbytes, Morris will use a \$500 program called Who's Calling from Adamation Inc, Oakland, based on Ingres, to put up photos, biographies and voice clips of all the entertainers represented by William Morris on the NeXT Computer screen.

And NeXT Inc, Redwood City, California is promising a version of the NeXT Computer System built around the next generation Motorola 68040 - claimed by that company to be the most powerful complex instruction set microprocessor available, but then it would say that - in the fourth quarter of this year. It also promises that existing users of the machine will be able to upgrade to the new CPU for \$1,500.

Philips NV's first quarter figures, showing a plunge in operating profits before an extraordinary gain of \$177m to just \$3.2m, highlight the urgency for the company to find a solution to the problems of its computer business, losses on which were largely blamed for the profit plunge: the only name that has been mentioned as a possible partner is Ing C Olivetti & Co SpA, but Philips says it is talking to several companies, and a deal in which the company handed much of the business over to ICL, which has plenty of products that it could put through Philips' outlets, in return for a minority stake in the enlarged group, would make sense - but substantial closures would be required at Philips to make the thing work.

Following the launch of its X-Windows and OSF/Motif-based Visual User Environment a few weeks ago, (UX No 275), Hewlett-Packard is making VUE available in the UK at a price of £420.

One of the first Fujitsu Ltd mainframes running Unix - Amdahl Corp's UTS V - is on its way to the New South Wales Department of Main Roads in Australia: the machine will run Oracle Corp's database.

The first TC 2000 parallel processor to be installed in Europe from Bolt Beranek & Newman Inc's BBN Computer subsidiary in Cambridge, Massachusetts has been installed at the European Centre for Research and Advanced Development in Scientific Computing in Toulouse, France.

If you live in London and you feel the earth moved last week, it may be more than just a symptom of the second season: the Financial Times reported that callers from New York dialling 071- when trying to reach an 081-number will get a recorded message from AT&T Co - "Due to the earthquake in the area you are calling," say the dulcet tones of Ma Bell, "your call cannot be completed at this time - please try later".

In the UK, Stratus Computer Ltd has signed up the Instruction Set to provide technical training in Unix and C programming for its customers in Europe, whilst in a separate US deal, its Marlboro, Massachusetts parent has signed up the Instruction Set USA to develop a training curriculum based around the FTX fault tolerant Unix operating system for its service and support organisation: the Instruction Set is now owned by the Hoskyns Group plc, (UX No 252).

X-terminal manufacturer Network Computing Devices Inc, Mountain View, California, has opened a UK sales office in Bourne End, Buckinghamshire: it is headed up by Steve Jamieson who moves over from Ready Systems UK Ltd.

Real-time expert system software house Gensym Corp, Cambridge, Massachusetts, has formed a European subsidiary - Gensym GmbH will be based in Munich, West Germany.

Despite criticism that the Open Software Foundation is likely to encounter when it reveals DEcorum as its choice of distributed computing technology for the OSF/1 operating system this week, (UX No 280), the Unix pretender is nevertheless pressing ahead with its Request for Technology process, and will be issuing a call for system administration services and technologies for OSF/1 sometime this summer.

Data General Ltd in the UK and Ireland has been restructured into three divisions and now operates through separate solutions, services, and distribution arms: distribution will deal with value added resellers, systems integrators, OEM customers, defence contractors, and two tier distributors and dealers; services will provide support facilities, and solutions will manage the company's larger accounts as well as providing application development and project management; it says it was increasingly difficult to manage the three divisions as one business entity, but insists that no lay-offs are in prospect.

Sun Microsystems Inc and 3Com Corp plan to develop distributed, protocol-independent applications for 3Com networks, the two said yesterday. By supporting Sun's enhanced remote procedure calls, 3Com will facilitate the development of 3+Open applications to run without modification, across a wide range of operating systems, hardware architectures and networking products.

The \$5,000 version of the Sun Microsystems Inc Sparcstation-1 due to be announced this week is expected to come with the 12.5 MIPS processor built into a 17" monochrome display with no hard disk and no expansion slots - primarily for use on a local area network presumably.

Following the announcement of the SPARC Compliance Definition last week, (UX No 281), SPARC International says it is now developing a migration path from SCD 1.0 - which based on SunOS 4.0.3 - to SCD 2.0, which will be unveiled in the third quarter and is based on Unix V.4 and the SPARC application binary interface: it has also joined Unix International.

Robert Morris, convicted of releasing the Internet worm in late 1988, has now been sentenced to three years probation, a \$10,000 fine and 400 hours community service.

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UNISYS ADDS INTEL-BASED "COMMERCIAL WORKSTATION" - PREPARES TECHNICAL SYSTEMS ENTRY WITH \$150M SOLBOURNE DEAL

Unisys Corp introduced new Intel-based systems to its U6000 line yesterday, including the expected 80486-based commercial Unix workstation - but in what appeared to be a last minute decision, held back on its first entry into the technical workstation market with Sparc-based S2000 systems sourced from Solbourne Computer Inc. The new machines include an entry-level U6000/10 for two to six users, a mid-range 25MHz 80486-based U6000/60 for up to 64 users, and the U6000/WS, a 33MHz 386 or 25MHz 486 workstation with floating-point processor (Weitek version optional), Ethernet controller and 16" colour monitor. At the same time Unisys boosted the power of its top-end U6000/70 and 80 multi-processor boxes by using 20MHz 386 chips, and reduced the prices on its mid-range U6000/51 and U6000/55 by 30 to 35%. The entry-level system costs from £6,400 with 4Mb memory, 80Mb disk and two ports, while the U6000/60 costs £20,000 with 4Mb of memory, 340Mb disk and 11 ports. The workstation costs from £8,000 for a diskless version including monitor, rising to £25,000 for fully configured systems. Target applications include geographic analysis, imaging, decision support, electronic publishing and financial systems. As part of the workstation announcement Unisys announced its Primary Graphical Environment, which includes the Motif user interface, X.desktop from IXI and PC Xcite from Locus. It will eventually be available for the entire U/6000 line. Unisys also offers MS-DOS compatibility through the Merge product from Locus. Meanwhile, Solbourne went ahead with its announcement of a \$150m OEM deal over four years with the Unisys Europe-Africa Division - which now accounts for some 55% of total Unisys revenues - but Unisys said it needed another 60 to 90 days to manage its first entry into the technical workstation market. The US division has yet to make a decision on the deal. Meanwhile Unisys Corp continues to work on Motorola 88000 Risc-based systems, expected to see the light of day next year.

SUN ADDS DISKLESS SPARCSTATION FOR \$5,000 - NEW SERVER

As expected, (UX No 280), Sun Microsystems Inc has come out with a £4,000 - \$5,000 in the US - diskless version of its Sparcstation 1 RISC workstation, as well as a new server configuration. The Sparcstation SLC runs a 20MHz version of the Sparc chip, is rated at 12.5 MIPS and 7.6 SPECmarks. With from 8Mb to 16Mb memory, the single-board system slots in behind a 17" monochrome monitor so that there is no separate processor unit as such. Audio comes fitted as standard as does a SCSI port, though configured without disk, a floppy or expansion slots, the SLC is intended primarily for use in conjunction with a server over a local area network. The Sparcserver 470 is a scaled down model 490, with a 33MHz Sparc part it is rated at 22 MIPS, 3.8 MFLOPS and 17.6 SPECmarks. It comes with 12 slots, up to four Ethernet ports and two FDDI network controllers, from 32Mb to 160Mb memory, up to 10Gb disk, 2.3Gb tape backup and can support 98 local terminals. The Sparcserver 470 with 32Mb, 669Mb disk and 150Mb tape starts at £53,000, with 1Gb disk the price rises to £67,100. It can also be configured as a graphics workstation, with a 19" colour monitor, GX graphics accelerator, 669Mb disk, keyboard and mouse, it costs £62,600. All the new systems are available immediately. The Mountain View, California company has also introduced Database Excelsator and Sparcserver Manager software. Excelsator is claimed to increase database transaction throughput on the Sparcserver line running Ingres, Oracle, Informix or Sybase by up to 50%, whilst the Manager provides disk mirroring and system administration tools for network management. Excelsator is £900 on the Sparcserver 1+, and £4,500 on all other Sparcservers, out in August. Sparcserver Manager is £6,700, available from July. At the UK launch in London, John Coon, Sun Microsystems' UK marketing programmes manager said that a native implementation of Unix V.4 will not be available on the company's range of workstations and servers until September next year. Although Sun is increasingly looking toward low cost system configurations to provide its volume business, UK vice president Bill Passmore said, in a veiled reference to the Sparcstation 2 series that is expected towards the end of the summer, (UX No 280), that the company "is not giving up on the performance race".

OSF CHOOSES DECORUM FOR DISTRIBUTED COMPUTING

The Open Software Foundation made its expected Distributed Computing Environment technology decision last week, choosing all but one element of the Decorum submission (UX No 280). And IBM came out with an early endorsement of the product, promising to include elements of the DCE technology within its own Systems Applications Architecture. Full details, page two. Was the decision rigged? - page 5.

BORLAND ADDS C++ PROFESSIONAL

Borland International Inc has extended its object-oriented programming push, started last year with an object-oriented Pascal, with the launch of Turbo C++ Professional, based on AT&T Co's C++ 2.0 object-oriented C. Turbo C++ Professional, which includes Turbo Debugger & Tools, is \$300. A stand-alone version of Turbo C++ costs \$200, now.

MIPS TAKES PORTABLE NETWARE

Novell Inc has licensed MIPS Computer Systems Inc to market Portable NetWare on its Unix servers: when the product becomes available in late 1990, MIPS will market it to its OEM and reseller customers - the likes of Control Data Corp, Nixdorf Computer AG and TIS Ltd here, as a software option on the MIPS RISC computer product line, and Novell and MIPS will conduct joint sales and marketing activities for the thing.

DATA GENERAL ADDS "SUN-KILLING" AVIIONS

Showing that it has got the message that to cut it in the RISC Unix market a company has to adhere to Chairman Mao's doctrine of permanent revolution, Data General Corp has added four new members of its AViiON family, including "the industry's lowest-priced, RISC-based server and best price-performance workstation". The 17-MIPS AV 200 station is clearly intended to upstage Sun Microsystems' Sparcstation 1 SLC: using a 16MHz 88100, it starts at \$5,950, \$350/MIPS, including 20" monitor and unlike the Sun box, can accept disks. Using the same chip, the \$13,000 AV 3200 server comes with 8Mb memory, 332Mb disk, 150Mb quarter-inch cartridge tape drive. The AV 4100 and 4120 systems are faster members of the AV 4000 family: the 4100 uses the 20MHz 88100 for 20 Dhrystone MIPS; the AV 4120 doubles up on 88100s; the base system has 8Mb, 332Mb disk, 150Mb, two-slot VME chassis and integrated Ethernet controller: \$21,545; the dual processor AV 4200 starts at \$34,545. The 332Mb 5.25" disk costs \$4,950, \$14 per Mb, the best price the company has ever offered.

OSF PROMISES DISTRIBUTED COMPUTING NEXT YEAR USING DECORUM-BASED TECHNOLOGY

by Maureen O'Gara

David Tory took to the podium at Boston's posh Four Seasons Hotel last week, surrounded by lots of "friends of the family" to announce what he described as "a momentous piece of technology", the Open Software Foundation's Distributed Computing Environment selection. Tory hailed it for its interoperability, not just across Unix systems, but across OS/2, VMS and open systems platforms - a layered technology cutting across operating systems and embracing the whole industry.

Taking a poke at Sun's competing ONC/NFS technology, he said that partial solutions already exist, but dismissed them as affording connections, not true interoperability, which of course allows users' real freedom of choice in the equipment they select. Jonathan Gossels, the business area manager responsible for the selection process, went on to detail what the OSF "open process" can do, making a point of IBM's press release saying that IBM will incorporate elements of the OSF offering within its Systems Applications Architecture. Glorifying in this "early endorsement", Gossels said it "convinces OSF that this is the stable platform needed for some time".

The chosen technologies, described in the IBM press release as "including major elements of the DEcorum proposal" in contrast to OSF president David Tory's denial that it was DEcorum, include two categories. The first is fundamental distributed services, providing tools for software developers to create end user services for distributed computing, including remote procedure call software, naming and directory services, security services, time services, personal computer integration and parallel programming support. The second category is data sharing services to provide end-users with distributed file services, including diskless operation capability and MS-DOS file and printer support - these aspects are covered by the technologies chosen from Microsoft/HP, Transarc and Sun Microsystems. Diskless operation extensions to Transarc's AFS adaption of the Carnegie-Mellon Andrew distributed file system are a joint effort between Transarc and Hewlett-Packard. Transarc's AFS is described as providing file sharing services compatible with NFS, and the one-year old Transarc was described as having five years experience with NFS. Sun's contribution is described as PC-NFS, but Sun itself points out that OSF has not licensed PC-NFS, but is supporting only the server portion, already in the public domain, for user authentication and print spooling.

On the most controversial choice, that of the underlying remote procedure call protocols, ODF's Doug Hartman, director of RFT and validation engineering, called the Network Computing System RPC originating from Apollo Computer as "the best available today - we looked at everything else". According to Hartman "the applications developer can use his experience with non-network systems and move over without a refresher course. He can be up and programming within a few hours". The version of NCS taken by the Foundation, however, is an enhanced version co-developed with DEC, not the product available on the market today. The Kerberos technology from the Massachusetts Institute of Technology - again with Hewlett-Packard extensions - controls network access to information. From DEC comes time service - "small useful services", said Hartman - and threads. DEC's naming service was described as "the premier naming service available today".

As to availability, the DEC technology will be released in three stages. First comes a snapshot for members, probably in July said Hartman. Then, during 1990 will come the integration of the first components. During 1991 (late 1991 say the sceptical), will come preliminary delivery to users. Hartman also mentioned that both IBM and Bull were offering their services in an effort to speed the delivery of the technology. OSF was also at pains to point out that all individual technologies are available today. Hartman said that Unix International's Roadmap indicated that it would take them to 1993/4 to get to distributed computing. Pricing has not yet been decided, and won't be before June, but "will be based on market conditions". David Tory emphasised that the decision had been made through the OSF "open process", and was the result of "exhaustive efforts to select the best technology" - a reaction to the fact that the only significant omission from the OSF-member dominated DEcorum submission was the IBM/Locus transparent computing facility. But Transarc president Alfred Spector admitted the submission was DEcorum: "they just don't want to appear to have swallowed Decorum whole, they want to look like men standing on their own two feet. I just wish they had a name for it, today".

OSF FORMS SOFTWARE VENDOR COUNCIL

In what looks to be an attempt to diffuse public criticism of the way it handles independent software vendors - and perhaps head off possible legal action - the Open Software last week took steps to form an ISV council and may include an ISV representative on its board. In March a clutch of software houses, alarmed by the Foundation's cut price systems software pricing schedule and seemingly niggardly terms and conditions offered to contributing ISVs, petitioned the Foundation to institute such a council (UX No 275). The appeal caused a highly prickly OSF much public embarrassment, if not consternation among its lawyers. Peter Winston, president of Interactive Computer Solutions Inc and a participant in the March meeting, attended the ISV forum OSF scheduled as part of its three day meeting in Boston last week. As a result he said he is now convinced that OSF understands there is an ISV issue, something it has previously seemed to shrug off, and that it is making a "significant effort toward solving the institutional problems" that created it. Winston said the forum was initially attended by about 30 people, half of them ISVs and the other half representatives of OSF, including president David Tory and some of the sponsor companies, notably more the Europeans than the Americans. OSF, he said, seemed open to discussing the business issues surrounding technology procurement from viewpoints other than its own, and how its technology selections and terms and conditions can affect the losers as well as the winners. It was agreed that a small three man task force, including Winston, Locus vice president of Boston operations Phil Shevrin, and Dave Simonson of Ingres, be established to draft the Council's charter. Reputedly the Council will have input into OSF's organisation and request for technology process. Issues such as whether or not non-OSF members will be included, how the Council will interact with X/Open's ISVs and the legalities of publishing standard terms and conditions without falling foul of anti-trust laws will have to be hammered out, Winston said. It was also decided to schedule an ISV forum at all other members meetings.

NOW OILMEN REBEL AND STRIKE OUT FOR A SINGLE UNIX STANDARD

Coming only a fortnight after news that some of the biggest industrial users of Unix are striking out and forming a group that will press for the development of one Unix standard following the breakdown of reconciliation talks between Unix International and the Open Software Operation, (UX Nos 281, 278), it now seems that oilmen too have had enough of the industry's squabbling and bickering. British Petroleum Co Ltd, Texaco Inc, Exxon Corp, Shell Oil, Mobil and Chevron are just a few of the 42 oil companies now busy forming a non-profit making organisation known as the Petrotechnical Open Software Corporation, with the aim of establishing a set of Unix standards for applications and data formats used in oil exploration and production.

"awful lot of money"

According to Dan Turner, who heads the team trying to set up the POSC, and is director of information systems for BP, based in Houston, Texas, such a group is much-needed because the oil industry "spends an awful lot of money and time doing things that do not produce oil". The main objective is to ensure that member companies can move information about production, geological surveys and explorations between their systems, via a software integration platform with a common application programming interface. In theory it could lead to changes in the way that oil companies make hardware and software procurements, where IBM, DEC, Hewlett-Packard and Sun Microsystems are amongst the biggest system suppliers to a market reckoned to be worth around a billion dollars a year. The oil industry currently uses a host of disparate hardware and software platforms for exploration and production - the POSC will try and lay down some common data models and imaging methods that can be implemented right across the industry. The group is structuring itself along the lines of the Open Software Foundation, indeed it has received organisational advice from the OSF itself, and - like the OSF - is signing up corporate members to provide funding. Cost is \$850,000, or \$100,000 for an individual membership. Ten companies are said to be interested in joining as corporate members, two have already committed internally. A business and legal review of the issues involved will be complete by June, and July 1 is currently penned in as a launch date. The POSC will get its software via a Requests for Technology process similar to the OSFs, adopting standards such as Posix and X/Open where they exist, and develop others where necessary. However the relationship ends here, and the group has no commitment to adopting the OSF1 operating system, or any other pieces of its technology. With the Unix industry embroiled in its own standards war, the oil business has had little to lead it down the open systems road, and a range of different data formats, proprietary operating systems, as well as different flavours of Unix have become popular. The problem was exacerbated in the 1980s with the binge of company acquisitions, creating huge conglomerates each with a jumble of incompatible information systems. The effort could mark something of a watershed for the oil industry, where companies working on joint development projects in the North Sea or on the China coast could share data for the first time.

IXI OPENS X-WINDOWS UP TO CHARACTER-BASED APPLICATIONS

UK X-Windows specialist IXI Ltd, Cambridge, releases its X.deskterm terminal emulation software at the Xhibition '90 show in San Jose, California this week, enabling users to run character-based applications under the X-Windows-based OSF/Motif and Open Look graphical user interfaces. Most Unix applications are still character-based and are unable to take advantage of the user-friendly aspects of graphical user interfaces. By using X.deskterm commands, IXI says its software will allow developers to configure applications to run under the interfaces without the need to re-write them in X code. The process is reckoned to take less than 10% of the original programming effort. X.deskterm takes an application's character output and converts it to graphical display, where it will run in a windowing environment and take advantage of menuing, scroll-bar and all the usual windows facilities. OSF/Motif and Open Look versions of applications can be produced by using different versions of X.deskterm. The tool can also be used to add a graphical front-end to software written in languages that do not have an X library - such as Cobol and Fortran - or to applications which run on non-Unix operating systems - like Pick, VM, MVS and VMS - which do not support X directly. X.deskterm is aimed primarily at OEMs and software developers, and is priced at less than \$100 for a single run-time licence. Uniplex, NCR Corp and Cambridge Connectivity have already signed up for X.deskterm.

...AND ALTERED IMAGES IS THE FIRST CUSTOMER

And UK start-up Altered Image Software, Addlestone, Surrey, has already developed two applications based on X.deskterm which it will be showing at Xhibition for the first time. Altered Image-SQL provides an OSF/Motif front-end to the Informix-SQL relational database, and allows users to migrate character-based Informix-SQL applications to the graphical environment without modification. Altered Image-Graphics is a management information tool which allows data from an Informix-SQL database to be displayed graphically, and in a variety of formats - with colour and in three dimensions - under an OSF/Motif-style menu system. Altered Image was set up last year by former founders and marketing officials of Informix UK.

TRANSACTION POINT OFFERS XME TO MIGRATE ME29 USERS TO ICL UNIX

ICL ME29 users that haven't taken the company's preferred upgrade path via TME onto VME on Series 39 are rather left out on a limb these days, and Transaction Point Ltd, the Reading company dedicated to filling in the gaps in ICL's software offerings, has ridden to the rescue with XME, a set of conversion utilities and an operating environment that enables on-line and batch ME29 applications to be transferred to ICL DRS Unix machines. After conversion, the applications run as Unix tasks. On-line applications written for TME/TP and MTS run under the XME/TP monitor - "the first teleprocessing monitor written for Unix systems". Physical conversion involves transferring ME29 files on to magnetic tape, then on to a cartridge that can be read by the target Unix system. Transaction Point can do the conversion on-site, or take it away to their own offices. As well as the files themselves, the job control language also needs to be translated to a Unix shell script, a task either the customer or Transaction Point can do. Cost is worked out on the time taken and length of files, but a transaction site will pay around £10,000 for the monitor, then extra on top for the conversion. Batch sites pay only for the conversion. After its protracted and futile war with Telecomputing Plc, ICL is a bit more mature about third parties offering products and capabilities ICL hadn't planned to offer, and it not only helped Transaction Point with the development effort, but will be marketing the product outside the UK.

WAS OSF'S DCE DECISION RIGGED?

by Maureen O'Gara

The Open Software Foundation says no. OSF chief David Tory, in answer to a pointed question from the press conference floor last week, told reporters the Foundation's selection "was not based on a political process whatsoever." Saying so, however, doesn't remove the suspicions harboured by many in the industry, particularly those in the opposing camp, that OSF again simply adopted its founders' technology.

One of the reasons these suspicions linger is the sensation that the tide turned in favour of the DEcorum contingent months ago - despite OSF's claim that a formal decision was reached only a couple of weeks before the May 15 announcement and that the DCE contracts or letters of intent were only "wrapped up in the last 12 hours" before the press conference. As it was, a month, if not more, before it publicised its decision, OSF was briefing special interest groups and selected outside consultants as to what the DCE would look like.

Smoking gun

Moreover, Netwise, the Colorado start-up whose strategic RPC technology was effectively rejected by OSF's decision, complained in writing to David Tory as early as last September that it had direct feedback from some OSF members that the decision was "wired" for NCS. The complaint also noted that some DEC employees had made similar allegations to customers. It also expressed alarm that the group which wrote the evaluation criteria for the RFT was composed of NCS supporters or companies directly involved in the joint NCS submission, and protested that the flow of information favoured member companies who - knowing what the competition was submitting - could tune their submissions accordingly "to compensate for their weaknesses." In his replies, Tory wrote back that OSF's RFT process would be unbiased, was not wired for Apollo and that the credentials and integrity of the evaluation criteria were beyond reproach. He also added that "it has been suggested that Netwise may be trying to protect itself by construing a fallacious claim of bias in the event that its submission is not selected for the DAE technology. I trust it is not." Netwise's position, as of last week, was that "technical merit was not the deciding factor in OSF's DCE solution, at least regarding RPC technology." OSF's own evaluation, the company claims, revealed the Netwise product superior in many respects to NCS. Netwise believes it may have been knocked out of the running by the vocal position it took over the terms and conditions OSF offers ISVs. Netwise officials said OSF told them it was "annoyed" by Netwise's behaviour and that it was "not helping" their position in the DCE selection. Although Netwise contends there are three active components in the RFT process - namely technical, business and political - and wonders openly about the possibility of a connection between the way the RFT went and the major infusion of cash OSF received from its sponsors at a "pivotal moment in the DCE selection," it has so far found no "smoking gun" or direct evidence that the decision was politically motivated. However, it said, "the decision was clearly not influenced by a desire to unify the unix industry."

Eric Schmidt, vice president of the General Systems Group at Sun, the big loser to the DEcorum lot, told Unigram.X last week, "I hate to use the word rigged but it's my impression the decision was made very early on. It's cultural." Schmidt, who readily admits he is not part of OSF's internal process, claimed the DCE results showed a clear pattern on OSF's part. "The sponsors have undue control," he said. Schmidt contends that the differences between Sun's ONC/NFS and what OSF chose "do not justify" the disunity and incompatibility that will be spawned. For him it is clearly just a result of politics and a concerted effort to undermine Sun's position.

The powers that be at OSF, companies like IBM and DEC, Schmidt said, who have significant non-Unix business to protect and cultivate, want to slow Sun down as much as they can while they get their product line in shape. This statement smacks of the old "conspiracy theory" that has long made the rounds that IBM and DEC are really in the market only to impede the move to Unix. While it has fallen into some disrepute lately, the seemingly big machine bias of OSF's DCE technology and the way it seems to fail to tightly integrate PCs and 25 million Novell nodes - not to speak of Banyan or 3Com - into its scheme begins to lend the notion some credence again. Schmidt reads it as an interpretation of the workstation as an engineering/technical machine but there are suspicions in some quarters that it could run deeper than that.

There are, it must be said, rumours floating through the industry that OSF's technical team was highly divided on which technology to chose and would have preferred a less divisive solution but that it was taken out of their hands. In contrast, Phil Shevrin, a VP at Locus Computing, whose technology was part of the DEcorum submission but did not make the final cut, worked closely with the folks from DEC and HP and pooh-poohs the idea that DCE was rigged for the founders. He maintains that all along they were very concerned that they would lose out to Sun and Netwise.

Overlooked technology

Peter Weinberger, AT&T Bell Labs Department head of research and one of the AT&T Unix Software Operation's chief scientists, was in the unique position of being in the enemy camp as one of 10 consultants overseeing OSF's selection, charged with keeping the submitters honest. In his opinion, the process "was not wired in the small." But while OSF's technical people appeared open and fair, the "process as a whole was not as open as OSF would have us believe." Like Netwise and for pretty much the same reasons, he is critical of how the RFT was originally written and in fact notes that there are a lot of different models for a DCE. In fact he is not even convinced that what has been produced is actually the stuff of distributed computing. If the process is so open, there was a lot of technology that was overlooked, he contends, wondering why Xerox for instance which had this kind of thing for 10 years didn't make a submission, or for that matter why AT&T didn't come forward with RFS. For him, the whole process is not particularly designed for compromise and there was a heavy, if not undue, emphasis on "short-term technical readiness." One of the reasons the DEcorum submission got an edge, he feels, might have been that it was simply an integrated consortium and meant less work for OSF. However, it may be faced with considerably more work than it bargained for since Weinberger, who is simply appalled by the amount of code DCE represents, reckons it will have serious implementation problems down the road. Like Schmidt, however, Weinberger reckons the cultural component played a very heavy hand in the decision - making it almost a foregone conclusion. Unlike another institution with much practice ironing out inequities and biases, he said, OSF's procurement policies are not up to the standards the government uses, perhaps because it is a purveyor as well as a consumer.

NEWS ROUNDUP

Distributed Computing Environment

Insiders say there are two set of OSF distributed computing environment visuals floating around: one for the press and one for the board. The ones the press saw refer merely to Transarc or to Microsoft and Hewlett-Packard's LM/X. Those for the board reportedly play to their egos by referring to HP's LM/X or IBM/Transarc, since Big Blue owns a piece of the start-up.

There is a rumour making the rounds that Sun withdrew its NFS technology from the OSF distributed computing RFT back in January and effectively put itself out of the running. Actually Sun says it did withdraw NFS.3 technology because it would not have been able to produce a shippable version before August and OSF was insistent on June. However, NFS.2 and all its future upgrades remained a submission. Sun and OSF also failed to come to terms on NFS as part of OSF/1 last year, reportedly because OSF was demanding a royalty free license. As already reported, OSF subsequently went to Berkeley to achieve its NFS compatibility.

OSF spokesman Doug Hartman suggested that Unix International should give OSF's distributed computing environment technology serious consideration, and adopt it "to unite the industry". However, at least one Unix International member, Sun Microsystems, said it had no intention of licensing the OSF DCE. "There is no reason to. ONC (Sun's Open Network Computing) is the de facto standard, we have a responsibility to our installed ONC base and will continue support for ONC. OSF has passed up the opportunity to unite the industry and has chosen a competing technology. It will now be up to the market to decide".

Netwise, the company which was offering the OSF its RPC compiler tool in conjunction with Sun, points out that NCS is not currently OSI compliant, and that no OSI conformance or migration strategy has up to now been articulated. Netwise also says that NCS is "a closed, monolithic architecture", inherited from its origins in the proprietary Apollo Domain environment.

Transarc president Alfred Spector said he doesn't expect to get rich from the OSF decision to use the AFS distributed file system - what they are paying is a "reasonable return". But Transarc has its eye not on this ball, but on the next. The Pittsburgh, Pennsylvania-based company expects to have additional products down the line that focus on transaction processing - hence the trans in Transarc.

OSF members meeting

There are now four organisations working on prototypes for the Open Software Foundation's ambitious Architecture Neutral Distribution Format software project said an OSF spokeswoman last week, including Hewlett-Packard teamed with the University of Virginia. The expectation is that OSF will make a prototype selection in the fourth quarter, followed by an announcement in the first quarter of 1991 of a platform supplier.

The meeting also produced a new industry buzzword - Open Road - an expression coined by OSF vice president of research and advanced development Ira Goldstein, and meant to stand in stark contrast to Unix International's Roadmap. Unlike UI's scheme, Open Road is described not as a five year plan, but a flexible, evolutionary structure that encompasses all OSF technology, not just its operating system, subject to input from all sides - a prioritisation, if you will.

OSF is also planning to put out a Systems Management request for technology later this year, looking for the tools necessary to accomplish what used to be called central administration.

Version 1.2 of the OSF Motif user interface is expected later this year, reportedly adding significant international functionality like extended bit support, particularly urgent for the Pacific Rim markets.

The OSF has dropped Xenix compatibility from its OSF/1 implementation, an OSF board member told Unigram.X last week, even though it was promised for the November release of the operating system: observers are curious whether the rationale is the engineering time it would take or the amount of royalty demanded by Microsoft.

Someone familiar with the inner workings of OSF claims the most influential member of the Foundation is Hewlett-Packard - not only because it controls the chair - but on a day-to-day level because of the sheer number of people on sabbatical it has working there: at board level, IBM and DEC are said to be "practically pussycats".

Other news

IBM has been doing its homework to prepare for its re-entry into the Unix arena. Last year it had a private third-party study done on Sun Microsystems, the company, and more recently it's had a consulting firm work up a comparison of AIX versus Unix System V.4 - Unix International has produced a similar comparison paper from the other point of view, but made it generally available. To follow from IBM are studies of the various flavours of Unix offered by Unisys, NCR, Sun et al, as well as a work up on the Santa Cruz Operation.

Bear Stearns, the Wall Street brokerage, figures that Sun has shipped some 50,000 Sparcstations to date, 8,000 of which include Open Look developer kits. It says that the company expects to have close to 300 Open Look applications by the end of the year. Meanwhile, Sun says that third party products for the Sparc line have now topped the 2,000 mark - a fourfold increase over the last year. Sun claims to be selling Sparcstations at an annual rate of 125,000 systems, and to have joined Intel/DOS and Macintosh as one of the three volume desktop platforms. Recent converts to the SPARC include NYNEX Information Solutions, Mentor Graphics, Andersen Consulting and Landmark Graphics.

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MIPS, SILICON GRAPHICS LOOK TO R4000 CHIP TO TROUNCE IBM

Over in the UK for a three-dimensional computing exhibition, Silicon Graphics vice-president Mark Perry revealed that the next addition to Mips Computer Systems' R-series of RISC processors - the R4000 - will be sampling by the autumn and will go into volume production in January 1991. Existence of the part was first revealed here at the end of last year, (UX No 261), and Perry says that it will match the 55 MIPS performance of Mips' R6000 ECL part - at least until MIPS turns up the 67.7MHz clock rate of the R6000 to 80MHz in the future. Mips' answer to IBM's RS/6000 Unix challengers will be R4000-based systems out early next year, and tipped by Perry to out-perform the IBM machines. Silicon Graphics engineers have worked with Mips on this and previous R series chips - where they are responsible for designing the hooks and functions required for multi-processing implementations. For its part, Silicon Graphics has no plans to do an R6000 machine, but it will be launching an R4000 system, and also plans a fully-configured workstation for less than \$10,000 next year. In addition, Silicon Graphics has cut prices on its Personal Iris 3D workstations by up to 30%. The 4D/20 with 200Mb disk is down to £10,300, whilst a diskless version is £8,600. The Mountain View, California company has also signed up Matra Datavision to sell on its boxes and to port its 3D CAD/CAM Euclid-IS software to the the Silicon Graphics machines. Perry also says that the company is planning further joint ventures with IBM in the three-dimensional graphics arena following their collaboration on the top-end RS/6000s which are configured with graphics hardware and software from Silicon Graphics. Perry added that the reason for delays in shipping the the new IBM systems lies in problems with the AIX 3.0 Unixlike operating system.

Microsoft Corp says that its Word 4.0, Excel 2.2 and PowerPoint 2.01 will all run under Apple Computer Inc's new A/UX 2.0 Unix on the Mac.

Motorola Inc now has answer to Intel Corp's 80860 RISC processor: the Motorola 96002 is claimed to be much faster than the Intel part (165MFLOPS against 99MFLOPS for the 80860), it has separate input and output buses, and with pricing set at 65% of the Intel part. It is aimed at multi-media applications combining colour video, graphics and stereo sound, and over 150 customers worldwide have asked for samples of the co-processor. But some observers feel that Motorola has lost a large part of the market by offering it a year later than Intel.

Peter Norton Computing Inc has built the marketing of tools that enable MS-DOS users to recover from their stupid mistakes into a very valuable business, and Symantec Corp, Cupertino has put a \$70m price tag on the Santa Monica firm. That is the value put on the share exchange takeover of Norton by Symantec, which has been agreed in principal and was announced yesterday; consummation is expected in August. Peter Norton and president Ron Posner will join the board of Symantec - best known for its Q&A integrated spreadsheet, word processor and database.

Cray Research Inc duly moved its Y-MP product line down-market to position it just above the machines made by minisupercomputer vendors such as Convex Computer Corp with the launch last week of the Y-MP2E. The machine, running Unicos comes in one- and two-processor configurations with up to 64M-words of main memory and costs from \$2.2m and \$5m. It will operate in an air-cooled environment, although water-cooling still appears to be preferred, and Cray claims that it achieves "the highest sustained supercomputer performance in its class".

Hitachi Ltd has begun marketing Hitachi Motif as a consistent Japanese-language graphical user interface across its entire range, from S series supercomputers through M-series mainframes and E-series minicomputers to 2050G/32E workstations. The Hitachi version of Motif incorporates Japanese language menus and messages, and costs equivalent of \$516 per month on the supercomputer and mainframe ranges, \$1,032 to \$2,580 on the E-series and \$193 on the stations.

NEC Corp, one of the new licensees for the MIPS Computer Systems Inc RISC family, has come out with the first workstation built around the chips it is now making. Positioned as a member of its 4800 engineering workstation family, the NEC Superstation EWS 4800/220 comes in desktop and desk-side models priced at \$33,225, and \$50,322. The stations use the R3000 version of the RISC with a floating point co-processor rated at 7.6 MFLOPS. The machines run AT&T System V.4 with the OSF/Motif user interface, and NEC plans to start shipments in July. It is hoping to sell 5,000 over the next two years, mainly for CAD/CAM, but also for financial and office automation applications.

Sun Microsystems has decided that its applications are better off with a software specialist and has sold its SunWrite, SunPaint and SunDraw to Island Graphics Corp, with which it developed them. Written for the Open Look user interface, they will be offered as the Sun versions of IslandWrite, IslandPaint, IslandDraw. Terms were not disclosed.

Interactive Systems Corp has launched Version 2.2 of its Unix System V/386 Release 3.2 operating system - the new version includes a development environment for creating POSIX-compliant applications and enhancements to TCP/IP network performance.

Apple Computer Inc says its System V.2.2-based A/UX 2.0 Unix with BSD 4.3 extensions ships next month: the new release supports the Macintosh computer desktop and applications and comes with X Window System, and third parties offer support for Motif and MS-DOS: it runs on the SE/30 and all IIs but wants 4Mb; it is \$7,170 on the Iicx, \$8,770 on the Iici, \$10,470 on the Iifx; the A/UX 2.0 External 80Mb Hard Disk is \$2,400, the CD-ROM is \$800, the A/UX 2.0 Floppy Disk and A/UX 2.0 Tape are \$1,000 each; X Window System is another \$350.

Yarc Systems Inc, the Californian that says its name stands for Yet Another Ruddy Co-processor - it makes RISC add-on boards for Apple Computer Inc and MS-DOS computers, has signed Swire Technology, a subsidiary of trading company John Swire & Sons Ltd: Yarc sell OEM to Advanced Micro Devices and other US manufacturers, as well as to German manufacturers, and forecast \$5m sales this year.

Tandem Computers Ltd's strategy director for database marketing expects to see Unix on the mainframe within the next five years, handling 1,000s rather than tens of users: however, that won't be achieved at the expense of Tandem's proprietary Guardian system, which will be coping with tens of thousands on the mainframe as the scale of business expands, and speed of transactions becomes more crucial.

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KAVNER - "WILLING TO TRY AGAIN" WITH UNITY TALKS

Speaking at Executive UniForum in Santa Barbara, California last week, AT&T Data Systems chief Robert Kavner last week said he was willing to try another round of Unity talks after a breathing space to allow the highly charged emotional atmosphere to settle down. Getting the industry down to one operating system is number one priority, and he said he will do "whatever I can" to affect it. Kavner's call for a return to common sense won support from the audience of big end-users and software vendors, and comes as groups of major users are coming together to demand a resolution (UX No 281, 283). Kavner indicated a willingness to retain the OSF request for technology process to develop V.4 further, but said that any entity that smells of an association or "not for profit" group would be unacceptable. He claimed most of the OSF "would like to go to V.4, and some will - we have to find a way to save face". In the meantime, he hopes OSF "burns up its marketing budget", because "its not serving the market or the end user". Kavner statement - page 2.

MIPS TURNS UP THE HEAT WITH WORKSTATION, SERVER

Sunnyvale-based MIPS Computer Systems Inc chose the X Window Xhibition in San Jose to highlight its response to the rock-bottom workstations from Sun Microsystems Inc and Data General Corp (UX No 283) with the R3000-based Magnum 3000 workstation, "the first in a series", saying it delivers "unprecedented performance and storage capacity" from \$9,000. The company also announced the RC3230 RISC computer server with higher RAM and disk capacity, starting at \$11,740 for "an operational configuration with a 200Mb disk". Each uses the 25MHz version of the RISC and is rated at 17.8 SPECmarks - 19.4 integer, 16.8 floating point and 3.6 MFLOPS on the Linpack double precision, Fortran benchmark. Main memory is expandable from 8Mb to 128Mb, and SCSI disk capacity can be expanded to over 6Gb. The Magnum 3000 and RC3230 will be board-upgradeable to the next generation of MIPS technology. The graphics environment for both models is RISCwindows, a MIPS performance-tuned version of OSF/Motif and the X Window System, and both come with factory-installed system software - including RISCwindows on the Magnum, to reduce customer set up time. OEMs already committed to taking the new machines include Control Data Corp, Falcon Microsystems of Landover, Maryland, and Pyramid Technology Inc. Master value-added resellers include Metrologie SA, Paris and TIS Ltd, Bourne End, Buckinghamshire. The company claims 400 applications for its RISC product line. The base configuration of the Magnum 3000 is diskless and includes 8Mb RAM, a 17" flat profile monochrome monitor, keyboard mouse, plus RISC/os and RISCwindows software. MIPS includes C, Network File System and TCP/IP in its RISC/os package. Both the systems will be available in June.

IBM "WORKING ON A DB2-LIKE DATABASE FOR AIX 3"

Rumours of an IBM project to produce its own database for AIX platforms have circulated for a number of years now (UX No 217). It now appears that the project is working on a Systems Applications Architecture-compliant product for AIX 3. Computer Systems News reports that the database is expected this autumn, and will be able to share data with DB2 on IBM mainframes. Unlike DEC with Ingres, IBM is not expected to bundle the database in with AIX 3 - it doesn't give away things that could be sold profitably. International Data Group says there will be versions of the database for AIX 3 on the PS/2 and on 370s as well as for the RS/6000 - but while the products may be different, they will all have the same Applications Binary Interface so that applications will be portable between them. The RS/6000 version is expected to be an emulation of DB2 and to interoperate with it. Although the effort will appear as a confirmation of IBM's bona fides in the Unix market, third party database vendors reckon that it will only be of much interest to members of IBM's existing user base that are voting the Systems Application Architecture ticket. It is also questionable how quickly IBM will be able to get a solid working product into the market, and its experience with DB2 is not encouraging.

PHILIPS "WANTS 51% OF OLIVETTI"

Philips NV declined comment last week on a report in Dutch daily de Volkskrant that it was negotiating to pay cash for a controlling 51% stake in Ing C Olivetti & Co SpA to create an \$8,000m-a-year computer and office equipment company comparable in size to the emerging Siemens Nixdorf Informationssysteme GmbH. The downside is that any such move would go down very badly with Philips shareholders and that it would put together two weak companies with very similar product lines, leaving big scope for rationalisation but creating a company amounting to less than the sum of its parts. Both are in personal computers and banking terminals and have very similar Unix families.

BULL ADDS TO UNIX LINE

Groupe Bull SA chose to cut itself off from the outside world for the launch of its new range of Unix machines last week by holding the event in Budapest, but details eventually filtered through. A workhorse DPX/2 360 built around the 25MHz Motorola 68040 comes in versions with up to four processors to deliver 59 MIPS: a single processor model with 64Mb, 2Gb disk, 150Mb tape and 64 ports is \$115,000 to \$135,000 from September. The Bull-designed DPX/2 500 at the top end uses the ECL R6000 RISC from MIPS Computer Systems Inc, and claims to deliver 68 MIPS, 9.3 MFLOPS, 109,000 Dhrystones for December shipments. Prices from \$170,000 to \$700,000. At the bottom, Bull added the 80386SX-based DPX/2 100 from Zenith Data Systems, which supports up to eight users from \$7,000.

NCR OFFERS X-STATIONS OEM

NCR Corp laid down the gauntlet to bustling X-station pioneer Network Computing Devices Inc, saying that it would be offering its comprehensive line of new X Window System workstations on the OEM market as well as through resellers and direct. There are 14", 17" and 19" XLC colour and 17" and 19" grey scale XLG models, and NCR claims up to 200% better graphics processing performance over traditional systems using a dual processor split server architecture with a Motorola 68020 doing the control and a Texas Instruments TMS 34010 doing the graphics. The monochrome models can be upgraded to colour by adding a colour board and new monitor. Prices range from \$4,400 to \$6,500, and the stations will be available in the third quarter in the US. More X-News on pages 4 and 5.

ISVs may have early release of OSF/1 by September

The Open Software Foundation has decided that it wants to get OSF/1 out to independent software vendors as quickly as possible, and told its member's meeting the week before last that it is currently considering breaking the embargo that restricts its distribution to members only until its official unveiling in November. Although some restrictions would still apply, OSF/1 business area manager Grace Perez says ISVs could have it by September - possibly before - since no OSF members objected to the idea.

OSF/1 "will be Xenix compliant by mid 1991"

Meanwhile, Perez, and OSF chief Dave Tory, said that OSF/1 will have Xenix compatibility - but by the first quarter of next year rather than at the launch of OSF/1 in November (UX No 283). The Foundation is working with Santa Cruz Operation, along with Locus Computing Corp and Hewlett-Packard on the development project. Locus will be responsible for the software engineering of the project, while HP will provide hardware. The goal is "to ensure compatibility with SCO Unix System V/386, Open Desktop, SCO Xenix System V and other implementations of Unix System V/386 by the first half of 1991".

No decision on standard user interface from X/Open

X/Open refuses to select a graphical user interface even though the first two of four action items at its user meeting in Luxembourg the week before last were demands that they make a choice. A decision was promised for this Spring, but X/Open, which apparently wants to make sure it supports a de-facto standard, feels it is still to soon. Those who think that X/Open should do more note that even Apple has ported Motif to A/UX, and AT&T Computer Systems will sell Motif if that's what it takes to close a deal. Roger Sippl, Chairman and founder of Informix Corp and chairman of X/Open's ISV user council, said that support for a common applications programming interface encompassing Motif and Open Look (UX No 280) would not be possible without compromise: "the feature sets are not close enough", he said. Sippl also pointed out that such a solution would not represent a final resolution. "You would still need two sets of documentation, two quality assurance tests and two training efforts".

Unix International to unveil ISV recruiting effort...

Unix International this week is set to open a new front in its escalating battle with OSF, this time aimed at winning the hearts and minds of the strategic ISV community. UI says it is out to double its claimed 15,000-strong program base within two years, making it the equal of MS-DOS today. Marketing vice president Dave Sandell said that the first target is DOS houses, particularly those working in the client/server and personal productivity area. Then come IBM mid-range and DEC VMS developers, Ultrix and AIX ISVs and the Xenix/Berkeley crowd. Enticements include a new advertising campaign in the Wall Street Journal ("the most secure investment in this paper"), Financial Times, Asian Wall Street Journal and various trade publications, and ten one-day seminars in the US and Europe. UI has apparently secured the endorsements of Sparc International, 88Open and Intel for the program, to emphasise the possibilities of high volume sales through binary compatibility; each has pledged to help ISVs port to Unix. UI member companies will also open porting centres in 18 countries for ISV use, backed by loan programs, detailed porting guides and discounted training courses.

...claims 85% take up on V.4

According to UI's Dave Sandell, there are 175 companies with System V licenses. 85% of those have licenses to V.4, and USO says it is actively negotiating with the rest. Answering the OSF claims that V.4 isn't actually shipping, Sandell says that ICL, AT&T and NEC are currently delivering binary versions with applications. But OSF still says that, if that's the case, it would still like to get a copy to play with!

...builds V.4 support in India

In the wake of Unix International's field trip to India last month, 12 Indian companies and governmental agencies have formed a regional group supporting Unix System V.4. The group hopes to harness India's highly skilled but low-cost programmer population to write V.4 software for export. The consolidation move, believed to be organised by AT&T India and Sun's distributor Wypro, includes HCL, Tata Consultancy Services, The National Centre for Software Technology, Softek, Org Systems, ITC Ltd, ICIM, the National Council for Social Development, The National Association of Software and Service Companies, and Kirloskar Computer. UI is also watching the way the wind blows at the forthcoming Cocom meeting next month, contemplating a move on Eastern Europe.

Statement from Robert Kavner, AT&T Group Executive, Data Systems and Federal Systems

" If anyone has a solution to the impasse that developed between Unix International and the Open Software Foundation, I welcome it. There is a need for one Unix implementation in the marketplace if there is to be consistency and interoperability among vendors and architectures. The Unix operating system should not be a turf for competitive differentiation. It just hurts the customer.

I suggest that any new dialogue address only specific issues and the discussion not be allowed to be used as a vehicle for competing companies to gain new advantages. This has been our problem to date.

My chief concern - and the concern of those companies who have adopted Unix System V as the standard Unix platforms - is that we protect the investment users, vendors and ISVs have made to date. The industry needs to preserve those investments and I think that's what this new user group is telling us. They're saying, "We're interested in the Unix operating system, we have investments in the Unix operating system, and we need assurances that the future of the Unix operating system is not disruptive." In my mind, a commitment to Unix System V is all the assurance they need.

You have to remember that there are some pretty major players in the industry who don't agree, for their own reasons, and may not find it in their best interest to reach an accommodation over a standard platform.

We have tried for nearly two years to reach an accommodation. Whilst there is some agreement on technology, the Holy Grail has eluded us. Maybe a fresh look at the issue will help. The key to success is to force out self interest and address the Unix issues from the perspective of those who have invested to date, and how others can be accommodated. "

ICL GEARS UP FOR UNIX-BASED IMAGE SYSTEMS ENTRY...

It is questionable just how big the market for optical disk-based image storage and retrieval systems will be - FileNet Corp has been selling the things for six or seven years and has the weight of Ing C Olivetti & Co behind it as an investor, but remains a long way from being an industry heavyweight, and Philips NV has not swept the world with its Megadoc system. Nevertheless, if all your competitors are rushing to embrace the next craze, it takes a lot of nerve to sit on your hands and do nothing. Accordingly, in the next four to six months, ICL Ltd is expected to make its entry into the market with a Unix-based integrated image system, and according to Computer Systems News, will launch in the US at the same time as Europe, with a prime target of the law firms that were such big Computer Consoles users.

...LAUNCHES SPARC UNIX BOXES IN JAPAN

ICL Ltd last week plunged into the Unix melee in Japan, launching its Sparc-based DRS Series 6000 through its local distributor, Chiyoda Joho Kiki. Peter Cunningham of Unix International was in town and dropped by for the launch and said he thought that the machine would be a success in Japan - but then he has an interest - he was the product development manager for the 6000 before transferring to Unix International.

COMMODORE WINS US FEDERAL BUSINESS

The Amiga, from Commodore International Ltd, has broken into the US Federal market on the back of a \$400m contract awarded to Sears, Roebuck & Co. Commodore Business Machines Federal Systems Group, established in Reston, Virginia only last September, says that it is one of the key subcontractors to Sears Business Systems in its win of the Department of Treasury's Departmental Microcomputer Acquisition Contract II. The procurement calls for a variety of personal and laptop computers, software, networking products and peripherals to be offered to Treasury Department agencies, and Commodore's contribution will be 68030-based Amiga models.

STRUGGLING DAISY CLAIMS SIX MONTHS LEAD WITH VIKING CAD SOFTWARE

Daisy Systems Corp, now of Boulder, Colorado has clearly not recovered from the acquisition of computer-aided design software company Cadnetix Corp for \$200m. The enlarged company has reported a second quarter loss of nearly \$22m (including a \$9m restructuring charge) on turnover that plummeted 30% to \$33m. And according to Electronic News worse is to come: the company is unable to pay the interest on the \$33m which is outstanding on its bridge loan from Heller Financial Inc; it owes bondholders \$118m on convertible debentures; and it is being sued by two Santa Clara County developers for moving out of its leased sites in Mountain View, California without paying an alleged \$1.5m in rent for February, March and April - the developers say they will continue charging Daisy \$500,000 per month in rent until the matter is settled. Daisy is being advised by Regent Pacific Management Corp, the firm it hired last year to help turn it back into a profitable company. The going is slow but Daisy is adamant that it won't sell off any software lines. Instead it is focusing its research and development effort on products for computer-aided design, engineering and manufacture. The first burst of confidence from the company came with the launch of Viking 1 which is a suite of software in this strategic market area that runs on Sun-4 workstations and which Daisy claims is six months in advance of anything from its rival Mentor Graphics Corp. This product range reveals that all the Daisy and Cadnetix tools have been integrated into one software environment. Viking 1 works with third-party tools and uses the Unix operating system and the C++ programming language. It is shipping now. Meanwhile the company is desperately hoping that its debt can be renegotiated by Regent.

MOTOROLA'S 96002 "MEDIA ENGINE" FITS 80486 AS WELL AS 68040

Motorola is classing its 96002 floating-point dual port processor (UX No 283) as a very long instruction word chip. The so called "Media Engine" is designed as an attached processor for Motorola's own 68040 or the rival Intel 80486, and has the ability to create colour graphics concurrently with the generation of stereo sound. From an architectural standpoint, the chip is essentially a 32-bit floating point version of the Motorola 24-bit 56001 - the audio and communications chip used in the Next Inc computer. The two identical independent input-output ports on opposite sides of the chip effectively double throughput or productivity over conventional processors, according to Motorola. The company claims that more than 100 customers have designed in the 96002 and are awaiting samples, and one - Ariel Corp of Highland Park, New Jersey, has rushed out a co-processor board for AT-likes. Volume production of the 33MHz version is expected in the third quarter.

CRAY-3 DELAYED BY SIX MONTHS

Cray Computer Corp has added to the concern over its survivability by saying that it has had to put back production of its Cray 3 supercomputer by six months. The Colorado Springs spin-out from Cray Research Inc blames lack of Gallium Arsenide fabrication capacity and the lack of any equipment capable of testing circuits with switching times as fast as 2ns so it must design its own. According to Electronic News, it has had to ask Cray Research - bankrolling the effort to the tune of \$100m - to extend its commitment to January 1992: it is currently scheduled to run out in July next year. The first working dual-processor Cray 3 will not now be ready until late next year. Underlining the gap between the research claims made by Japanese companies and their production capability, Seymour Cray told the company's first annual meeting that it took Fujitsu three months to turn around GaAs parts because it has only "a little research shop". So Cray must wait for volume parts until transfer of Gigabit Logic GaAs fabrication line - bought by Cray in March - to Colorado Springs from California, and that won't be till November. The machine will now run AT&T Unix System V.4.

ICL-BULL-SIEMENS LAB DOES PROLOG UNIX CO-PROCESSOR

One of the stranger collaborations in Europe is the one between ICL Ltd, Siemens AG and Bull SA in Munich, where the three companies jointly finance an advanced research and development laboratory separate from any of the European funding programmes - "the good thing about it is that it's ours!" former Bull chief Jacques Stern once said with great satisfaction. Little has been heard about the lab of late, but something concrete has just come out of it in the shape of the Knowledge Crunching Machine, a high-speed dedicated co-processor for Unix machines that is optimised for the Prolog list processing language. The partners say that the thing is "enhanced with many hardware innovations" and that it speeds Prolog execution 10 to 20 times over versions running on workstations without the co-processor. Siemens sees the thing being used in natural language systems, circuit verification and diagnostic and advisory systems and is attaching it to its high-end NS32000-based MX 300 Sinix machines. Bull will put it on its DPX/2 machines and ICL on Unix models in the DRS line. The part is still experimental, but the trio has 50 of the things available to research and industrial collaborators for evaluation. Although Lisp is the runaway winner in the artificial intelligence stakes in the US, Prolog probably still has the edge here in Europe and in Japan.

ROCK BOTTOM WORKSTATION PRICES PUT THE SQUEEZE ON X-TERMINALS

William Fellows reports from the Xhibition in San Jose

Set in the sleepy town of San Jose, which languishes in the lower reaches of California's Silicon Valley, last week's Xhibition '90 show was a testament to how rapidly X Window technology has come on, and, judging by the number of European and Asian visitors, how seriously X Window is now being taken by the Unix community outside of the US. It is just a year after first generation X terminals were on show at Xhibition and half-pint system memories that required expensive upgrading to stand a realistic chance of running X server code as well as handling application throughput, these pioneering efforts are now being superseded by a bevy of hardware and software developments, many on show this year, that are pushing performance up, and prices down. However, although the exhibitors - occupying twice as much floor space as last year's affair - were generally ebullient about their X efforts, there was nevertheless a degree of unease, notably among the hardware manufacturers, about the future role of X-terminals in the marketplace. Ominously missing from the popular tutorials and presentations that accompanied the show were the sweeping predictions for X-terminal market penetration that are often tossed around. Rather, speakers focused on how X-terminal technology will be able to withstand the onslaught from low-cost, high performance workstation solutions that are rapidly coming to market. Some believe that with high-performance CPUs and more on-board memory many of the distinctions between X-terminals and diskless workstations will be removed, leading to direct competition. Indeed, the powerful 68030-based colour Le TX terminal from French manufacturer Gipsi SA has even been dismissed as "a workstation" by a rival X-terminal developer. Others cling to the belief that whatever happens at the low-end of the workstation market, X-terminals will always retain a niche position.

There are yet others who believe it is only when Asian manufacturers begin serious shipments of low-cost X-terminals that the market will really be assured. This is the rub. The thing about X-terminals is that they take the most expensive parts of workstation technology and put them together - monitor, keyboard and system memory. And this is against a backdrop of falling disk and CPU prices for workstation manufacturers. Samsung, with all the advantages of cheap manufacturing that South Korea offers, is now offering RISC-based monochrome X-terminals with 2Mb memory based on a 16MHz AMD 29000 processor for \$3,000, and while a \$1,000 X-terminal may be no more than a year or two away, can the market wait this long? Sun has begun deliveries of a diskless 25MHz Sparcstation SLC with 8Mb for \$5,000, that can be upgraded to full stand-alone status with the addition of a hard disk, and Apple, now that it has a fully integrated Unix/MacOS environment with the release of A/UX 2.0, must also be considered a serious contender for a slice of the marketplace, along with Sony Microsystems, whose whole presence at the show was based around the concept of "News Workstations - at the price of X-terminals".

The X-terminal community can of course point to the advantages of having a network of low-cost and diskless X-terminal users running multiple X-Window applications administered and backed up by a central server. However it still has to prove that sales so far - reckoned to be a potential 3,500 units per month, growing by anything over 30% a year - reflect anything more than the fact that there is always a market for something new.

Joy and Goldstein discourse on Unix futures

The keynote address by Sun Microsystems founder Bill Joy and OSF guru Ira Goldstein passed off in a fairly predictable fashion. Goldstein reiterated his oft-heard metaphysical discourse on the Darwinian-like prospects for the molecular evolution of OSF/1. However, more concretely he did say that an Application Environment document will be out in around two months that will spell out what OSF will do - and more importantly - won't do, over the next two years, and that OSF expects to ship 240,000 copies of Motif this year.

Joy stuck to telling the audience more or less that what has made him rich over the last seven years will do the job just as well in the future: namely the chaotic development of computing - which he likened to the chaotic development of capitalism - and his uncanny ability to take advantage of it. Points in the debate definitely went to the audience with two questions raised. To Goldstein - why OSF/1? To Joy - why no Motif?

On the Unix International/OSF schism Joy said, "yes it's a desirable situation - it keeps DEC, IBM and Hewlett in line". His tolerance was a little less tempered however when it came to discussing OSF's DCE choice, "they make political decisions - then they make up the reasons why they make those decisions", he said. On the charge that Sun is pulling out of the performance race by concentrating on low-end volume "one person, one computer" business, Joy revealed that a super high-performance, single-processor version of the Sparc is being readied for next year, expected to make IBM's RS/6000s look like pussy-cats. "1990 is the year of the volumes, 1991 will be the year of performance". His views on the prospects for Microsoft Windows 3.0? "It'll kill OS/2 - and I'm glad". On why AT&T didn't go with Sparc - "they had to stop the bleeding". On secure operating systems? "You can't trust any system with two million lines of code".

HP X-Terminal users can migrate to workstations

Hewlett-Packard is working on a program that will enable its HP 700/X X-terminal users to upgrade their systems to an HP 9000 workstation if they wish. From July, colour or monochrome X-terminals users can migrate their systems up to a 9000 model 340M or model 340C+ diskless workstation with 8Mb RAM, and from there on to a more powerful model 375. The HP 700/X monochrome terminal is \$3,000, upgrading to the 340M is \$5,500. A colour HP 700 is \$5,000, and an upgrade to the 340C+ costs \$6,500. HP has also added Japanese, (Kanji and Katakana), Chinese, (simplified and traditional), and Korean, (Hangul) language keyboard support for the HP 700/X.

Xhibition News 2

DESKTOP BATTLE CONTINUES AS MOTIF/OPEN LOOK, IXI/VISIX VIE FOR CUSTOMERS

While Xhibition '90 was a clear victory salute for the triumph of OSF/Motif over Open Look, in the graphical user interface war, Sun Microsystems remains firmly opposed to offering the more popular Motif on its workstations. After delivering the keynote conference address, Sun mentor Bill Joy was pressed by users from the floor to explain his reasons. However while bitterly acknowledging their demands, reasons were not forthcoming. He merely replied that if users want to run Motif on Suns then they should get it from third parties as Sun was not going to offer it. At the show, Expert Object Corp, Lincolnwood, Illinois, and Quest Systems Corp, Santa Clara, California, became the latest additions to this growing list of third parties, announcing that they will be offering a joint OSF/Motif solution for Sun workstation users, incorporating Exoc's ExoCode visual interface programming environment with Quest's Motif toolkit and X server software. By being in the position to act as a secondary contractor on Sun bids which require Motif, Exoc's president Walter Fyk quipped that it means "Sun's sales team will not have to say the M**** word". ExoCode - which also available in Open Look and DEC Ultrix versions - starts at \$1,500, and Exoc has signed up Advance Computer Solutions Inc, Houston, Texas, ECS Solutions Inc, Torrance, California and Workstation Plus, San Leandro, California as ExoCode value-added resellers.

On the desktop manager front, although rivals IXI Ltd and Visix Software Inc were tactfully separated by the length of the exhibition hall, it was hard to avoid their X.desktop and Looking Glass products, which were splashed across many of the stands. Apple, Hewlett-Packard and Non Standard Logics were also in evidence with their desktops, and while an HP person remarked that "no-one has put together the killer desktop yet" - and it is true, they all do more or less the same things in similar ways - it does seem that IXI and Visix have the market pretty well sewn up between them at the moment.

Visix previews Looking Glass 2.0

Visix was previewing the unreleased Looking Glass version 2.0. New features include the ability to save and restore a specific desktop layouts, a graphical tree view of the file system and 50 additional icons. Particularly useful functions are a new history option for repeating commands, and a command line that accepts symbols from the desktop - such as those representing files or directories - in its make up. And Visix has also initiated a software partnership programme for independent software vendors to encourage the development of Looking Glass-compatible workstation applications via technology exchanges. Adobe Systems Inc, Applix Inc, Crosswind Technologies Inc, Empress Software Inc, Frame Technology Corp, Ingres Corp, Oracle Corp and Uniplex Integration Systems Inc are the first to have signed up.

Solbourne signs \$3m OEM deal with NCD

Solbourne Computer Inc, Longmont, California, does not share Sun's antipathy towards X-Terminals and has become the latest workstation manufacturer to add a range of X-terminals to its line, signing up for Network Computing Devices' X display stations in an OEM deal worth \$3m over two years: NCD claims to have shipped over 13,000 of its X-terminals worldwide and has some 120 employees.

Character-based applications can have X advantage

Trying hard to get some momentum going for its Open Look graphical user interface, AT&T has signed up for a software tool called ALEX - A Language Extension to X - from London, England and Menlo Park, California-based System Strategies Ltd. ALEX enables character and non-graphic-based applications to utilise the Open Look environment without changing the source or binary code of the existing software, by creating a graphical representation of character input or output. Available for AT&T's 6386 WorkGroup systems, a single run-time licence is \$50, rising to \$10,000 for an unlimited copy. Development kits go from \$2,950 to \$5,950. Meanwhile, IXI's stand attracted a constant stream of visitors inquisitive about its new X.desktop software, (UX No 283). The UK, Cambridge-based outfit promises a help facility for X.desktop in the future, as well as a new drawing package that is currently in development and under wraps.

Quarterdeck adds X to Desqview for MS-DOS

Despite the release of Microsoft Windows 3.0 last week, Quarterdeck Office Systems reckons that there is still a market for running X-Window applications under MS-DOS, announcing the incorporation of X-Window into its MS-DOS-based Desqview multitasking, windowing environment. Planned for a fourth quarter release, Desqview/X will run X server and client software locally - simultaneously with MS-DOS programs - and also enable MS-DOS and X-Window applications to be run remotely on an X-Window-based machine over TCP/IP or a Novell network. Desqview will be available for 80286 and 80386 PC applications as well as local 16- and 32-bit X-Window applications. In addition OSF/Motif and Open Look window managers will be available for Desqview/X, which is EGA, VGA, EVGA, IBM 8514 and DGIS-compatible.

Samsung uses AMD RISC for new graphics station

Samsung Software America Inc, Andover, Massachusetts, has become the first company to unveil a RISC-driven X-terminal with processors from outside the Motorola stable. The Samsung Graphics Station - SGS-19 - which is based on a 16MHz version of Advanced Micro Devices' Am29000 RISC processor, comes in at around \$3,000. With 2Mb memory and 256Kb VRAM it has a 19" monochrome monitor, XoftWare A290 X server and XoftNet network software specially developed for the Am29000 by Advanced Graphics Engineering Inc - see below - TCP/IP and serial lines. Aimed at OEM customers, volume shipments of the SGS-19 begin in the fourth quarter.

...as AGE adds AMD, Texas XoftWare ports

In addition to its promised Am29000 port (UX No 268), AGE, San Diego, California, has released a version of XoftWare for 80386 and 80486-based PCs which use a Texas Instruments TMS340 graphics controller and run Interactive Systems' Unix implementation. XoftWare, (UX No 244), is an implementation of X11 Release 4 code that includes font-caching, pixmap paging and save under and backing store functions for improved speed and use of memory. XoftWare for Interactive Unix is \$600 on each PC. Ports for SCO and AT&T Unix are promised for the near future.

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AT&T reportedly has the headhunters out to find a new CEO for its Unix Software Operation - in the process of restyling itself as **Unix Software Labs** (UX No 282). Although AT&T declined to comment, sources say that it's down to three finalists, but is still open to suggestions, and that the candidates are all "aggressive marketeers". Larry Dooling, currently both CEO and President, would presumably remain in the latter position.

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The anticipated spinout of USO is likely to follow the **Apple/Claris** model and could have the entity go public in three years. Before that, AT&T plans a private placement of 30 to 40 percent, and has approached vendors such as Sun, Unisys, NCR, Toshiba, NEC and Siemens with the idea, as well as software firms like Oracle, Informix and Ingres, plus some semiconductor companies.

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In addition to its other troubles, Philips has reportedly found a lot of legal red tape to go through in severing itself from the **Open Software Foundation**.

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And after **Hitachi's** reluctance to continue as an OSF sponsor hit the press, (UX No 275), HP's John Young is said to have personally gone to Japan to persuade them into staying on board: meanwhile rumours continue that OSF sponsors such as Hitachi and Bull may go with V.4 by year-end.

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DEC, which bundles in the Ingres relational database with its Ultrix operating system, is reportedly negotiating a stake in Ingres to cement the relationship - some say it has already bought it and not yet revealed the fact - and Gartner Group hears talk that DEC is looking for a controlling stake in the Alameda, California company, if not outright takeover of the firm.

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DEC and IBM are the latest companies to take advantage of the **Open Software Foundation's** Portability Lab service, which provides technical assistance for OSF members porting OSF technology to their platforms. Other companies using the service include Groupe Bull, Hitachi, Hewlett-Packard, Intel, Intergraph and Siemens/Nixdorf. The Lab is managed by Raymond Mazzaferro.

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A new report from **ButlerBloor Ltd** of Hull, UK, evaluates and compares 20 database products: for high volume transaction processing applications the report identifies Informix Online, Ingres, StarBase and Unify 2000 as the most appropriate environments, but adds ominously that implementing large, complex database applications under Unix "is likely to be a high risk activity for one or two years to come - we would urge anyone looking to use Unix as an environment to validate the technology before it is used". The report costs £495 from ButlerBloor, telephone 0482 227511.

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OSF Distributed Computing Environment people met with **Apple Computer** last Wednesday to see if Apple will be prepared to license DCE, an endorsement that would be one big feather in their cap. First platforms, pricing and a name will be given to DCE in July and OSF claims it will in time become OSI-compliant.

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Philips Information Systems said it had founded a Laboratory for Unix Integration at its marketing headquarters in Eindhoven to benchmark real-world commercial applications and integrate business systems. It will invest \$8m in the centre, which will concentrate on Informix and Oracle databases, Uniplex office automation, and SNA, Open, and TCP/IP communications.

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Despite having been the one that evidently dug its heels in over the terms of its proposed merger with **Lotus Development Corp**, **Novell Inc**, in its first statement on the embarrassing setback, last week said that it hoped that merger negotiations with Lotus could be reopened in the future: Lotus also revealed that it held merger negotiations with **Microsoft Corp** in 1986, and that it agreed with Ed Esber to acquire **Ashton-Tate** in 1987, but that the Ashton-Tate board turned the plan down.

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Hewlett-Packard Co is the latest to license **Novell Inc's** Portable NetWare network operating system for use on its HP 3000 Model 900 boxes: Novell has also licensed Portable NetWare to **Innovus of Hamilton, Ontario**, and Innovus will provide it in the HP9000 under the HP-UX Unix-alike.

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IBM is forecast to cut PS/2 prices across the board shortly.

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Dansk Data Electronik A/S, builder of the multi-processor Supermax Unix machines, has signed up London-based **Telecomet International Ltd** as an OEM partner for its machines.

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ICL Ltd, already a major player in the US legal market following its acquisition of **Computer Consoles Inc**, has signed up East London-based **Star Computer Group Plc** to market Legal Officepower systems to solicitors and lawyers in England and Wales, running on DRS 6000 Unix boxes.

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Sony Microsystems, San Jose, California, is to begin marketing **Cambridge, Massachusetts-based Integrated Computer Solutions' Builder Xcessory** software on its News workstations. Xcessory is a Motif interface prototyping application. Sony says it will also begin distributing and supporting **Frame Technology's FrameMaker** publishing software in the US and Europe, following a software sublicensing deal with **UniPress Software** which markets **FrameMaker**.

Hummingbird Communications Ltd, Markham, Ontario, has introduced X11.4 versions of its PC X server software - **HCL-eXceed Plus** and **HCL-eXceed Plus/8514A** - for 80286-, 80386-, and 80486-based personal computers or PS/2s. **GfxBase, Milpitas, California**, has released X11.3 code for **Commodore's Amiga** computer on eight floppies taking up 11Mb, and costing \$400. It is also offering a version of **Open Look** and the **XView Toolkit** on the machine.

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Jupiter Systems, Alameda, California, has added the model 410 to its line of X-terminals. With a 25MHz Motorola 68030 and from 2Mb to 16Mb RAM, it comes with a 19" colour monitor and starts from \$7,950.

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Although most X-terminals are built around Motorola's 680X0 and 88000 chipsets, the Intel flag was waving on at least one stand. **Micronics Computers Inc, Fremont, California**, was showing off the first Intel 80386-based X-terminal, the **MaxTerm**. Using a 25MHz part with from 2Mb to 8Mb RAM, virtual memory support, Ethernet and a 19" monochrome monitor it starts at \$3,000.

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If you really want to know the answers you have to go to the top I suppose. After the launch of the **Sparcstation SLC** last week (UX No 283), **Sun Microsystems in the UK** admitted that they didn't have a clue what the SLC stood for. Sun in the US told Unigram.X it didn't stand for anything, "we just liked the way SLC sounded". Not to be put off from this quest, Unigram.X put the question to probably the only person in Sun who does know, **Bill Joy**. Answer? "Simple", he said, "Super Low Cost".

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UNIX SOFTWARE OPERATION TEAMS WITH RETIX FOR OSI STREAMS...

AT&T's Unix Software Operation last week announced an important strategic alliance with Retix Corp that will see the integration of the current Retix OSI technologies tightly coupled with AT&T's Unix System V Release 3 and 4 Streams communications software. The duo will also co-fund and co-develop future products and jointly market and support the results. The promise of OSI availability should give SVR4 OEMs a leg-up in enterprise networks and the lucrative government marketplace where GOSIP-compliance becomes mandatory this August. USO vice-president Joel Applebaum indicated that current Retix products will be integrated into V.4 within six months. They will, however, be sold unbundled to oblige only customers who want them. The OSI functionality offered in the initial product will include: X.400 messaging and X.500 directory services, File Transfer, Access and Management (FTAM), Network Management Services and Virtual Terminal (VT). The pact also provides for TCP/IP-to-OSI migration products, including gateways to TCP/IP-based E-mail and file transfer applications. The Retix technologies will be built on top of AT&T's OSI Communications Platform (CP-1), the kernel-optimised core stack USO detailed in February. AT&T said it chose Retix, a 400-man, \$50m-a-year company based in Santa Monica, California, because it dominates the OSI-for-Unix industry, providing its technology to some 150 OEMs worldwide. Retix and Interactive - see page 5.

...AS AT&T'S UNIX SPIN-OUT PROGRESSES

The shell of the Unix company AT&T intends to spin out via private placement - which if luck holds will be by the end of summer - has been set up and incorporated in Delaware. Intellectual property rights to Unix have been transferred over to the entity, which for the time being remains a wholly-owned subsidiary of AT&T. Apropos of the private placement, the entity now has its own set of books, while payroll and other personnel matters have been made independent of AT&T. Morgan Stanley has been retained to handle the sale of 30 to 40% of the stock in Unix (UX No 284).

NOW IBM "WILL DO ITS OWN CICS" FOR RS/6000

As well as its own relational database, (UX No 284), IBM "is developing a version of CICS" for the RS/6000 Unix box, Computer Systems News believes - but any such move will be a little surprising, since IBM is already marketing a version of CICS for AIX from Dallas, Texas company VISystems Inc. The paper quotes Irving Wladawsky-Berger, a general manager in the Enterprise Systems unit saying that the company has "recently learned how to port CICS to AIX 3", declining to say when such a product will be available. There is already a version of CICS for the PS/2 under OS/2, mainly for development of mainframe applications. In January, IBM announced that it had picked up VISystems' VIS/TP for AIX: the product is described as offering an environment for executing and controlling on-line and batch applications, developing, testing and maintaining C and Cobol applications, and migrating VSAM data and CICS/Cobol applications to Unix (UX No 265). The company is a member of IBM's Co-operative Software Program, and has ported the product onto pre-release versions of the RS/6000 under AIX/3. Don Kiser, VP of Sales and Marketing, said that IBM saw CICS as "so strategic that they might want to manage their own version" in the long term. VISystems spent two years developing VIS/TP, which according to Kiser has "a very high mapping of CICS functionality". It is also available on Unisys, Hewlett-Packard and Data General machines, with Amdahl and Fujitsu versions in the wings. Kiser said that the move would "re-inforce IBM's commitment to on-line transaction processing in the Unix environment".

ARIX AND SCI PICK UP THE PIECES OF ORION

The operating business and outstanding contracts of Orion Associates Inc, Monte Carlo, have been jointly acquired by Arix Corp's UK and German operations, whilst the rest of its user base has gone to SCI Systems Inc, Huntsville, Alabama. Orion, a holding company for Fortune Systems Corp, Belmont, California, has called a meeting of shareholders next month to decide its fate, because, as a spokesman declared, now there is "not a lot left" of Orion. Fortune's hardware side was sold to SCI in 1987, (UX No 123), but a comeback was made with a management buyout of Fortune's international operations from SCI in June of the same year, (UX No 132), and it signed an OEM deal with Arix a year later, (UX No 175). Arix, which says it has been working on the deal for the last six months, will transfer Orion's Indonesian, Dutch, German and Austrian OEM and distribution business into its own OEM operations. Orion's customers will be integrated into Arix's own customer base. Orion also has a \$25m OEM deal with Motorola, signed last year, (UX No 230), though no-one at Motorola was available to comment as we went to press.

AT&T SERVERS, X/OPEN XPG3 BRANDING - THIS WEEK

AT&T is set to launch new Unix servers along with some software at Comdex Spring 90 in Atlanta, Georgia today (Monday 4th): observers have been expecting additions to AT&T's Intel-based line of systems, possibly including a '486 box. And tomorrow - Tues 5th - X/Open is formally launching its XPG3 - X/Open Portability Guide 3 - branding programme. According to X/Open, Unix V.4 has been tested and has "proven to be fully compliant". X/Open's suite - known as XVS - contains 5,500 tests, though depending on what is tested for this can rise to anything up to 9,500. X/Open has a new chief marketing officer - George Shaffner - who will be working out of London, and replaces Steve Lowen from the US: X/Open's next meeting is scheduled for Tokyo at the end of June.

**UNIX INTERNATIONAL DECLARES 1990
"YEAR OF THE INDEPENDENT SOFTWARE VENDOR", IN JAPAN**

by Anita Byrnes

Unix International Inc has been waving the flag in Tokyo for its true blue Unix System V.4, and both Peter Cunningham, president and chief executive of Unix International and Michael DeFazio, vice-president of AT&T Co's Unix Software Operation were in town for the event, which also served to introduce the new head of AT&T Unix Software Operation Pacific James Clarke, who replaces long-time Japan resident Larry Crume, who retired from AT&T Pacific (and ended his Japanese sojourn) to join Lotus Development Corp in Cambridge, Massachusetts.

Clarke expects to continue the profitable operation enjoyed by AT&T in Japan, especially over the last few years - Japanese hardware vendors have been especially keen licensees of the original AT&T Unix source code. Peter Cunningham claims that the System V.4 introduction last year was the "most successful launch of an operating system ever." He also previewed a new activity this year which Unix International has designated the "Year of the Independent Software Vendor" - this will be the "most aggressive push yet to get applications off proprietary base and onto open systems". Although details of the new programme were not revealed it is expected to be announced within a month or so and will provide special incentives for developers to convert their software for an open system environment from other environments, including OS/2. Cunningham was followed by Yumio Imamura, head of Unix International Asia-Pacific. Imamura-san highlighted what he saw as the successes enjoyed by the AT&T supporters' club in the region since its formation one year ago - including an increase in membership. There are now nine full members - Fuji Xerox, Fujitsu Ltd, NEC Corp, Nippon Sun, Nippon NCR, Oki Electric Industrial Co, Prime Computer Japan and Unisys Japan - Hitachi Ltd is out on a limb as the only Japanese major to have joined the Open Software Foundation. There are 11 general members of Unix International Asia-Pacific, ASCII Corp, Canon Inc, Nippon Data General, ERSO, ITRI of Taiwan and ETRI in South Korea, HCL America Inc, India, III of Taiwan, Matsushita Electric Industrial Co, Omron Corp and even Yokogawa Hewlett-Packard, despite the fact that its US partner is a leading member of the rebel band. There are 12 supporting members, including CSK Corp, the large software house that is tipped to buy Hoskyns Group Plc; C Itoh Techno-Science, NTT Data Communications, Sumitomo Electric, and Nippon Steel; the eight sponsors include Aoyama Gakuin and Keio University, Tokyo University large Computing Centre, and Fujitsu Ltd affiliates Facom Centre and Facom Software Conference. Unix International's overriding aim in Japan is to increase business market penetration of System V.4 systems - Unix is still very much seen as the province of technical and engineering applications.

Flotation plans

To this end Unix International is sponsoring a continuing series of seminars for developers of commercial applications, and will join with other open systems bodies such as the Sigma organisation and X/Open Co Ltd - the rival Open Software Foundation is conducting an Open Systems Fair later this year. The other main area of activity in Japan is to ensure that the Japanese language processing functions of Unix are adequate and sufficient; to this end the Unix International Work Group was formed last year.

Several meetings have been held in various parts of Asia, resulting in a specification for a Japanese version of Open Look. Mike DeFazio of the Unix Software Operation gave figures to support his claim that the take-up of System V.4 is six months ahead of schedule. Asked to elaborate, he explained that Unix International had aimed to have 85% of the 175 independent system vendors worldwide registered with the programme by June 1990, and in fact this was achieved in January 1990. He also highlighted AT&T Co's plans to float off a part of the Unix Software Operation, with a prospectus by July this year and the flotation to be completed by the end of 1990.

OBJECT VISION SHIPS VISUAL C++ TOOL

Object Vision Inc, Berkeley, California, has begun shipping release 1.0 of its ObjectVision visual programming tool for C++ and Turbo Pascal 5.5. The graphical system allows users to build object-orientated programs by drawing objects, interfaces and database connections - relationships between objects are established by drawing a line between them. Interface tools such as buttons and switches can be created with a built-in bit-map editor and ObjectVision also has a three-dimensional method of viewing object hierarchies. The application can then be run in Object Vision or converted to commented, ready to compile C++ or Turbo Pascal code. Object Vision believes that the release of Borland's Turbo C++ language, (UX No 283), and the object-orientated version of C that Microsoft is planning to introduce soon, is set to give the whole object-orientated environment a boost by reducing the time it takes to develop applications and increasing the ability to re-use code. As a result, and together with the publicity that object-orientated techniques are now getting, the company reckons that the number of C++ programmers around at the moment - estimated at 65,000, as opposed to 200,000 C programmers - is set to explode. According to the C Users Journal, 48% of their 27,500 readers plan to buy a C++ compiler during 1990, but the Journal also expects the new converts to have a difficult time learning to use the new languages since object-orientated techniques involve a very different way of thinking about program design and development. Object Vision believes its new technology can alleviate some of these learning difficulties.

BULL WINS \$27M ORDER

FROM POLISH MINISTRY OF FINANCE

Bull SA has won an international tender worth \$27m to computerise the services of the Polish Ministry of Finance: the contract will be funded entirely by the Ministry and involves 367 DPX Unix systems supporting 5,000 terminals, with shipments due to start in December. The taxation arm of the French Finance Ministry will help with applications. Bull has already won a \$14m order for workstations to be installed in the branches of 15 Hungarian banks.

OPUS ADDS 88000 WORKSTATION AND PC BOARD

88000 specialist Opus Systems, Cupertino, California, has added a new model to its line of Personal Mainframe Unix workstations. The 8000-33 is rated at 44 MIPS and lists at \$21,495, or \$488 per MIPS. In addition the firm is also offering the technology as a 44 MIPS subsystem solution for personal computers - the Series 428PM - for \$13,557. Both new products are based on a 33MHz version of the Motorola 88000 RISC chip, come with from 4Mb to 24Mb RAM using 1 mega-bit DRAM parts, or from 16Mb to 96Mb RAM using 4 mega-bit DRAMs.

IBM AND DEC BEGIN OSF/1 PORTS

IBM and DEC have now signed agreements with the Open Software Foundation allowing them to send engineers to OSF's Cambridge, Massachusetts headquarters to begin work on porting OSF/1 to their hardware platforms. As well as technical help from OSF engineers the two will get weekly releases of OSF/1 code as opposed to the bi-monthly updates they have been receiving until now. Groupe Bull, Hewlett-Packard, Hitachi, Intel, Intergraph and Siemens/Nixdorf have already signed the agreement - OSF sponsor member NV Philips is the ominous omission. Up to 80% of the required porting work could be completed by the time the operating systems is released claims OSF, and space remains for two or three more teams of engineers at the Portability Lab.

TOLERANT SET TO LAUNCH FIRST PRODUCTS - AS VERITAS

Santa Clara, California-based Tolerant Software Inc, the former Tolerant Systems, which had the misfortune to choose the ill-fated NS32000 microprocessor as the basis of its fault-tolerant Unix line, is changing its name again. It reckons it has successfully completed its transition from a supplier of systems to a supplier of portable operating software building blocks, and now wants to be known as Veritas Software Inc. Veritas is developing Unix System V products with emphasis on transaction processing and database management applications. The strategy is to offer a family of building block system software products that improve system performance, enhance data and applications availability, and simplify the administrative management of on-line information systems. The company's initial products will address the areas of Unix disk and file management and provide graphical administrative tools to simplify on-line system management, bringing "System V to parity with proprietary operating systems in the area of disk and file management"; they went into beta test in April. Veritas is an "active" participant in Unix International.

INTEL OFFERS TURBOCACHE486 ADD-ON FOR 80486-BASED MICROS

Seeing that many manufacturers are so dissatisfied with the size of the 8Kb on-chip cache on the 80486 that they are adding their own secondary caches, Intel Corp has decided that it should try to get some of the financial benefit, and has come out with Turbocache486, a second level external cache that is claimed to improve performance up to 15%. The thing plugs into a standard socket and includes a 500,000 transistor custom cache controller - the 82485 - and static RAMs. It comes in 64Kb and 128Kb versions at either 80486 clock speed and up to four can be cascaded for a maximum of 512Kb. Sampling next month, volume in the fourth quarter, it's £214 for 64Kb at 33MHz, £179 at 25MHz for 1,000-up.

88/OPEN PUTS BIG MONEY BEHIND V.4 SOFTWARE INITIATIVE

Motorola RISC fan club 88/Open is putting its back into Unix International's newly unveiled independent software vendor recruiting effort (UX No 284) to the tune of some \$7m worth of free hardware, software, documentation and test suites pledged by its members. 88/Open's is the largest single investment UI has garnered for its new program so far. However, UI president Peter Cunningham estimates that initial contributions from all the sources he has tapped to date for the first phase of the program total in the neighbourhood of \$35m. The object of the program, which UI rolled out in New York last week backed by supporters like Oracle and X/Open, is to double the number of applications running under Unix in the next two years. UI has developed a hit list of key applications, selected according to vertical market and geography, that it is particularly anxious to see ported over. It is those companies UI will try to attract to the seminars it will be running later this year in Europe and the US. 88/Open, on the other hand, is specifically targeting DOS houses, offering the first 500 ISVs that qualify a free package that includes a 25MHz 88000 AT add-in board, Data General Aviiion, Motorola Delta server or Opus co-processor board, Diab Data C compiler, certification test suite and AT&T operating system, valued at \$14,000 each, to port to AT&T's System V Release 4. Since Motorola and 88/Open have their eye on the shrink-wrapped mass market, 88/Open has also gone to Softsel/Microamerica for an agreement for the distributor to handle 88/Open-certified binary-compatible software.

UNIX INTERNATIONAL "MAY ENDORSE OSF/MOTIF"

Wrestling with the thorny issue of Open Look versus Motif, Unix International president Peter Cunningham said that UI may soon give up aid and comfort to the opposition by endorsing the Open Software Foundation's Motif user interface. AT&T is apparently testing the interface running on top of V.4, and although it has apparently found some eccentricities connected with it, it works. UI and AT&T would like to get OSF's co-operation for a common applications programming interface between Motif and the AT&T/Sun Open Look product, but so far this has not been forthcoming, according to Cunningham.

TEKTRONIX CUTS 1,300, TAKES \$70m HIT; UNITS ON BLOCK

Tektronix Inc is taking another big hit - \$70m this time - to cover the cost of cutting its workforce by another 1,300 people, about 10%. It is also planning to sell or shut several divisions of the company in its test & measurement and non-television-related communications areas. The units lost over \$25m last fiscal, but Tek won't say which they are until customers have been told. It is seeking partnerships for its Visual Systems business. It has ended talks with Sony Corp on sale of its Grass Valley Group television production equipment subsidiary, and will now keep it.

FLOATING POINT TO SELL JAPANESE SUBSIDIARY TO CANON FOR \$3.4m

Struggling Floating Point Systems Inc, the Beaverton, Oregon company that likes to be thought of FPS Computing these days, though it hasn't changed its legal name, has found about \$3.4m of additional cash by agreeing to sell its Nippon FPS Japanese unit to the Canon Sales Inc arm of Canon Inc. Canon plans to use the business as a vehicle to enter the systems integration business. For the moment, FPS will continue in its current direction, under its current president. It has 21 employees and numbers Nippon Telegraph & Telephone Corp among its customers. Sales are running at some \$6.6.

COGNOS CLAIMS TO BE A GENERATION AHEAD OF ORACLE WITH POWERCASE SOFTWARE ENGINEERING

Cognos Inc has launched its computer aided software engineering product PowerCase, which it describes as being "a generation ahead of Oracle". Aimed at the mid-range market, PowerCase offers close integration of software engineering tools with other Cognos products such as its fourth generation language PowerHouse and its database product StarBase.

However, this is only half the story as, according to Cognos, PowerCase supports any ANSI-standard Structured Query Language relational databases as well as working at an upper CASE level with any fourth generation languages. This upper level deals with requirement analysis, structured design and design optimisation. The toolkit was developed in two man years in Bracknell using Bournemouth-based Systematica's "metatool" Virtual Software Factory. Cognos believes that using Systematica's de facto tools interface it can advance CASE technology much faster than companies with an "if it's not invented here, we don't want it" attitude. It is at the lower CASE level where applications are generated that Cognos claims its technical advantage over Oracle's CASE tools. For in this sphere Cognos claims that while Oracle can generate approximately 50% of Structured Query Language forms, Cognos can generate all SQL forms as well as menus, reports and batch processors. While both Oracle and Cognos have dictionary-based tools, Oracle's tools at present generate applications designed to run with its own database management system while PowerCase is being marketed as a kit that will create applications to work with any ANSI/SQL database, as well as StarBase, which hooks into a number of database gateways. Oracle, on the other hand does have hooks to DB2 but is still developing gateways to other databases. Before the unveiling of PowerCase, Cognos had made moves into the software engineering market before by linking its PowerHouse language to Index Technology Corp's Excelerator tool using a product called Phlex.

In advance of competitors

However, Cognos stresses that PowerCase will not be a direct competitor to Excelerator as, priced at £9,500, it is aimed at the workstation market, not the off-the-shelf personal computer market that Excelerator serves. Indeed, the only serious competitor PowerCase has is Oracle's toolkit. But that is not a competitor to be taken lightly and, at present, Cognos is marketing PowerCase itself through direct sales. What it could do with is a strategic distribution deal with one of the hardware vendors it is allied with. For if DEC, Hewlett-Packard, Data General or IBM were to take up the product it could be a formidable success. Indeed, Robin Bloor of Hull-based software consultancy Butler-Bloor Ltd says that in his opinion PowerCase is in advance of all its competitors and will continue to advance faster than Oracle by virtue of its use of the Virtual Software Factory.

NIXDORF TAKES UNIX DEEPER INTO IBM MAINFRAME COUNTRY

Nixdorf is starting to beta test software designed to take Unix systems deeper into corporate IBM territory by allowing them to operate as true SNA mainframe hosts. Using the Targon Network Host SNA software, existing networks of 3270 terminals can access Unix applications on Nixdorf's Targon minis through another SNA host or via PU2 peripheral controllers, and SNA LU0 is supported allowing applications on the Unix system to communicate with IBM mainframe applications on other SNA hosts. TNH provides support for SNA Physical Unit Type 5, allowing a system to operate as an SNA host with its own domain.

The systems, developed in the US at Nixdorf Computer Engineering's Santa Clara facility, has been installed at one site; current plans, which in view of pending acquisition by Siemens may be highly subject to change, are for one more beta site this year and general availability early next year. Currently available SNA products from Nixdorf and others stop short of providing host capability, providing either terminal or batch RJE emulation, or more recently LU6.2/PU 2.1 Advanced program-to-program communications. TNH does not currently support LU6.2, but Nixdorf says this is planned "for a later release". Initiated as a long-deceased joint development with Amdahl that capitalised on the mainframer's early access to System V.3 due to its privileged position with AT&T, TNH is based on the V.3 Streams mechanism - which should allow considerable flexibility in extending the group of products. Using the ability to mix-and-match protocols under Streams, TNH/SNA facilities could in future share OSI or TCP Ethernet local area networks. Nixdorf plans to implement OSI and TCP/IP protocol stacks in later releases. TNH provides its own network management facilities for management of the TNH network only; future enhancements here include increasing integration with SNA network management systems. TNH could respond to commands from a remote network management system, for instance.

AT&T HAS OPTICAL JUKEBOX SECURITY BACK-UP SYSTEM FOR UNIX

Very mindful of the dreadful things that can happen to computer networks after its Martin Luther King day network crash, AT&T Co has come out with a Unix application designed to help telephone companies and other businesses protect their distributed computer networks during a disruption. Designed by Bell Laboratories, the CommVault Automatic Back-up, Archive, and Recovery System, ABARS, backs up and restores Unix files onto and from optical disks, as well as providing users with a high capacity secure archive system. The system currently backs up AT&T 3B2 and 3B20 and 6386 Workgroups, Sun Microsystems, Hewlett-Packard HP9000, and DEC VAX computers running Unix and connected via StarLAN 10, Datakit II or Ethernet TCP/IP local area networks. It consists of software stored on the file server and an Optical Jukebox which also manages the back up for all file servers on the network through a system controller. It operates in three modes: Full Back-up, needed only every three to six months; Incremental Back-up, a customer-defined feature that automatically backs up changed files only; and On-demand Back-up, so that when special circumstances occur, users can request immediate backup of files or file systems. The computer systems manager can invoke security features that allow data sharing across the network while preventing unauthorised access to files. The Optical Jukebox is intended to give users access to several years of data and provide an on-line archive feature, and is claimed to offer user-friendly commands for restoring the system's files. The company did not give any prices or say where it is getting the jukeboxes.

GUI VERSIONS OF CHARACTER APPLICATIONS "IN THREE DAYS" WITH X.desktop CLAIMS IXI

Down in London for the UK for the launch of its X.desktop emulator software, (UX No 283), Cambridge-based IXI Ltd claims that there is no performance disadvantage in using its character application-to-X converter in terms of time or memory rather than running an application that has actually been converted into X code. Indeed the whole idea is to allow software developers to bring graphical user interface applications to market in six months or so using X.desktop, rather than re-writing them in X, which, IXI reckon, can take anything up to two years. IXI even goes so far as to guarantee that a graphical user interface version of an application can be produced in some form within three days using X.desktop. It can be used in two ways. Firstly by configuring X.desktop to handle the application, or secondly by building hooks into the application for X.desktop to use. There is also a third option offered by 1989 startup Cambridge Connectivity Ltd, whose three employees, like those at IXI, hail from the now defunct Torch Technology. It has a translator called Soft Option that sits between X.desktop and the application doing all the necessary translation, leaving both X.desktop and the application unchanged. CCL is currently working with a large petrochemical organisation implementing Soft Option, which it says, relieves company's from the burden of having to opt for either of the competing OSF/Motif and Open Look graphical user interfaces, as X.desktop and Soft Option can be configured to both. X.desktop is available to customers for around #60 in three ways: a developer kit, offered or bundled as part of a product - like on NCR Towers, Dell Stations or Uniplex - or by becoming a development partner which includes early access to code. Whilst president Ray Anderson wasn't specific about what IXI's revenues are likely to be this year, or how many users of the flagship X.desktop there are, he did say that significant royalties from the firm's various OEM agreements are just starting to roll in.

MANAGERS REVIVE DATA GENERAL'S SWITCH FOR UNIX

Data General Corp's efforts to diversify into telecommunications have been disappointing for the most part, and littered with failed acquisitions and projects. One such, the Genioss operation in Carrollton, Texas, where the company abandoned development of an integrated voice and data switching system last summer, has been nagging at former executives of the defunct subsidiary, who have now bought the technology for an undisclosed sum and formed a private company, Ambit Systems, to bring the product to market. The switch, now called Teleserver, was to have been based on Data General Eclipse MV minicomputers, but is now being adapted for use with Unix machines for delivery next year. Separately, Data General said it sold its Westbrook, Maine precision sheet metal fabrication operation to Precismetals Inc, a company formed by former managers of the unit; terms not given. As well as launching the thing in Japan, ICL has now launched its DRS 6000 Unix machine in South Korea, through Computer Korea Ltd: initial orders stand at some \$3.5m.

INTERACTIVE ENHANCES TCP/IP NETWORKING FOR UNIX OEMs...

Interactive Systems Corp has launched a set of networking products designed to bring Unix System V licensees capabilities "beyond those in AT&T's Unix System V Release 4 and those published in the Unix International Roadmap". Interactive, which acquired networking experts Lachman Associates last year (UX No 220), already supplies the TCP/IP components bundled in as standard part of AT&T's System V.4. The new technology, called STREAMware, is aimed at OEMs using Unix System V.4, and augments networking capabilities beyond that of standard TCP/IP using V.4's Streams networking capabilities. There are three components. STREAMware TCP/IP is the latest release of the widely used Unix protocol, which Interactive claims is from 25-50 percent faster for bulk throughput, with increased support for military standards and maintenance fixes. It includes enhancements developed at the University of Berkeley on TCP/IP (UX No 231). STREAMware SNMP extends TCP/IP with the Simple Network Management Protocol, and allows any Unix system to be configured, controlled and monitored by an SNMP station anywhere on the network. STREAMware NetBIOS provides a NetBIOS program interface for standard TCP/IP communications services, allowing MS-DOS-based network applications, such as Microsoft/Hewlett-Packard's LAN Manager/X, to operate in Unix environments, giving PC users access to Unix network resources such as printers or databases. All are available immediately, and are available in source code form under "simple licensing terms", with one year of source-level maintenance and support. Interactive says it will provide a "shrink-wrapped" version of Unix System V.4 including the new technology in 1991, for end-users and resellers of Intel-based computers. The company is also working on OSI-based communications products for V.4 in conjunction with Retix Corp, based in the same town of Santa Monica, California.

...AS SUN AND HP TAKE

INTERACTIVE'S NORTON UTILITIES...

Interactive Systems Corp is working with Hewlett-Packard and Sun Microsystems to promote the Norton Utilities for System V disk and file management products it released recently (UX No 281). Interactive, which seems to enjoy working with companies based in its own home town of Santa Monica - see this issue for a note on its work with Retix Corp - developed the Unix version of the tools in conjunction with its neighbour Segue Software Inc, a company founded late in 1988 by Dr Peter Weiner "to bring standard industry software from DOS to Unix". Selling in the US for \$295, they will be available directly from Interactive, and through reseller and VAR channels. Sun and Hewlett-Packard have separate agreements to take the products, with HP saying that it will offer the Utilities as part of its Instant Ignition pre-loaded software programme. Around 700,000 Norton Utilities units have been sold in the DOS world. They allow for the recovery of erased files and directories, and diagnose hard disk problems without damaging live data.

...AND SUN LANDS BIG SUPPLY PACTS AT GE, YALE UNIVERSITY

Sun Microsystems has enlisted two high-profile allies to the Sparcstation cause, announcing that Yale University faculty members have chosen the boxes as their computer standard for the 1990s, with an initial \$5m order for the science and engineering computing laboratory. For that it gets 200 Sparcstation 1s and 10 Sparcserver 390 file servers. And General Electric Co has chosen Sun as its strategic supplier of Unix-based workstations and servers with the Open Look user interface to its 13 business units, including the National Broadcasting Corp, Kidder, Peabody; and GE Medical Systems.

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VERSANT LAUNCHES OBJECT-ORIENTED DATABASE FOR SUN

Hoping to cash in on the sudden surge of interest in object-oriented programming, Menlo Park, California-based Versant Object Technology Corp - formerly Object Sciences Corp - has started shipping the Versant object database management system, initially for Sun Microsystems Inc workstations, although versions for other Unix workstations are on the way. The database is designed to simplify and accelerate the design of complex applications in such areas as software development, engineering, office automation and computer-aided publishing. It is described as a robust, distributed high-performance database system that provides increased productivity in development, increased performance of the application, and the ability to maintain it easily and adapt it to changing business needs. The thing is \$15,000, out now.

First workstations jointly developed by Hewlett-Packard and Apollo are set to be unveiled next next month - look for 30 MIPS 68030 systems initially, to be followed by 68040 offering and a 50 MIPS PA RISC machine running at around 30 MIPS.

Empress Software Inc, Greenbelt, Maryland, is now offering version 4.3 of its scientific and engineering relational database for DEC's Mips RISC-based DECstations - it costs from \$2,800 on low-end machines, to \$67,200 at the high-end, with 4GL and applications generator.

Six new companies have joined ICL's CASE Partners Programme, whose products all integrate with ICL's CASE products: the six are Learmouth & Burchett Management Systems, Ernst & Young, PA Consulting Group, Excelerator UK, and The National Computing Centre with AIMS Systems.

Coral Pacific, Marina Del Rey, California, is to begin marketing the Unix versions of Yale Graphics' ImageStation graphics and imaging software in a worldwide agreement signed recently: available for most Unix platforms from July, prices range from \$750 to over \$30,000 for mainframe versions.

MasPar Computer Corp, the massively parallel Unix startup has sold its first MP-1 system into Europe at the University of Bergen, Norway, from its UK offices in Reading: with from 1,024 to 16,384 processors, 26,000 MIPS and 1,300 MFLOPS, the MP-1 costs from £125,000 to £600,000 in the UK.

Touted as the first ever computer trade show in East Germany, the Unix-Forum show organised by Uniware Computer GmbH took place in East Berlin last week: attended by over 1,500 delegates and 30 western hardware and software companies, it included presentations by OSF and X/Open.

Sun Microsystems Inc has signed up its first African distributor - Universal Computer of Casablanca, Morocco: the African computer market is reckoned to be worth around \$500m this year.

According to sources in the US trade press an 80486-based Micro Channel Architecture machine that Groupe Bull planned to introduce this week has been put back until October following the acquisition of EISA bus supporter Zenith Data Systems: apparently Bull does not know which bus to go with as Zenith has taken over responsibility for the machine, and may possibly end up marketing both.

Cray Research Inc says it will establish a European Operations base in Bracknell, Berkshire to co-ordinate its sales, marketing and customer support operations in Europe.

NCR Corp is in no hurry to add RISC models to its Tower Unix line, according to H Simon, product manager at NCR Benelux: he says the balance between reduced and complex instruction set chips is still fluctuating and the debate is still wide open, and that for NCR's customers and the machines it plans to build, the Motorola 68040 and Intel 80486 are more attractive than any of the various RISC processors.

Oracle Corp will offer its database and tools on all IBM's AIX ranges: it currently has versions for the RT and for the PS/2 under AIX, but says that it is now shipping beta test AIX 370 and RS/6000 versions.

Data General Corp has added two AT-alikes, the Dasher/386-25k for MS-DOS and Unix - using a 25MHz 80386 at \$5,000 with 4Mb and 100Mb disk; and the Dasher/286-12, using a 12.5MHz 80286 at \$2,375 with 1Mb, two floppies and 40Mb hard disk.

The commercial prospects for an untried supercomputer made in West Germany looked doubtful when Suprenum GmbH of Boon launched its 5 GFLOPS parallel processor this time last year - but the Germans have a reputation for selling anything to anyone, and there are currently frustrated customers in three countries, Brazil, India and Israel, which have ordered machines from Cray Research Inc only to find shipment stalled by US fears that they will be used for nuclear weapons development. Japan has agreed to operate the same rules as the US, so, reports the New York Times, one of the frustrated would-be buyers, the Technion University in Haifa, is looking very seriously at the Suprenum machine.

Bull SA has won an international tender worth \$27m to computerise the services of the Polish Ministry of Finance: the contract will be funded entirely by the Ministry and involves 367 DPX Unix systems supporting 5,000 terminals, with shipments due to start in December. The taxation arm of the French Finance Ministry will help with applications. Bull has already won a \$14m order for workstations to be installed in the branches of 15 Hungarian banks.

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UNIX SOFTWARE OPERATION SET TO REVEAL MULTI-PROCESSING EXTENSIONS FOR UNIX V.4

AT&T's Unix Software Operation is likely to reveal the technology making up the multi-processing enhancements to Unix V.4 in New York around the beginning of July, according to industry sources. Although some vendors have been working on multi-processing Unix implementations for sometime, it was last April that Unix International's workgroup on multi-processing revealed the contenders, (UX No 227). Although USO says it has "not chosen anybody yet" - and no ink has been put on paper - it is understood that USO is currently forging alliances with several of the contenders, and that the chosen technology will be a blend of what they have to offer. Nevertheless, this didn't prevent front-runners from declaring themselves last week. At Comdex/Spring - see below - USO's Computer Systems counterpart at AT&T revealed that Pyramid's multi-processing software has been offered to USO, and Sequent has also been making noises about the inclusion of its Dynix multi-processing version of Unix in USO's choice. Other companies known to have been shortlisted include Silicon Graphics and NCR, together with the joint Intel/Olivetti/Unisys effort, (UX No 222). Other hopefuls include Unisoft, and Carnegie-Mellon's Mach. The extensions were promised as part of Unix International's five year plan for System V.4 known as the Road Map, launched back in January, (UX No 266). Though they are not scheduled for general availability until mid-1992, early access program members will be getting them somewhat earlier than that.

GISA's GREEN BOOK OFFERS DISGRUNTLED EUROPEANS AN ALTERNATIVE TO US SECURITY CERTIFICATION

In a development that could have far-reaching consequences for companies that want secure certification for their operating systems but have no prospect of getting them certified by the US Department of Defense, the German Information Security Agency, or GISA, has drawn up a Green Book of security classifications for the European computer community - and awarded its first certificate to Tandem Computers Inc's proprietary Guardian operating system. The German Information Security Agency was established as an offshoot of German Intelligence, which has been reorganised into separate public and military divisions. The public arm is sponsored by - and reports to - the Ministry of the Interior. GISA drew up the Green Book in conjunction with with commercial and academic bodies and a number of hardware and software vendors such as IBM, DEC, Unisys, GEI Rechnersysteme GmbH, and the University of Aachen. The European computer community has long complained about the US Orange Book security classifications, claiming that the standards are not applicable to non-US equipment, and largely irrelevant to commercial users. Unless a company is American, it is notoriously difficult to gain Orange Book certification, and furthermore, the classifications are accused of being outdated and biased towards military requirements. Consequently, GISA hopes its Green Book will form the basis of a European-wide set of standards. The first step towards that end will be taken in September when the UK, France, Germany, and the Netherlands are to publish the first draft of jointly agreed standards. Green Book certifications are described as a matrix of functionality classes measuring security features and assurance levels, and there are 10 classifications. F1 to F5 are concerned with functionality, and F6 to F10 are with high integrity, confidentiality, and the safeguarding of data, including the evaluation of security in databases which is an area that has been neglected. The Orange Book mixes security functions and assurance levels, and GISA believes this is often inappropriate to the commercial market. Tandem has been awarded functionality level F2, said to be equivalent to Orange Book C2 controlled access classification. It covers user identification, authorisation, administration and verification of rights, audit of users and usage and re-use of storage media. Tandem was also awarded F7 status for fault tolerance and continued availability, which are not covered by the Orange Book.

DEC TO USE COROLLARY 80486 MULTI-PROCESSOR UNIX

Corollary Inc's multiprocessor Unix technology is becoming highly sought after, and the Irvine, California company has scored its biggest coup yet by winning endorsement from Digital Equipment Corp. DEC is to use Corollary's symmetrical multi-processing kernel for Santa Cruz Operation Inc's SCO Unix in planned 80486- and 80386-based systems, the two companies announced. No details of when DEC plans to launch its multi-processor machines.

X/OPEN LAUNCHES XPG3 BRANDING PROGRAM

The X/Open Company Ltd last week launched its branding program for testing hardware and operating system software compliance with its latest XPG3 portability guide, designed to ensure interoperability between systems and operating software from different manufacturers. The base profile covers hardware, internationalisation features, system calls and libraries, commands and utilities, the C programming language - in addition to ISO specifications already adopted in these areas - and has a suite 5,500 tests, known as VSX, devised by Unisoft, to establish compliance. A higher "plus" profile has up to an additional 4,000 tests. First to conform to the plus profile are Groupe Bull's DPX/2 200 and 300 with BOS V2.0, and Siemen's MX300 and 500 running Sinix V5.22. At base level, conformant systems include ICL's DRS NX 6000 V4.012i30; non-X/Open member Sequent Computer Systems' Symmetry with Dynix/ptx V1.2; IBM's RISC System/6000 Series with AIX V.3; Unisys Corp's U6000 single and multi-processors with Unisys System V R 3.00.XX and V R 1.X respectively; AT&T's WorkGroup Systems with Unix System V.4 - release 2.0 or later; Hewlett-Packard's 9000 Series 300, 600 and 800 with HP-UX 7.0; DEC's VAX with Ultrix V 4.0 plus X/Open conformance patch, Olivetti's 386/486 platform with Olivetti Unix System V R4 V1.1 and Sun Microsystems software, including OpenWindows and SunOS 4.1 commands and utilities.

AT&T IN 24-PRODUCT BLITZ

AT&T kicked off the COMDEX/Spring show in Atlanta, Georgia, last week by launching two dozen hardware and software products. Topping the bill were the EISA bus StarServer E symmetric multi-processor 80486 system and fault-tolerant StarServer FT. Designed at AT&T's Bell Laboratories and manufactured at its Little Rock, Arkansas plant, the StarServer E is the first EISA server AT&T has offered. With from one to four processors, it runs a multi-processing version of Unix V.4. developed by Pyramid Technology, and will also be offered on AT&T's other Intel, RISC and 3B2 platforms. It is built around a 33MHz 486 part and does 25 MIPS in single-chip configurations, or up to 106 MIPS with symmetric multi-processing. Prices go from \$27,500 to \$39,000. The Tandem-based StarServer FT is \$172,000. An EISA 80486 upgrade will also be offered for its 6836E/33 WGS Model S. New PCs are the 6386SX/EL WGS starting at \$2,125, and the 6836/25 WGS SCSI server that can support up to 32 users and costs \$11,500. WorkGroup Systems additions include new SCSI peripherals, two new high-resolution monitors, an IBM 8514/A-compatible graphics controller and an Informix database client/server shrink-wrapped hardware and software solution - the latter is priced at around \$32,000. The 3B2 line gets a new StarGroup LAN Manager Server and Unix V.3.2.3, other releases include an Extended Terminal Interface Program designer, C++ 2.1 - a C translator for most C compilers and Private Message Exchange/StarMail version 2.2 which supports Microsoft Windows.

X/Open Roundup

Absent from X/Open's XPG3 branding list are Sun workstations and DEC's Mips RISC-based DECstations - the latter failed on the "tar" tape backup program according to the firm, and will be re-engineered quickly.

X/Open, which reckons to have spent £1.5m developing the program, is charging £3,000 for testing products, and additional royalty charges of \$10 for every for every multi-user system - \$5 for single user systems - sold by non-member companies.

In The UK, the National Computing Centre is now offering a testing service within its open systems division.

Above the base level there are a range of application areas for which X/Open does not define tests, but which are included in the overall XPG3 Common Application Environment. If suppliers in these areas can prove their products conform to the guidelines - and X/Open maintains a list of those endorsed - then they can use the X/Open stamp, which may mean, according to X/Open, that "customers will have to take them on trust".

X/Open has no tests for Fortran, Cobol and Pascal, but there are already solid international standards in force, as there are for its chosen windowing environment, X-Windows. Currently no SQL test for database software exists - though the consortium is confident that the SQL Access Group will come up with proposals that it can adopt.

Other areas of the guide that X/Open is working on to establish tests include the transport interface, with protocols that map on to OSI, TCP/IP, SAN and DECnet, and further additions to kernel-level requirements will be made to support distributed computing features.

X/Open believes that within many businesses and organisations, information systems departments have already decided that the open systems road is the one to follow, but are now asking the question - how? As a result the group has started work on a much broader conceptual framework for applications portability - something like a road map for open systems - resembling the one which ISO is trying to put together, (UX No 276), which would presumably include its own portability guide as a sub-set. Indeed such are the efforts that others - such as the French AFUU group - are putting into these that X/Open is pulling out the stops and intends to have a framework "within a year".

Rebellious groups of Unix users frustrated with interline wars between Unix International and Open Software Foundation are seeking some refuge within the ranks of X/Open's brigades - the Petrotechnical Software Corporation, (UX No 283), is all set to join as soon as it is up and running, as is the club of large users and vendors which is now coming together in the US, (UX No 281).

And following X/Open's presentation to the Unix show in East Berlin reported last week, (UX No 285), VED Kombinat Robotron - East Germany's largest computer outfit - has applied to join X/Open's system vendor council: X/Open has also received overtures from Polish and Hungarian groups keen to get in on the open systems act.

INTEL BRINGS \$300m DUBLIN CHIP PLANT PLAN FORWARD

Faced with soaring demand for its 32-bit microprocessors, Intel Corp has brought forward the second phase of its three-phase 10 year Irish development programme launched in October 1989. It is to build a \$300m "state-of-the-art" wafer fabrication facility near Dublin to accompany its systems manufacturing facility in Leixlip, County Kildare. To begin with, it will work to 0.8 micron design rules producing the 80486 processor and support circuits. With equipment upgrades, the plant will then move to 0.5 micron technology, then to 0.35 micron, reaching 0.25 micron capability.

VIEWLOGIC CROSSES THE ATLANTIC WITH EUROPEAN VENTURE CAPITAL

Computer-aided engineering software supplier Viewlogic Systems Inc was over in London recently to announce its arrival into Europe with a new holding company, and to make a series of product announcements. Marlborough, Massachusetts-based Viewlogic supplies the Workview series of computer-aided engineering tools for system, ASIC and analogue design; versions of Workview run under Unix on Sun Microsystems, DEC and the IBM RS/6000, and operate in the MS-DOS environment on IBM PS/2s and 80386-based machines. Viewlogic reckons its main competitors are firms such as Daisy Systems Corp that are also involved in computer aided design, and has for some time been making a concerted effort to promote itself as a company whose strength lies in its "CAE-only" specialism. Now, in the attempt to exploit the European computer aided design market, Viewlogic has used \$4.5m of venture capital to set up Viewlogic Europe BV, which will have its manufacturing and distribution headquarters in The Hague, Netherlands, and run operations from Basingstoke, Hampshire; subsidiaries of the new company are being established in West Germany, France and Italy. Most of the venture capital for the new company comes from Netherlands-based Atlas Ventures, Genes of West Germany and French investors Partech; Atlas Ventures is the lead investor, and will be the largest shareholder in Viewlogic Europe. Revenues from Europe, which at the moment come through licensed distributors and OEM customers, are currently at \$2.8m, and Kanti Purohit, president of Viewlogic Europe, is aiming to up this by 100% a year, with the final goal of having Europe account for 25% of Viewlogic's total turnover; this, he admits, is bound to take some time, as sales in the US are presently increasing at some 60% a year. Purohit is intent on positioning the new company as a computer-aided engineering specialist supplier to large end-users such as Toshiba, IBM and Plessey, which are Viewlogic's three largest customers at the moment, and is claiming that Viewlogic Europe will be strongly committed to local customer support - training centres have already been established in West Germany and France in addition to the main one in Basingstoke. Puro hit also said Viewlogic Europe is on the look-out for more alliances to market its tools as part of silicon design and printed circuit board design packages. It is set to announce a variety of new products at the Design Automation Conference in Orlando, Florida: in the meantime it is shipping the latest version of its Workview series of computer aided design software. Release 4.0 includes a new analogue waveform generator, a logic synthesis tool and the ability to create schematics from synthesised logic. Workview Release 4.0 is also available in a network licensed environment.

ZENITH SETS 10-PROCESSOR 80486 Z-1000 MODEL

Another user of the Corollary MPX kernel, Bull SA's Zenith Data Systems, will introduce a new 10-processor version of the Z-1000 multiprocessor Unix machine, with the 80386s replaced with 80486 chips. According to *Microbytes Daily*, Zenith is saying that in full configuration, it will deliver more than 100 MIPS. It is expected to look like Compaq's Systempro - the Systempro also uses Corollary technology, and is being designed to be used either as an extremely fast MS-DOS or OS/2 machine, or as a Unix or NetWare multi-user computer. The thing will also have a version of Portable NetWare developed by the Santa Cruz Operation and will use the same proprietary bus as the current high-speed version of the Zenith Z-386 machine. Now that it owns Zenith - an enthusiastic backer of the EISA bus, Bull is wavering in its commitment to IBM's Micro Channel, and will either offer two parallel lines or standardise on the EISA.

NETWISE OPENS FOR BUSINESS IN UK

Netwise Inc, Boulder, Colorado, has opened a UK office in Wokingham, Surrey, which will serve as the basis for its international operations. Netwise International has already signed up SD-Scicon as a customer for its RPC Tool - the UK systems integrator will incorporate the technology into new X.400 products now under development for release later in the year. Don Taylor becomes European general manager, and says that the company is currently negotiating OEM deals with several European manufacturers. It has four European distributors already signed up, and four others will be added during the summer. Netwise recently failed to get RPC Tool adopted by the Open Software Foundation as part of its Distributed Computing Environment, (UX No 280), however it has submitted the technology to the IEEE's working group on distributed computing which has more or less taken the environment under its wing to ensure that some standardisation is eventually achieved. X/Open is understood to be working closely with IEEE on this task, and ISO, which sits at the top of the pile as far as standards are concerned, is reported to be looking for a decision within eighteen months, a remarkably short timeframe in comparison with its usually lengthy processes. A study by Forrester Research Inc suggests that client/server software market could be worth \$7 billion by 1994, up from around \$1 billion now.

ARIX CUTS WORKFORCE 26% IN EFFORT TO REDUCE ITS COSTS

Holed below the water-line by the phasing-out of its large OEM contract from Unisys Corp, Arix Corp is still struggling to get its ship back on an even keel, and is to throw another 84 of its 327 employees over board as part of efforts to cut headquarters overheads. Those to go include the president of the Arix Computer Corp subsidiary Robert Bartizal and its manufacturing vice-president David Hansen. Arix co-founder Michael Fallon returns as Arix Computer vice-president, operations, and Eugene Manno, chairman and chief executive of the parent, adds the post of president of Arix Computer. The other operating firm under the San Jose-based Arix Corp holding company is the Edgcore acquisition in Phoenix.

TATUNG READY WITH SPARC CLONES - PC SPARC WAITING IN THE WINGS

Tatung Co of Taipei is expected to introduce its first clones of Sun Microsystems Inc's SPARCstation via its Long Beach, California-based US subsidiary within the next couple of weeks. Tipped to be called the VARstation 1 series, server models are likely to come in at around three-quarters of the price of similarly configured Sun machines. Tatung won the race between the SPARC clonemakers to show a SPARCstation 1-compatible systems when it debuted the TWS-5000 at Comdex last November, (UX No 258). There are now understood to be three models in existence, a TWS-3000, the TWS-5000 and a top-end TWS-7000. The TWS-5000 runs a 25MHz version of the SPARC from Cypress Semiconductor, is rated at 15 MIPS and 3 MFLOPS, comes with from 8Mb to 32Mb memory, Ethernet, six VME slots, SCSI, colour monitor and runs SunOS. Low-end models will start at some \$8,000, a SPARCserver 330 configuration will come in at around \$23,000. The TWS-7000 runs a 25MHz version of the Fujitsu SPARC and comes with from 8Mb to 32Mb memory. Ships are set for the third quarter in the US, though the machines are unlikely to be released in the UK until the beginning of next year. Tatung is also reported to be readying a SPARC-based system using a personal computer-compatible AT bus for introduction, which will come with a PC keyboard - no further details were available as we went to press.

HUGHES TAKES OVER HEWLETT'S TEMPEST ARM IN JOINT EFFORT

Hughes Aircraft Co has signed with Hewlett-Packard Co to do Tempest versions of Hewlett's workstations, personal computers and related kit to meet new US government, military and aerospace Endorsed Tempest Product standards for radiation shielding to prevent electronic eaves-dropping. The pair look for \$200m over the first three years of the pact, which involves Hughes taking over Hewlett's Tempest arm, and the joint development of a high-resolution tactical-display workstation.

BUSINESSLAND WINS POWERFUL FRIENDS IN EFFORT TO CRACK JAPANESE MARKET

In a move that could begin to break down the exclusive, obstructive and inefficient Japanese retail distribution system, Businessland Inc has won the support of four powerful local partners in its effort to get into the Japanese market. Fujitsu Ltd, Sony Corp and Canon Inc will each take 5% of the new subsidiary, and the major software and peripherals distributor Softbank Corp will take 26%, leaving Businessland with 54%. Businessland Japan Co Ltd will initially be capitalised at \$20m and start with 14 employees and one outlet - in Tokyo. The target is 100 staff by year-end. It will carry products from all its investors, and also from IBM Japan, NCR Corp and NEC Corp, but not, initially, the Hewlett-Packard Co, Apple Computer Inc and Compaq Computer Corp kit carried in the US. The fact that Canon is an investor and that Businessland carries the NeXT Computer System in the US suggests it will take the NeXT Inc box in Japan: Canon is a NeXT investor.

WEST GERMANY - FOOT HARD DOWN ON THE UNIX PEDAL

Mike Faden reports on progress since the Bundestag opted for the X/Open autobahn to systems procurement

The West German government's decision to formalise its backing for X/Open in January, (UX No 267), was only the latest milestone in what has been a long-term user and supplier drive towards Unix. In contrast to the situation in most other European countries, landmark Unix based automation projects in regional and central government were already well underway three to four years ago, and the knock-on effect means that Unix is now filtering right down into local government sites.

On the supplier side, Siemens' contribution to the growth of the market is considerable; in stark contrast to its own stolid image and to the strategy of other European suppliers, the company pushed a Unix product line long before users began demanding the operating system. In 1988 IDC estimated that Siemens had 32% of the DM 1.2bn multi-user Unix systems market, with Nixdorf and NCR taking 10% and 8% respectively. IDC consultant Jonathon Portch estimated Government spending could comprise 60% of the total German Unix market, with the commercial sector being, as expected, slower to move until their suppliers do so. Many of the big commercial financial and other services organisations that are moving are Siemens mainframe customers buying Siemens distributed systems.

Support for Unix in black and white

In some countries, it's hard to pin down the extent of Government support for open systems. In Germany, it's there in black and white, in the January 22nd document emanating from the Federal Ministry of the Interior recommending the use of an operating system complying with "the latest valid edition of the interface definition of the X/Open group". Furthermore, the document says suppliers should typically update to new versions of the XPG on request from the user (within 18 months). The recommendation applies to mid-range systems.

The widespread backing that resulted in the production of the recommendation will probably ensure that it is generally adopted. The recommendation was produced by KBSt, the government's information technology coordination and consultancy office, in agreement with IMKA, an inter-ministry committee that coordinates procurement policy. According to KBSt representative Rainer Mantz, the recommendation followed a unanimous IMKA decision in favour of X/Open by officials representing all central government ministries.

But no policy on OSI

To date, there is no equivalent policy on OSI, but the government is expected to issue recommendations for several standard protocols for information exchange including X.400. However, the German administration is decentralised to an extent that a high proportion of systems procurement takes place at regional level or within large public organisations such as the Bundespost, and central government has no direct control over the strategy of these organisations. At the end of 1988, internal estimates suggested that about 1700 systems were installed in central government, although this relatively modest figure has been increasing rapidly. Current central government budget runs at DM 800m.

Eyecatching

Outside central government, some orders have been much more eyecatching. Most spectacular example was the Bundespost's framework agreement announced in 1988, trumpeted as a German market breakthrough by Unisys - the other named vendor was Siemens - and estimated by vendors at anything from 1,000 to 5,000 systems.

Progress since has been less spectacular. Each of three major divisions of the Bundespost appears to be making its own moves to implement office automation using the systems. The result is that several major office automation vendors - including Uniplex, which only started shipping localised product last year - have been claiming some sort of victory. As we went to press, however, the communications component of the PTT was expected to formalise a deal for Applix' Alis, which is represented in Germany by Mbp. Sources said the division installed a pilot 200-user Alis system back in 1987 and the next major implementation could be for as many as 3,000 users. The largest of the other early contracts, the Bundesanstalt fur Arbeit (BA) employment offices was split between Siemens and Nixdorf - no news on whether implementation plans would change as a result of the merger - and was estimated by Wolfgang Schulz, Siemens product manager for Sinix (Unix), at around DM 100m. Other reports trebled the value and said up to 12,000 terminals would eventually be installed. Numerous regional states have also implemented Unix, but the biggest and earliest endorsement came from North-Rhine Westfalia, Germany's biggest state with some 17 million people. As in central Government, Unix has the status of an official standard since an April 1988 order; Unix and the X/Open guidelines are used for all new mid-range systems, according to NRW state DP coordinator Hermann Lossau. The result, he added, is that to date at least two thirds of all installed decentralised systems run Unix. That proportion is planned to eventually reach 100%.

NRW's Landesamt fur Datenverarbeitung und Statistik (LDS), which is a member of X/Open's user advisory council, has an important role. A large shared dataprocessing centre, LDS has experience of a disturbing number of proprietary systems either in house or distributed round NRW, including IBM and Siemens mainframes, Nixdorf, Bull and Kienzle small systems. LDS played a large part in building up initial Unix experience and putting forward Unix as a standard; a key effect of using Unix is to cut down the effort required to support systems from different manufacturers. Lossau said the main use of Unix systems to date is for office automation and other administrative functions - Q-Office and Informix being particularly prevalent. Like central government, NRW supports the use of OSI, but is finding that OSI is at rather an early stage. However, Lossau emphasised, "We are very interested in all questions of standardisation. If there is a possibility for standardisation we will go that way".

IDS OFFERS BASIC USERS A ROUTE TO UNIX

MS-DOS users now have another weapon in their armoury for gaining access to the Unix world, courtesy of Irvine, California-based Interactive Data Systems Inc's Business Basic to C translator - BBc!. The tool can translate several versions of the Basic language into C, including MAI Basic Four's Business Basic, Concept Omega Corp's Thoroughbred Business Basic and Basic International's BBx interpreter. Users can do any additional programming in C and then recompile the code. Translated applications will interface to the entire range Informix software, other BBc! releases planned for the third quarter will add Oracle, Progress, OSF/Motif, X-Windows and colour support. In addition to porting software to C, IDS claims it will allow customers to continue to develop applications in Basic while shipping end-user products in C.

NO LONGER UNIQUE TO NORSK DATA - NORWEGIANS DEVELOP UNIX, MS-DOS, OS/2 AND VMS VERSIONS OF ITS 4GL

The Unique fourth generation language has been tied to Norsk Data's proprietary Sintran operating system for nigh-on ten years now. After doing this stretch inside, the Sandes, Norway-based software outfit has decided it is time to scale the walls to open systems territory and is introducing a version of its application generator and report writer for Unix, MS-DOS, OS/2 and VMS, to be shown at this week's software tools exhibition at London's Wembley Exhibition Centre. Unique version III also runs under X-Windows, a beta version is now testing, and thing is scheduled for a September launch. It comes with an easy-to-use interface and its own database, but like the rival Uniface 4GL, can mix and match data from all the major databases, including Oracle, Ingres, Informix and Sybase - you just buy the library, or libraries that are required. Unique missed out on being included in Butler Bloor's influential report on 4GL's and databases, (UX No 260), because it was still under development. However Unique's UK managing director Mark Taylor reckons that Unique III can do all that Uniface can do - and more - with advanced report and data model writers included in the new version. Unique is jumping into what is currently a cut-throat part of the industry, widely predicted to be facing a shake-out from the looming prospect of databases and 4GLs becoming commodity software items. Ingres for one is strongly rumoured to be looking for a buyer. However the Norwegians are confident that Unique can compete on the back of its strong Norsk Data user base - it reckons to have 2,000 licencees worldwide, and has already ported the software to IBM's RS/6000 platform, a job it claims took just a day to complete. It has taken two years to re-write Unique in C, which is primarily aimed at small-to-medium sized businesses and other organisations, and the company now has offices in the UK, West Germany, Sweden and Denmark in addition to its Norwegian headquarters, employing around 100 staff in total. A Unique III development environment on an RS/6000 system with 30 users will cost around £30,000, a run-time version for the same systems would be £5,000. Unique UK turned over £420,000 last year.

AT&T STRENGTHENS UNIX/PICK ALLIANCE

Anxious to get as many applications programs over to Systems V as possible, particularly those all important and somewhat illusive business solutions, AT&T Computer Systems last week teamed up with Pick Systems to support Advanced Pick - AP - under Unix. Their agreement calls for a new Pick affiliate, dubbed Picktel, to act as an AT&T value-added systems distributor of its complete Unix hardware line, including X86 servers and 3B2s. And Pick has installed Picktel, headed by a former president of Sequoia Systems, Bill Grover, as its exclusive marketer of AP for Unix. The relationship should net Systems V access to some 3,000 Pick business applications. This new alignment apparently involves some re-positioning for the Pick operating system which, in the press releases, is now referred to instead as a database management system touted for its ease of application development. Pick has been working on its Pick/Unix integration for some time, (UX No 241), and has apparently been working closely with AT&T recently to implement AP on the Unix kernel to achieve what was described as "co-residency with minimum of overhead". Pick was running a beta version of its implementation at Comdex Spring last week. A spokeswoman said a production release would not be available until the autumn. Meanwhile, to demonstrate its support of System V, Pick Systems has joined Unix International as a general member. Also, it should be noted that Doug Baker, the founder of MDS/Quantel and president of Pick Blue, the Pick offshoot handling Pick on IBM gear, left the company and has been replaced by Steve Kruse, a long-time Pick executive.

ATARI RELAUNCHES TRANSPUTER-BASED WORKSTATION FOR SEPTEMBER DELIVERY

Although the ST range of proprietary personal computers still forms the core of Atari Corp's business, the company is keen to push ahead in the grownup business machine sector. Atari says that by 1994 ST sales are expected to account for 40% of turnover, compared with 69% now. Business machines should contribute to 40% of company turnover, doubling from the current 20%. As a part of that strategy Atari has launched its 80386SX personal computers and is planning to relaunch its T80020 Transputer-based workstations. Bob Gleadow, managing director of Atari UK says the new version will probably be based on three linked Transputer processors forming a parallel processing system, compared with 17 in the current version. This will make it a 30 MIPS machine and Gleadow reckons it will be competing with the likes of Sun workstations. Unlike Sun stations, the machine will not run Unix because it will have no virtual memory management system. Instead it will run under the Unix-compatible Helios which according to Gleadow is "highly regarded". It will be Posix compliant and arrives September.

"ONLY BULL OR SIEMENS TO SURVIVE IN EUROPE" - IBM FRANCE

IBM France perceives the world computer market to be in a state of war, with Europe as the principal battleground, and it forecasts that only one European computer manufacturer - either Bull SA or Siemens-Nixdorf Informationssysteme AG - will survive. This apocalyptic prospect was outlined by IBM France marketing director Philippe Guilhot de Lagarde in Rome last week. De Lagarde presented the combined figures of 20 leading computer companies - excluding Bull and Nixdorf - showing that aggregate profits fell 44.1% in 1989, and pointed out that if IBM was eliminated from the list, the slump increased to 54.9%. Adding in the losses from Bull and Nixdorf brought the profits of the world hardware industry down to zero for 1989, making the business a zero-sum game. On a continental basis he sees Europe representing the biggest computer market in the 1990s, ahead of the Americas, Asia-Pacific and Africa, and he sees this trend leading to a "continentalising" of the market, with the major players limited to IBM, either Bull or Siemens, and one Japanese manufacturer, which he suggested would probably be NEC.

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A group of holders of Daisy Systems Corp bonds have filed a petition in Denver, Colorado seeking to force the company into involuntary bankruptcy proceedings. The petition was filed just before the end of May because a one-year statute of limitations set a deadline of May 30 for the holders to file suit.

According to industry sources IBM has already sold around 5,000 of its new RS/6000 boxes in the UK, even though the things aren't out yet, and with delivery dates which may be slipping due to problems with version 3.0 of its AIX unikalike operating system. Its list of Value Added Remarketers for the new line is now up to 145 according to the same sources, and IBM is looking for some 250 to join the big blue ship by the end of the year.

At the X/Open's XPG3 branding launch - see page 1 - ICL revealed that it has taken over 400 orders for its new DRS 6000 Unix systems.

Mentor Graphics Corp regularly used to announce monster OEM contracts with Apollo Computer Inc, so it is not too surprising that it has now gone to Apollo's successor company, Hewlett-Packard Co with another enormous order, \$400m over three years for Series 10000, Series 3500 and 4500 servers and workstations and the successor 68040 family.

According to the OSF, a brandname for its Distributed Computing Environment has been chosen, but it was apparently once used as a trademark for a now defunct product - the legal formalities associated with this are likely to be cleared up within the next two weeks.

Cadence Design Systems Inc, San Jose is forming a UK-based joint venture with European Silicon Structures SA: the new European CAD Developments Ltd will apply the skills of its two parents to develop new circuit design automation software.

IBM plans to set up information centres in Budapest and Prague as part of a programme to form an information technology research and education body in central Europe. According to the Hungarian news agency MTI, similar centres are also planned for Warsaw and Belgrade, in partnership with the universities in each of the four capital cities.

Nixdorf Computer AG has won a contract valued at "at least \$5m" for 5,000 processors and point-of-sale terminals for East Germany's Profil Informationssysteme GmbH, the country's biggest supplier of financial services to the retail industry.

There is now a string of companies offering multiprocessor Unix systems that claim capability to support a vast number of processors - but do any of these machines ever get installed with more than about six CPUs? In at least one case, the answer is "yes" - Ultimate Corp of East Hanover, New Jersey says it has installed a Sequoia Systems Inc Series 300 fault-tolerant Unix machine worth a red hot \$5.8m for plumbing, heating and industrial supplies company Ferguson Enterprises Inc, Newport News, Virginia: the system, the largest Sequoia yet with 16 68030 CPUs, 512Mb of memory and 17.3Gb of mirrored disk, is intended to support over 2,000 simultaneous users and is to automate virtually every aspect of Ferguson's multi-location plumbing distribution business; running VMark Software Inc's UniVerse Pick-under-Unix, it's also claimed to be the largest centralised Pick system in the world; it is replacing Ultimate Pick boxes at seven regional bases.

TeleVideo Systems Inc, San Jose has signed two joint venture agreements to market its computers in the Soviet Union - with ready customers in the form of the departments of the Municipality of Moscow and the Ministry of Construction: the first pact is between TeleVideo Systems, ABM Computer Systems GmbH, West Germany and the Municipality of Moscow under which computers will be provided to Moscow to increase the computer capabilities in the city's infrastructure, and as part of the agreement, Moscow is providing land near the Kremlin which will be developed by the venture into an office and hotel complex for use by Western visitors to provide a source of hard currency earnings to pay for the computers; the second agreement, also with ABM Computer Systems, and the Ministry of Construction, involves TeleVideo providing computers computer parts for use within the Ministry and for resale through a computer store chain that is being set up in Moscow as part of the joint venture.

Sony Corp has gained another distributor for its NEWS workstations in the shape of NJK Ltd, which will sell the workstation bundled with the KBMS expert system development tool originally developed by Nippon Telegraph & Telephone Corp, for which it has obtained exclusive marketing rights on NEWS: the company expects to sell 30 systems in the first year, to manufacturers for applications such as diagnostic and production control systems.

DEC is to begin offering the OSF/Motif graphical user interface across all its VMS and Unix platforms directly: the company has negotiated a global licence with OSF for Motif on Ultrix - users pay just the cost of a tape - it is still an option on VMS which costs £48; in both cases it is installed upon DEC windows and replaces DEC's own window manager.

Visix Software Inc, Reston, Virginia, has signed up three distributors for its Looking Glass interface - BIM Corp of Belgium; X Open Technology, a subsidiary of Lionel Singer Co of Australia, (not to be confused with the X/Open standards group); and Workgroup Technologies Corp - formerly CAD/CAM Technologies - in Massachusetts.

Whether or not Toshiba wants to sell its new SPARC-based laptop, (UX No 282), in the US is apparently immaterial: according to Hidetaka Yamamoto, senior manager of Toshiba's workstation product planning and technical support department in Tokyo, the ball is in Sun's court because Toshiba doesn't have the marketing rights for the thing in the US - Toshiba was showing its little widget at Comdex/Spring at the Sparc International booth last week.

Ing C Olivetti & Co SpA has taken a 50% holding in a new data processing company it has formed in Yugoslavia - Yugoslav EnergoProjekt Holding Corp, an engineering and data processing firm takes a 46% stake, and Dlnara, a trading company through which Olivetti has sold in Yugoslavia for 20 years, which takes a 4% stake: known as Olivetti Energodata, the venture will market Olivetti's PCs and minis.

EUROPEAN UNIX SHOW 1990

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FPS TO BUILD SPARC SUPERCOMPUTER

Floating Point Systems this week becomes the latest addition to Sun Microsystems Inc's cupboard full of SPARC supporters, signing to take the processor and SunOS Unix operating system technology, which it will use to build the first SPARC-based supercomputer, around its existing 64-bit Model 500 Extended Architecture systems which the Beaverton, Oregon firm launched at the end of last year, (UX No 256). The Model 500EA uses Scalable Interconnect Architecture which allows additional processor modules to be attached, and FPS will be offering both a Scalar SPARC module with up to eight processors in parallel, and an integrated matrix co-processor with from six to 84 Intel 40MHz i860 RISC parts, also in parallel. The resulting vector, parallel and matrix system will deliver between 480 MFLOPS and 6.7 GFLOPS peak performance according to the firm. Prices, with the matrix co-processor, will go from \$820,000 to over \$4m.

Floating Point Systems has also signed a letter of intent for an unidentified institutional investor to take a 49% stake in the company for \$14.5m, and Electronic News reckons that Sun also plans to buy into the firm to cement the SPARC agreement. The suggestion is that FPS will take the 66 MIPS ECL version of the SPARC in development at Bipolar Integrated Technology Inc, and also use the technology in a new line of SPARC systems that Sun will then add to its own product line at the top-end. Tipped as a Model 5120S with up to eight SPARCs, and also available with an optional Intel i860 RISC-based matrix co-processor, it would deliver 528 MIPS and 134 MFLOPS in a base configuration - going to as much as 2,160 MIPS and 13.7 GFLOPS at the top - in theory outperforming the biggest supercomputer from Cray Research.

ADVANCED LOGIC TAKES COROLLARY KERNEL FOR SIX-CPU 80486 BOX

Corollary Inc's interprocessor 32-bit C-bus and symmetric multi-processing Unix kernel is now being utilised by Irvine, California-based Advanced Logic Research Inc, which has developed a six-processor 80486-based machine, the MultiAccess Series 3000 system. The machine, reports Microbytes, is designed to use the MPX multi-processor version of Santa Cruz Operation Inc's Unix System V, and with planned multiprocessing versions of NetWare and OS/2. The 13 bus slots all have connectors for both the C-bus and for the standard 16-bit AT bus. Processor boards - each with one or two 25MHz or 33MHz 80486s with 8Kb external cache, expandable to 256Kb per board, and maths co-processor - plug into both buses, one at either end, and peripheral boards can be plugged into the AT bus. The tower-style box has five storage bays, the mini-type box has 12. All come with a 5.25" floppy and 330Mb or 650Mb caching SCSI drives, an 800 by 600 VGA graphics board, nine serial ports expandable to 64, and parallel port. With one 25MHz CPU, 8Mb and 330Mb disk, it is \$16,000, with two CPUs and the bigger disk it costs \$27,000, and processor boards are \$6,000 for 25MHz and \$7,500 for 33MHz; a copy of MPX, at \$1,000, is needed for each CPU and Santa Cruz Unix System V.3.2 is \$900; ready fourth quarter.

BT HALTS OWN-BRAND UNIX KIT FOR COAST

British Telecom has discontinued the Motorola-based range of systems it introduced at the beginning of 1989, and is now looking to outside sources for its internal and external hardware requirements. The M6000 line of systems designed by BT in-house were first introduced in 1986, but re-launched three years later after only 600 had been sold. The systems were intended to be the Unix platform for the multi-million pound Common Office Automation System for Telecom - COAST - along with Zenith-sourced M5000 PCs. The COAST project has been estimated to be worth £25 to £30m a year throughout the 1990s, and will result in one of the largest distributed office automation systems in the world. BT is now reportedly talking to six major Unix suppliers about contracts. Those thought to be in the running include Sun Microsystems, ICL and Pyramid Technology, all of who have recently won major orders from BT. Further orders for ICL's DRS6000 kit are expected shortly.

DEC CHALLENGES IBM WITH NEW VAXES

DEC is to boost its mid-range offerings and give itself a convincing competitor for the AS/400 with the launch of a new VAX 4000 family likely to offer three times the power. The new systems, due to be available next month, include a top of the range 4000 Model 300, eight times faster than the original VAX 11/780, that will take over from the MicroVAX 3800/3900 line. And the Model 210, achieving 5.5 VUPs (for VAX Units of Power), will replace the MicroVAX 3300 and 3400. DEC has already listed the new computers on the US Electronic Store on-line ordering service, and several orders have already come through, according to the German newspaper Computerwoche. Terry Shannon, a DEC specialist at International Data Corp, believes the forthcoming VAXes are based on a modified version of the CPU used in the VAX 6000 Model 400 processor, but limited expansion, input-output and mass storage options mean that, according to Shannon, the VAX 4000s will not encroach on VAX 6000 territory. Higher-end VAX 6000 Model 500 machines with 11 MIPS CMOS CPU and 160Mb/sec system bus are also expected this Summer. Basic configurations are expected to start at around \$92,000. But VAX-Ultrix users may be unlucky: although the new products will go some way towards redressing the price/performance imbalance between the VAX and Ultrix-only RISC computer lines, DEC's Unix product manager Chris Sarfas said that it would not make sense to support Ultrix on VAXes "where the two product lines stand head to head".

V.4 GOES INTERNATIONAL

AT&T has added the Multi-National Language supplement to Unix System V.4, to allow users to communicate with the computer in their native language, allowing software developers to produce a single application for all markets. MNLS, for 3B2 computers this month, and Intel systems in the fourth quarter, includes extended multi-byte support for Unix commands, C multi-byte character processing, "Curses multiple character support and keyboard/character mapping. The announcement, made at last week's Usenix trade show in Anaheim, California, includes new versions of Country Specific Packages to provide localisation features for a particular country or language: the Japanese System Messages will be available for 3B2 computers later this month, while enhancements to the German and French System Messages code are planned for the future. There is also a new European Language Supplement, available third quarter.

SILICON VALLEY OPTS FOR SOFTWARE FACTORY

Cognos Software Inc's PowerCase, (UX No 285), and Information Builder's Focus are both architected around Systematica Ltd's CASE tool builder Virtual Software Factory, and the Bournemouth-based company now says that two major Silicon Valley software houses are about to announce plans to use VSF in the development of new products. A Scandinavian telecommunications firm will also be using VSF for developing a customer services system. Introduced around two years ago, the Ada-based VSF, with around 350,000 lines of code, was originally written for Sun Microsystems' Sun-3 workstations, and can be configured for a number of design methodologies, including the UK government specified SSADM, the European Space Agency's HOOD and the French system Merise. At last week's Software Tools '90 exhibition in London's Wembley Exhibition Centre, Systematica's marketing director Michael Fish revealed that VSF has now been ported to Sun's SPARCstation running under SunView, DEC's Mips RISC-based DECstations using DECWindows, IBM's PS/2 running OS/2 - prices start at around £8,500 - and is currently being migrated to run under OSF/Motif in response to customer demand. In addition Fish says that VSF will be up and running on IBM's RS/6000 platform by the beginning of next year - once the company gets a machine on which it can do the porting work - and Systematica is currently looking at the possibility of putting VSF under the OSF1 operating system. The firm is also working on support for the US-favoured Yourdon methodology, as well as what it calls "metacase" technology in which the methodology components are kept entirely separate from the core generator modules. Systematica has around 50 employees, and had orders totalling £3.3m to the year ending in April, however Fish expects this to increase significantly when royalties from third-party developer and distribution deals are expected to come to fruition - DEC signed to distribute VSF in Europe last year, (UX No 236).

SOFTWARE TOOLS '90

Also at the show ICL unveiled PC Ingres, an Ingres application development platform for its personal computer line, and a PC mainframe link called Ingres/Relay allowing its personal computer users to connect to Ingres 5.0 running on one of its mainframe systems. Ingres Relay costs £250 and is available now.

In other show news, Delta Software International, Chesham, Buckinghamshire, part of the Swiss-based Delta Software Technologie AG group introduced a tool for building interfaces between application and database management systems. Delta/DBI uses its own 4GL-like data manipulation language - which generates database code, such as SQL - and requires no detailed knowledge of the data store or target database, claims the firm. Delta/DBI is based upon entity relationship models and works with a range of database systems - no prices given.

London-based Model Systems unveiled version 4.6 of its SSADM-based Analyst Workbench tool which now includes extensions for object-orientated design support.

Software Generation International, Hitchin, Hertfordshire, has ported its PVCS management control software to IBM's RS/6000s.

DEC, INGRES END TALKS

ON DEC INVESTMENT

The talks between DEC and the supplier of its relational database for Ultrix, Alameda, California-based Ingres Corp, have terminated without agreement. "Ingres and Digital were unable to agree on a strengthened alliance that was consistent with our respective strategies. We both view this as a missed opportunity but plan to continue to pursue our respective strategic directions," said Ingres chief executive Paul Newton. Both companies indicated that they would continue to work as partners under their current business relationships, but termination of the talks will intensify industry gossip that Ingres is for sale in its entirety. Most likely buyer would be a diversified software firm such as Computer Associates Inc rather than a manufacturer.

...AS DEC JOINS OBJECT MANAGEMENT GROUP AS CORPORATE MEMBER

DEC has jumped off the fence and decided to join the Object Management Group as a corporate member. The Group, in which Hewlett-Packard Co and Data General Corp are founder members and leading lights, is dedicated to developing standards and guidelines for implementing object oriented systems and programming. As a corporate member with a seat on the board, DEC will help oversee policies and participate in approving proposals by the Technical Committee. DEC says that object orientation is present today in a number of its Network Application Support services and products such as its CDD+ repository, and the DECdecision product for advanced decision support, the DECwrite publishing program for DECwindows workstations, and the Trellis language.

...AND SIGNS FOR SECURE SYBASE

Following the introduction of Sybase Inc's B1 and B2 secure version of its relational database system for DEC VAX computers running Ultrix back in February, (UX No 271), the two have now signed a three-year worldwide distribution agreement. DEC is to sell the Sybase Secure SQL Server and Secure SQL Toolset, initially on the VAX series running Ultrix, although versions for the Mips RISC-based DECstations are also under development. The long-term aim is to put the secure version on to VMS - when a secure version of VMS emerges. The system was shown in operation as part of an order-of-battle demonstration at the US 44th Armed Forces and Electronic Association Convention and Exposition in Washington last week. In the UK there are already four military VAX sites running the secure database, and more orders are expected following the agreement. Secure versions of the Sybase database are reckoned to run at around 80% of the performance of the firm's standard offering.

BASIC FOUR TURNS TO SEQUENT

Tustin, California-based MAI Basic Four has turned to Sequent Computer Systems for a high-end machine capable of running Unix alongside its proprietary Boss/VS business operating system software. The company announced a GPx 5070 with two to four 25MHz 80386s and optional 80387s supporting up to 192 users, and a GPx 6070 with up to ten CPUs. Under Boss/VS and Sequent's Dynix multi-processor Unix in MAI's "dual universe".

AT&T BITES INTO NETWORKING AT NUGATT

AT&T's Computer Systems Division seems to have a penchant for making big splashes during computer shows at the moment. Following its recent product blitz at COMDEX/Spring, (UX No 286), the company last week chose its own Network Users Group AT&T - NUGATT - meeting in Philadelphia to announce a range of new Fibre Digital Data Interface local and wide area network solutions for use with its StarGroup software. These include the FDDI-to-802.3/Ethernet bridge - StarWAN Multi-bridge, filtering at 500,000 packets per second; a FDDI router - StarWAN Brouter, model 450, supporting up to two FDDI dual access station interfaces and up to 28 Ethernet connections; and a FDDI concentrator - StarLAN 100 Network Concentrator, which, supporting up to 15 connections, allows workstations and hosts to be plugged into an FDDI network without disrupting network operation. StarWAN Brouter now supports ISO and Novell IPX protocols, as well as TCP/IP, DECnet and AppleTalk. The company also announced compatibility with the Ethernet-over-twisted-pair 10 BASE-T standard, (Draft 10), for StarLAN 10 Network Hardware solutions, and has upped the warranty period on its 10 Mb per second StarLAN 10 Network and the 1Mb per second StarLAN Network to three years. In addition StarWAN Information Systems Network and Datakit II Virtual Circuit Switch have been enhanced with a new program providing gateway services between the two and ISO-based StarGroup LANs. For users who don't need FDDI system a new StarWAN Brouter model 200 was also introduced for up to two Ethernet connections and two T1 network connections. Also new is the 6386 WorkGroup System Fibre Interface, allowing 6386 WGS computers to communicate and transfer files with terminals, printers, 3B2 systems and other WGS computers via StarWAN ISN. AT&T says that a range of its StarLAN 10 Network Hardware - Network Hub Unit, PC Network Access Unit, Network Attachment Unit Interface Adapter, Network Fiber Hub and Network Fiber Adapter - is now compatible with the IEEE 10Base-T draft 10 standard. And two similarly compatible products have been added to the range - the Network MC200 Network Access Unit plug-in board for IBM PS/2s, and Network Coax Adapter IEEE 802.3 two-port repeater for "cheapernet" connection to a Network Hub Unit via twisted pair. No prices were given.

FIELD DAY FOR IXI's X.desktop IN JAPAN AND US

Within the Japanese Unix industry IXI Ltd is aiming to be with its X.desktop graphical user interface what VHS has become to the video industry. The UK, Cambridge-based company last week announced that it has licensed both English and Japanese versions of its software to NEC Corp, Tokyo, Matsushita/Panasonic, Osaka and Omron Corp, Kyoto, in new worldwide agreements. The three will be bundling X.desktop on their respective Unix systems. NEC on its EWS4800, Motorola 68030 and MIPS R3000-based system, Matsushita's Panasonic division, (Solbourne Computer Inc's holding company), on its BE, Intel 80386 and 80486 systems from September, and Omron on its Motorola 68030 and 88000-based workstations. In the US, IXI has also signed graphics workstation manufacturer Tektronix Inc to take X.desktop for its 88000-based range of systems on a worldwide basis - see below.

**MOST POWERFUL TEKTRONIX SYSTEM YET
COULD SIGNAL MOVE AWAY FROM 2D LOW-END**

Signs in the US are that Tektronix Inc, Wilsonville, Oregon, is slowly but surely moving away from its low-end 2D CISC-based workstations - which are facing stiff competition from the low-cost offerings from Sun Microsystems, DEC and Hewlett-Packard - in favour of the higher-end 3D market. Certainly the introduction last week of its most powerful workstation yet - the XD88/35 - has done nothing to dispel rumours of this drift. Built around a 25MHz version of the Motorola 88000 RISC chip, the XD88/35 is rated by the company at 21 MIPS and 2.5 MFLOPS, and starts at \$32,000. With 8-bit planes and a 16" colour monitor, it comes with Core TekImaging, a 4G graphics accelerator, and supports Tektronix's Digital Video Interface. Tektronix has also signed up for IXI Ltd's X.desktop software on all of its 88000-based systems, following a worldwide agreement signed between the two last week.

**XINC'S SPARC PLUGS TO BREATHE NEW
LIFE INTO SUN WORKSTATIONS**

Xinc Electronics, Clearwater, Florida, is aiming to breathe a new lease of life into the older and less powerful Sun Microsystems CISC workstations with the SPARC Plug, which it claims to be the most powerful hardware and software upgrade solution available for Sun systems. Due to be unveiled at an IEEE conference in Orlando, Florida, on the 26th of this month, the Sparc Plug box is built around Solbourne Computer Inc's Cypress-Sparc engine and slides into a VME slot on Sun workstations. It is claimed to boost the performance of a Sun-3 system from 2 MIPS to over 65 MIPS, and the company also has plans for a version built around the 64-bit version of the SPARC being developed by Matsushita Electric Industrial Co, (UX No 270), which will go to over 100 MIPS. Xinc will be offering two and four processor Sparc Plugs built around the corresponding Solbourne Series 5 engines, which come with an interface card for the S-bus and software from Solbourne's implementation of the SunOS operating system - no prices were available.

**...AS SUN LANDS A \$300m SPARC
MACHINE ORDER FROM MENTOR**

Diversifying for the first time from its 100% dependence on Hewlett-Packard Co's Apollo arm for its turnkey workstations, Mentor Graphics Corp has complemented its new \$400m three-year Hewlett deal, (UX No 286), with a \$300m order to Sun Microsystems Inc for Sparc-based computers over the same period. It is also hedging its bets on user interfaces by supporting Sun's Open Look on the Sparc machines. Mentor has been saying for some time that it would spread its favours in future, and earlier this year indicated it had opted for Sun. Sun will buy \$2.2m of Mentor Graphics software for the Sparc for development of complex integrated circuits for use in future workstations.

**ATLANTIX AWAITS COPYRIGHT CLEARANCE
FOR LAN MANAGER/X-COMPLIANT COCONET**

Atlantix Corp, Boca Raton, Florida, probably still more familiar under its original name of CocoNet Inc, is due to release a new version of its Unix networking software shortly. The company claims that it will be a fully-compliant server implementation of Microsoft/Hewlett-Packard's LAN Manager/X running on SCO Unix. Running on standard Unix platforms, CocoNet supports Unix with Novell Netware and NetBios PC local area networks, allowing DOS and OS/2 workstations virtual access to Unix systems and peripherals. Running the new version in conjunction with JSB Computer Systems' MultiView would allow Unix and DOS windowing environments - such as Microsoft 3.0 - to be displayed at the same time the company claims. The new release of CocoNet was due to be unveiled at COMDEX/Spring last week, but last minute copyright hitches have meant re-writing portions of Microsoft code, and dates have slipped.

**LOTUS PLUNGES INTO UNIX
WITH 1-2-3 FOR INTEL KIT**

Lotus Development Corp reckons that Unix on the desktop is becoming an important environment and sees Intel-based personal computers running Unix System V.3.2 as the most promising place to start. It is set with Lotus 1-2-3 for Unix and says it is based on 1-2-3 Release 3. Lotus, with a version of 1-2-3 for Sun Microsystems' SunOS out already, plans "eventually" to do 1-2-3s for other versions of Unix, notably System V.4. It reckons that there are 400,000 users of Unix System V.3.2, and intends to go through resellers rather than via direct sales.

WITHOUT DISTRIBUTED COMPUTING ENVIRONMENT - "UNIX WILL COME UP SHORT" SAYS OSF

by William Fellows

Since the Open Software Foundation's choice of technology for its Distributed Computing Environment was revealed at the end of April, (UX No 280), a war of words has been going on within the industry between the alternative Unix group and supporters of rival methods for doing distributed computing. Last week officials from the Open Software Foundation, Transarc Corp and Hewlett-Packard/Apollo spoke exclusively to Unigram.X in an attempt to dispel the bad-bones being thrown at DCE from some sections of the industry, and discuss what they regard as the technical advantages of the technology over other distributed computing environments, such as Sun Microsystems' Open Network Computing platform.

Jonathan Gossels, OSF business area manager responsible for the selection process, visualizes DCE as addressing "the fundamental problem with Unix - that it doesn't interact with the real world, with proprietary operating systems that are already out there". Furthermore each of the proponents share a central belief that "without the benefits that DCE brings, Unix will come up short". Benefits they claim are in the areas of performance and security - and warn they that "promulgating a standard, [ie Sun's ONC], is no good if the standard is flawed". Although they accept that NFS element of ONC - by virtue of its sheer installed base, which numbers upwards of 800,000 - is something of a de facto standard in the market, they believe that DCE offers additional functionality in areas where ONC comes up short.

Getting down to business, the Transarc people - Alfred Spector and Philip Lehman - tried to clear up some of the ambiguity that has surrounded the relationship between its Andrew File System - part of DCE - and Sun's Network File System ever since the OSF's announcement. They say, contrary to some of what has been written about DCE, that the two can talk to each other "back and forth" as well as accessing data across each other, indeed at the launch, OSF demonstrated a server running DCE communicating via ONC with Sun Microsystems' SunOS operating system.

Important questions have also been raised about DCE's ability to tightly integrate personal computers and the 25 million Novell nodes out there - not to mention those of Banyan or 3Com. The officials firmly maintain that networking technology such as Portable NetWare should run comfortably on top of the DCE file system with no problem, because DCE uses "precise Unix semantics" that will map on to such network schemas. Indeed Alfred Spector says that Transarc "will work with Novell if there are any problems".

PC users will get DCE

At present personal computer users running MS-DOS and OS/2 have two methods of access to DCE - both of which are now X/Open standards. Firstly Sun Microsystems' PC-NFS, public domain software, and secondly Lan Manager/X, the Microsoft/Hewlett-Packard technology - both of which are present within DCE. However during the discussions it was revealed that these methods look set to be superseded, as OSF says it is currently "working with several companies to port DCE to personal computers".

On the whole, the group believes that whilst ONC is effective, it has certain weaknesses and limitations where security, permissions, record support and consistency are concerned, as well as program anomalies - "NFS 2.0 is good for its time, but is now seriously outdated", said Transarc's Phil Lehman. As well as embracing consistent caching, whereby the system knows when data is up to date without having to access the network on each occasion for verification, Spector claims that in comparison with ONC, which typically may support between ten and thirty clients, version 4.0 of its Andrew File System, embedded in DCE, will support up to three times this number per server on typical applications, providing "far superior performance".

Another advantage claimed for DCE is that system administrators do not have to stop users from working when doing a backup - these tasks can be performed whilst the system is being used, and that due to the way that the file system is timed and "cloned" during this process, a user can restore a particular view of the file system - perhaps that which was being used two weeks previously. Gossels claims an average recovery time of two minutes for DCE when a system is down no matter how much disk capacity is configured, as opposed to the half an hour or so that a similar ONC-based system would require.

In addition OSF claims that DCE's "just once" architecture means that no duplication of data will take place during any transaction - even for instance in the event of a banking system going down - because AFS operates in conjunction with the Hewlett-Packard-Apollo-DEC enhanced Network Computing System Remote Procedure Call, which is claimed to be semantically coherent.

"Transport transparency"

As far as the transport layer is concerned, OSF claims that because Sun's RPC is not transport independent, application developers have to work with a target environment - such as TCP/IP - in mind. Whilst OSF reckons DCE is "transport transparent", it currently only works with UDP/IP and Apollo's XNS transport protocols, though it says TCP/IP and DECnet support will be added, and OSI will follow when guidelines are formally defined by ISO. OSF is also keen to get DCE interacting with databases, and says that Informix, Ingres and Sybase have already endorsed the technology. A future database and interoperability Request for Technology is planned to ensure that databases will be interoperable across OSF technology.

Price to pay

There is one part of the technology on which the OSF is particularly touchy however, and that is the size of its creation, which will not be disclosed until the launch, indeed OSF even claims "not to have sized it yet". However Gossels admits that because "DCE does a lot of things, there is a price to pay" - in terms of size. As far as takers go, Gossels says that OSF is negotiating with most of the major players - including Unix International companies - and that "initial responses have been tremendous" - because as he believes - "DCE is the right answer".

For all Gossels protestations to the contrary, there is nevertheless much bitterness - and fury - at OSF's decision within the Sun supporters camp, as those who witnessed Sun president Scott McNealy's verbal attack on the OSF's decision at the Canadian Unix Show in Toronto a couple of weeks back will testify. The OSF man is desperately trying to pour oil on these stormy waters. He claims that meetings with Sun are in progress at this time to sort out interoperability issues "on a technical level," and that "it is only in the last couple of weeks that the decision has deteriorated". However his bottom line is that "the industry will see through what is effectively sour grapes".

EUROPEAN UNIX SHOW

London's European Unix User Show returns to Olympia 2 this year, after two years at the palatial but out of the way Alexandra Palace. Next door at Olympia is the PC-User Show, and opinions are divided as to whether this is of benefit or simply a distraction. This year the Show finds itself in competition with November's Open Systems Show, which now has the backing of the UniForum UK Unix user group. Hence some of the big names are missing. The Show lasts three days from June 19th.

NEW SPECIALIX RIO BOARD USES TRANSPUTER FOR I/O

Specialix Ltd is set to introduce a new generation of input/output subsystems using the Inmos Transputer, on the first day of London's European Unix User Show this month. The new system, called RIO, should take Specialix into new markets, by allowing a maximum of 512 users to be connected to an Intel 80386 or 80486 host system running Unix. Bandwidth is said to be increased tenfold over the Byfleet-Surrey-based firm's current SI-Series products, which are Intel-based, and typically serve between 8 and 16 users. For RIO, Specialix uses 25MHz T400 Transputers, and replaces traditional ageing Uart chips with the custom CD1400 communications processor from Cirrus Logic. A Transputer is used in the host I/O controller, and also in each remote eight port terminal adaptor, along with the CD1400. Each adaptor can support three further remote terminal adaptor in addition to terminals, giving a maximum configuration of 128 terminals per card. Specialix marketing director Ian Cummins said that the Transputer was chosen "because it has four very fast serial lines - it's not just the power, it can carry on serial I/O without affecting its own processing". Cummins said that the boards also included "minicomputer style" dynamic reconfiguration software to help users cope with large amounts of terminals. Prices will be revealed at the Show, but Cummins suggested the 32-user version would cost around £3,000, while a 128 port version around £9,000.

ACORN ADDS ARM3 WORKSTATIONS

Acorn Computers launched into the Unix world in January 1989 with the low-cost (£3,500, since reduced to £3,000) R140 workstation, and during that time has found its niches, despite fierce competition from the big Americans. At the Show it promises to unveil two new products, using its second generation ARM 3 RISC processor, which it says "will be priced to re-affirm Acorn's position as a supplier of affordable workstations" - the company is obviously aware of Sun's new SLC Sparcstation, priced at around £4,000. The new systems are the R260 10 MIPS workstation, priced in the region of £5,000, which promises to offer expansion up to 16Mb main memory and 100Mb internal hard disk; and the R225 diskless workstation, also using the ARM3, for around £3,500. Like the R140, they are partitioned with the proprietary RISC OS operating system along with Acorn's RISC iX Unix implementation. The R140 will continue as the entry level model, and Acorn will offer a range of 4Mb upgrade boards to double available memory. Acorn, which recently announced increased year-end profits, hopes the new machines will increase its market share in healthcare, university and polytechnic applications, as well as specialist technical markets such as image processing and computer-based training.

BAYDEL PROVIDES SBUS EXPANSION

Baydel Limited of Leatherhead in Surrey is taking advantage of Sun Microsystems' open license policy on the S-Bus, and at the European Unix User Show the company is launching the SU-MUX range of products. SU-MUX provides printer and terminal connectivity for Sun SPARCstation 1+s and other S-Bus machines - it provides for up to 64 terminal connections and a number of parallel printer ports through add-in S-BUS cards connected to either "lunch-box" or "pizza-box" configurations. Prices at the Show.

HAUPPAUGE OFFERS DUAL i486/i860 BOARD

Dusseldorf-based Hauppauge Computer Works GmbH will be showing a dual-processor i486/i860 motherboard at the Intel booth, which includes a the APX software executive standard environment for running Intel i860 applications in parallel with i486 applications. Intel's Sharad Gandhi said that "in order to provide software portability over a wide range of systems, from symmetrical dual processors such as the Hauppauge to add-in cards such as the IBM Wizard, APX has all system I/O performed by the host CPU. i860 software applications running over the APX executive need not be concerned with either the hardware or operating system it is running with. This will provide portability of i860 applications over a wide range of hardware and operating systems".

BILL JOY LOOKS INTO THE FUTURE

Bill Joy, vice president of research and development at Sun Microsystems heads an interesting conference program running parallel to the Show, with a chance to hear many speakers who regularly contribute to US Unix events, but are rarely seen in Europe. Joy is speaking on Thursday afternoon at 4pm, and if his recent keynotes at Unix Expo West in Los Angeles and Xhibition in San Jose are guides, will throw in some off-the-cuff controversial comments along with his insight into developments during the next decade. Others worth seeing at the Conference, organised by Dr Pamela Gray's new company Marosi, include analysts Brian Boyle, Esther Dyson and Judith Hurwitz, Allen Hankinson from the National Institute of Standards and Technology, and of course the ubiquitous Peter Cunningham (Unix International) and David Tory (Open Software Foundation). From the UK, Ray Anderson (IXI Ltd), Dominic Dunlop (Marosi), John Glyde (IBM) and Peter Griffiths (Instruction Set) will be speaking.

ALSO AT THE SHOW...

Also at the Show, Microway will launch new NDP-486 C, Fortran and Pascal compilers; Microtex will show the recently launched Altos 5000 486 box running the Ingres database and Acuity/Forsee spreadsheet; Migration Technology will be demonstrating Pascal to C translation; AT&T's Unix Software Operation will be demonstrating its Tuxedo on-line transaction processing product along with OSI, Internationalisation and (of course) Open Look; Sybase will show version 4 of its on-line database; Sapphire will be showing the latest version of the SunSystems accounts package, introduced in May; Foundation Systems will be showing Lotus 1-2-3 for Unix System V running on an Altos 5000; Fourgen Software Inc's Informix 4GL-based Fourgen accounting system enters the UK market through an agreement with Softgen Technology Ltd of Northern Ireland; Uniface UK gives the first public showing of its Uniface Version 5 4GL, announced back in March; the SuperNova applications generator, developed by Transmediar BV of Utrecht, and which has had widespread success in Scandinavia, will be shown on the Four Seasons Software stand; Computer Profiles Ltd of Coventry will be giving the first public demonstration of its pan-European Diamond business software, running on the IBM RS/6000; and finally TIS Ltd is the latest to recognise the increasing dominance of the Intel architecture in the Unix world, and plans to introduce its own range of Intel-based 386 and 486 systems.

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Hitachi Ltd says it will develop, manufacture and sell Hewlett-Packard's PA-RISC Precision Architecture RISC chip on the open market, following the agreement last July to develop faster versions of the chip for computers build by both companies: the extended agreement means that Hitachi is likely to come onto the market in the Spring of 1991 with its own PA-RISC, and it will eventually build a product line "ranging from several MIPS to 100 or more MIPS" based on the part.

Algorithmics Ltd, the UK company formed following the demise of Whitechapel Workstations Ltd, has a benchmark suite which it is comparing to the Specmark, said to be suitable for "quick and meaningful comparisons of Unix-like systems: the suite is available for a media charge of £75 from Dominic Sweetman at Algorithmics, on 071 700 3301.

With all the renewed interest in independent portable software code stimulated by the Open Software Foundation's Architecture Neutral Distribution Format request for technology, Pecan Software Europe is beginning to make more noise about its long establish P-Code UCSD Pascal product: the Bristol based company reports that an SCO Unix adaption of the UCSD P-System for Intel-based hardware is now available - and the company has struck up a joint venture with DSB Consultancy of Holland in a move to increase its European customer base.

Daewoo Telecom Co Ltd has followed its South Korean siblings in seeing the need for a RISC chip in its future, and has opted for the R-Series processor from Mips Computer Systems Inc. Daewoo has signed an OEM agreement under which it will initially resell the entire MIPS product line in Korea under its own name.

Amdahl Corp has signed Integrated Computer Solutions Inc, Cambridge, Massachusetts, to do an implementation of the OSF/Motif graphical user interface for Amdahl's UTS 2.0 mainframe version of Unix System V.3.1. Amdahl's mainframes will be the first to run Integrated's latest product, the Builder Xcessory, which enables a developer to create user interfaces for applications using Motif an X-Windows graphically. Both the add-ons for UTS will be out later this month.

According to Computer Reseller News, there are already more applications shipping for the Open Software Foundation's Motif graphical user interface for Unix than there are for Presentation Manager, Microsoft Corp's graphical interface for the OS/2 operating system: and only 13% of a poll of 6,400 Comdex Spring attendees thought OS/2 would dominate the desktop by 1995, according to Byte Magazine.

Lotus Development Corp reckons that Unix on the desktop is becoming an important environment, and sees Intel-based personal computers running Unix System V.3.2 as the most promising place to start. It is set with Lotus 1-2-3 for Unix and says it is based on 1-2-3 Release 3. Lotus, with a version of 1-2-3 for Sun Microsystems' SunOS out already, plans "eventually" to do other versions of Unix, notably System V.4. It reckons there are 400,000 users of Unix System V.3.2 and intends to go to resellers rather than via direct sales. Show news - page 5.

Philips NV and Ing C Olivetti last week abandoned their discussions on collaboration in computers, saying that they could see no promising areas of co-operation.

But Philips has announced a major Unix coup in Belgium with Banque Bruxelles Lambert, the country's second largest bank, and Aslk-Cger-Bank, the largest building society. The Banque Bruxelles Lambert order is for 5,800 Intel-based models in Philips' P9000 line, while the Cger order is for 1,200 P9000s. The combined business is worth \$100m over five years. Three of Belgium's five biggest financial institutions have now nailed their colours to the Unix mast.

Mentor Graphics Corp has complemented its new \$400m three-year deal for turnkey workstations from its traditional Hewlett-Packard/Apollo supplier with a \$300m order to Sun Microsystems for Sparc-based computers over the same period.

Keeping faith with 80286 users, Intel Corp has a new 287XL maths co-processor which comes in at 16MHz and 20MHz versions: it is claimed to be 50% more powerful than the 80287: the part is available now at £265.

Solbourne says it now has working parts of its own, 25 MIPS Sparc implementation.

Sun Microsystems' European Business Development Manager Thierry Le Roy says that the promised second military European source for the Sparc will be revealed this week at a press conference in Paris. The undisclosed company already fabricates the part in the US, but unlike SGS-Thomson, which takes Motorola wafers and then makes up the processor unit, Le Roy insists that the new Sparc-maker will do the entire job on European soil. Le Roy also revealed that there a big plans for the Sparc shaping up for the Autumn, but declined to comment further.

National Westminster Bank PLC has placed a £15.6m order with NCR Ltd: the bank is upgrading 2,500 NCR 7000 Series branch controllers with enhanced memory and processing power, and anticipates the project will be complete by August.

Gartner Group reckons that the market for relational databases under Unix is growing at 48% a year, and from \$186m in 1988 will reach \$530m in 1991 - and yet there is no clear winner. Oracle Corp is thought to hold the lead with 33% of the Unix market, followed by Informix Software Inc with 26%, Ingres Corp with 17%, Sybase Inc with 10%, Unify Corp 5% and others 9%.

Canon Inc has introduced a Japanese language version of Hewlett-Packard Co's NewWave environment, Japanese NewWave Developers kit Version 2: the price is a little over \$1,000.

Correction: the Pick under Unix implementation on the Sequoia Systems Inc Series 300 installed by Ultimate Corp at Ferguson Enterprises (UX No 285) of course runs Sequoia's own Topix Pick/Unix environment, not the VMark product.

And Sun Microsystems points out that although it did not achieve full base level XPG3 compliance (UX No 286), it did have various software elements verified, including OpenWindows and SunOS 4.1 commands and utilities.

DEC's Pegasus add-in vector processor board for the VAX family is expected to come out this autumn, Digital Review reports. It is likely to be offered as an option on the VAX 6400, now pencilled in for July 11th launch, and integrated into the expected VAX 9000.

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NOW STAR PREPARES FOR SPARC SUPERCOMPUTER LAUNCH

It looks like FPS isn't the only company big-timing it with the SPARC chip, (UX No 287). We hear that Star Technologies Inc, Sterling, Virginia, is also to reveal a SPARC-based supercomputer on July 23 at Sun Expo in Washington DC. Star's high-performance computer network server has "fully integrated vector capabilities", is reported to have the power of a Cray 1S, and is likened by the firm to a Convex system. Its price tag is in the \$200,000 range, which sources say will severely undercut the FPS machine. It is intended to drop into Sun workstation environments where a server and 20 or more workstations would already be in operation. Unlike FPS, which is using an ECL implementation, Star has opted to go CMOS, and could be the first product to ship - probably in early autumn - using the 40MHz Cypress Sparc chip. Star, now a member of Sparc International, has licensed SunOS, high-level programming languages, ONC and NFS from Sun's systems software distributor Interactive Systems, saying it's going the Sparc route because of all the applications available. This will be Star's first foray into RISC and Unix. Star's European headquarters in Paris is keen to get the thing over the Atlantic as soon as possible, and a September introduction is planned. It says there has been a great deal of interest from European companies, and two UK distributors are being lined up at this moment. Until now, the firm has been in the DEC VAX graphics processor and array processor business, dying markets it's anxious to escape. Star's financials have been a bit dicey lately, sources close to the company said, remarking that it has recently arranged an additional investment of \$15m from backers such as General Electric. Sources say the two back-to-back supercomputer deals indicate that Sun Microsystems has decided to steer clear of the high-end business itself.

HEWLETT LAUNCHES MERGED HP APOLLO 9000 VRX LINE

Hewlett-Packard Co last week accompanied the long-promised single successor line to its own and Apollo Computer's 68000 family-based workstations - held up by Motorola's tardiness in getting the 68040 out - with a new range of VRX - Virtual Rendering for X - graphics sub-systems based on the Intel 80860 RISC. The new HP Apollo 9000 VRX Series 400 starts life with three workstations and two servers, each object-code compatible with existing Hewlett and Apollo Unix workstations and supporting a choice of HP-UX or Domain/OS - no unified operating system yet. Built around a 25MHz 68040, the Model 425t is rated by the firm at 20 MIPS and 3.5 MFLOPS. It comes with from 8Mb to 64Mb memory and takes up to 4.6Gb of disk. Networking options include Ethernet, Apollo Token Ring and IBM Token Ring. The Model 400t uses the 50MHz 68030 and is rated at 12 MIPS and 0.5 MFLOPS and are otherwise the same as the 425t; the 400dl is the same but takes only 16Mb maximum and supports only Ethernet; prices for each start at £4,500. The 400s is a server version of the 400 with 8Mb to 128Mb memory and the same options as the workstations at from £11,000. The Model 433s server, with a 33MHz 68040, is rated at 26 MIPS and 4.5 MFLOPS and is similarly priced and configured as the 400s. The 68030-based systems are available from July 1, and users can upgrade to a 68040 CPU in October, by which time HP expects to be getting volume shipments from Motorola. More details - page 2.

MISSION CYRUS LOOKS FOR MORE CASH

Mission Cyrus, the Burnaby, British Columbia-based PC company in which the UK's Mission Electronics has an investment, is currently going through the process of restructuring, following a delay in its expected second round of financing. The company is currently trading under the Canadian equivalent of Chapter 11 - it is not bankrupt or insolvent, but strapped for cash, and so can't buy the parts it needs to fulfill the orders on its books. The problem has been that its main investor, a small British bank, pulled out of its planned \$3.7m investment, and the gap needs to be filled before other investors - including the British Columbian Government - will pay up. Mission says that two multi-billion conglomerates with electronics subsidiaries are currently considering the acquisition of the whole company for between 5 and 10m dollars - a decision could be reached within the next two weeks. Research and development has moved back to Mission Electronics in Huntingdon, UK, but the financial problems have seriously delayed some of the company's more innovative plans, such as a Sparc-based workstation and 486 colour laptop.

IBM BRINGS OSI TO THE RS/6000

IBM has announced Open Systems Interconnect messaging and file transfer capabilities to the RS/6000 with a new AIX program - OSI Messaging and Filing/6000. It will allow the machine to conform to government OSI protocols, now required for US as well as European government business. It also includes gateways for transferring files and sending messages between OSI and TCP/IP networks, allowing users access to the new OSI functions and existing TCP/IP networks. IBM extends open commitment - page 2.

BULL DELIVERS NEW IRON TO INLAND REVENUE

In the UK, Bull HN Information Systems Ltd, Brentford, Middlesex, has won its largest order ever - a £50m contract from the UK Inland Revenue to supply 900 DPX/2-340 Unix servers and 25,000, rising to a possible 50,000, 286-based diskless personal computers for a project known as IRON - Inland Revenue Terminal of the Nineties. The Revenue has decided to go ahead with the project even though the three other shortlisted suppliers - Philips, ICL and GPT/Nixdorf - dropped out of the running at the end of 1989 because of technical and financial reservations about the project's feasibility. IRON - the original requirement document for which was over 12" thick - will take four years to complete, and involves replacing existing ICL terminals in each of the Revenue's 632 local tax offices and integrating the servers with other ICL and IBM mainframe sites in Telford and Worthing. Local personal computers will run an interface known as Talkman from French firm Integro, as well as PC Interface from Locus Computing, and will have access to Uniplex, Informix and existing ICL and IBM applications. An IRON2 project is penned for the future to upgrade the rest of the Revenue's computer equipment. Subcontractors on the project include Congleton-based Boldon James for ICL communications; AGS/SSI, Isleworth, for IBM communications; Network Designers, Oxfordshire, for local area networks; and Kernel Technology, Leeds, Yorkshire, for software development.

HP DETAILS FIRST MERGED WORKSTATIONS

The new HP Apollo 9000 machines launched last week (see front page) were jointly developed at Apollo's Chelmsford, Massachusetts offices, and at HP's workstation division, Fort Collins, Colorado. They will be manufactured in the US, and in West Germany for the European market. All can be integrated with one or more of Hewlett's new range of VRX graphics subsystems. Model 400dl with VRX monochrome, the 425t and 400t with VRX monochrome and colour, or the three-dimensional Personal VRX, and the servers can also add the three-dimensional Turbo VRX. VRX monochrome with a 19" monitor does around 40,000 two-dimensional vectors per second and costs £3,000. VRX colour is from £7,000 in the UK with a 19" monitor and performs at 130,000 two-dimensional vectors per second. Personal VRX uses 33MHz Intel 80860 RISC processor performing at 66 MFLOPS and is available in three configurations, ranging from eight planes, 95,000 three-dimensional vectors per second to 16 planes and 270,000 three dimensional vectors per second. Prices start from £18,000. Turbo VRX uses up to three 40MHz 80860s to do 334,000 to 1m three-dimensional vectors per second at 240 MFLOPS, it costs from £41,000.

INTEL'S 40MHZ i860 GETS ITS SPECMARK

Intel's new 40MHz implementation of its 80860 - or i860 - RISC processor has been SPECmarked at 24.1 according to the firm. In the single-processor RISC stakes the SPEC mark puts the i860 in third place, behind systems using MIPS Computer Systems' R6000 part, and the top-end IBM RS/6000s. The i860 was tested using an AL860 board from Alacron Inc in a 386-based personal computer running Unix V 3.2 with Green Hills Fortran and Metaware Hi C compilers. The 33MHz version of the i860 has a rating of 20.3. Intel has also reported a SPECmark of 8.7 for its 80486 processor - which puts it at the top of the pile as far as the CISC competition is concerned.

OLIVETTI NOW READY WITH V.4

Olivetti Systems and Networks is the latest company to bring Unix System V.4 to the market, saying that it will begin shipments from July of this year. Olivetti, which showed the product at the European Unix User Show in London last week, says that the first release will support its high-end PC products, including the 33MHz 386 M380/XP9, and the 486-based M486 and CP486 machines, which were recently judged X/Open XPG3 compliant under the X/Open branding scheme. The release will also support the Intel APX interface for i860 applications.

IBM EXTENDS OPEN COMMITMENT

IBM last week took a further step in its surrender to the vast army of European users that refuses to implement networks that do not conform to the Open Systems Interconnection model, with a Position Statement promising an OSI/Communications Subsystem within Systems Application Architecture Common Communications Support; OSI/File Services implementing FTAM in SAA; and inclusion of X400 in the SAA definition. Its OfficeVision/VM and OfficeVision/MVS will support OSI Message Handling System and SNA will be integrated with Open Systems Interconnection. IBM also made a Statement of Direction saying it intended to offer Fibre Distributed Data Interface local area network products that conform to the current and emerging ISO 9314 standards; offer high-performance FDDI workstation and host attachment and interconnections between FDDI, IBM Token Ring, and Ethernet, provide network management for FDDI and offer an FDDI backbone extension that incorporates single-mode optical fibre and laser technologies. And it updated its direction for the tools that enable Systems Application Architecture Common User Access, saying that it would provide, exclusively under OS/2, the two elements of the Common Programming Interface that enable CUA, namely the Presentation Interface and the Dialog Interface.

UNISYS OPTIMISES THE POTENTIAL OF CTOS FOR DEVELOPERS VIA ITS CTOS/OPEN INITIATIVE

As it said it would last year, Unisys Corp has brought all the versions of the Convergent workstation operating system CTOS together under its CTOS/Open initiative. The cornerstone of this move is the first common published Application Programming Interface for all CTOS networked workstations including Unisys BTOS, Bull Starsys, Telenorma TNOS, MDS/REI and Momentum Systems Hero/OS. These operating systems (representing an installed base of 750,000) now have applications portability thanks to CTOS/Open. Christopher Isaac, CTOS marketing manager for Unisys in the UK says "we call this approach optimised open systems and believe that it represents an important new phase in the Open Systems movement". In fact, Unisys needs to support another operating system - a proprietary one at that - like a fish needs an umbrella. Indeed, it is widely believed that Unisys was goaded into suggesting this initiative by gossip that Bull SA was about to move in on its US CTOS market with Starsys. As it happens the Application Programming Interface is the work of the CTOS/Open Advisory Council which is sponsored by (you guessed it) Unisys and Groupe Bull. The Unisys graphical user interface for CTOS is described as consistent across both character-based and graphical workstations and is allegedly compliant with IBM's Systems Application Architecture Common User Access standard. It is built round Microsoft's Presentation Manager, and the Microsoft C Professional Development Systems v.6.0 and Pascal v.4.0 environments. Early copies of the CTOS-based Presentation Manager and the C and Pascal development environments will ship later this year, with customer shipments following in mid-1991. Presentation Manager will come bundled with an enhanced CTOS operating system. Under a second agreement, Unisys is developing a technology with XVT Software Inc to make it possible to program graphical user interface applications that are portable across, and appear as native applications on, all CTOS workstations and workstations supporting Presentation Manager, Microsoft Windows, X-Window and Macintosh windowing systems. Finally, as one might expect of a proprietary product being championed by an "open systems" vendor, CTOS will be Posix-compliant and is claimed to be the first non-Unix operating system to be so; unfortunately, the Posix standard as so far defined is so low-level that compliance does not mean very much.

HEWLETT, DEC

"WANT MULTIFLOW'S TRACE COMPILERS"

Very Long Instruction Word processor specialist Multiflow Computers Inc, which closed its doors in March after the money ran out and a deal under which DEC was to have invested in the Branford, Connecticut company fell through, is aiming to complete a model liquidation, and is shopping its trace scheduling compilers around via non-exclusive licences in order to raise enough money to pay off all its debts. Intel Corp licensed the compilers for use on its Hypercube machines in return for a \$4m investment in Multiflow months before the boom fell, and according to Electronic News, Hewlett-Packard Co has now agreed to pay about \$1m for non-exclusive rights. It has already sold the maintenance contracts on its installed base to Bell Atlantic Corp, and DEC is believed to have come back for a licence to the compilers in an investment that will cost it a lot less than it would have had to pay to buy into the company as a going concern. The trace scheduling compilers are designed to keep all processors in a multiprocessor machine busy, and it is thought that they are adaptable to machines that can execute more than one instruction per cycle. Essentially, the technique requires the compiler to recognise which instructions are dependent on the results of the previous one and avoid scheduling parallel execution of such instructions, while letting others go.

EUROPEAN UNIX USER SHOW

UNIX INTERNATIONAL

"WILL DOUBLE UNIX APPLICATIONS BY 1993"

The Unix International roadshow rolled into town for the Unix User show last week, and supremo Peter Cunningham led a panel briefing about the AT&T fan club's Independent Software Vendor programme announced at the end of last month, (UX No 284). Cunningham said that the goal for the programme over the next three years, is to get 30,000 System V applications available for an estimated base of two million Unix users. 150 porting centres in 18 countries will be supported by an estimated 10,000 software developers drawn from the ranks of Unix International member companies. At the centres ISVs will get technical support as well as porting guides, and a range of tools to help with the job. Although 1,000 MS-DOS software houses are one of the prime targets, the more difficult task of tempting mainstream computing products onto Unix is also being attempted - tools and utilities for moving OS/400 applications over from IBM's AS/400 range to Unix V.4 will be available in August, porting guides for Ultrix and AIX are said to be almost complete, and VMS and MVS tools will follow in September. In Europe as elsewhere, Unix International will be targeting a "hit list" of vertical software applications it would like to have under Unix. ISVs present at the briefing, including Uniplex, JSB Computer Systems and VisionWare, reckoned that the main porting difficulty remains the range of processor architectures and peripheral environments that have to be supported - although they agreed that compatibility between application binary interfaces supporting these various architectures should ease the problem considerably. However Uniplex believes it unlikely that there will ever be a time when it has to produce only one version of its software for all Unix platforms - it sees several flavours of Unix existing into the long-term future. Cunningham said that the ABI verification suite for Unix V.4 is now available and is being used by Intel, Motorola, SPARC International and 88open. In Europe, Patricia Arundel, NCR's UK marketing manager for Unix systems will be joining the Unix International team in July, in readiness for a marketing push planned for the Autumn.

Solbourne shows X-Stations, Open Look/Motif toolkit

Also at the show, Solbourne - following in the footsteps of its workstation contemporaries - unveiled an X-Window solution, based around re-badged Network Computing Devices Inc X-terminals, (UX No 284). In addition to the terminal itself Solbourne has side-stepped the need to choose between rival graphical user interfaces by providing an Open Look and Motif-compatible toolkit, the C++-based Object Interface Library - OIL, which is part of its own desktop interface, the Solbourne Window Manager - SWM, (UX No 266). Users can switch between the two interfaces without re-booting - when coming out of one, SWM automatically spawns the other. Additionally with OIL, developers can write applications without a specific target user interface in mind - a decision can be made at run-time as to which environment the application comes up in. Solbourne is offering 16" monochrome or 17" colour X-terminals with from 2.5Mb to 8Mb RAM, and SWM from £2,700. SWM was developed by Tom Lastrange who previously engineered the TWM window manager for the MIT consortium. AT&T's Unix Software Operation, which has taken a licence for OIL and SWM, (UX No 266) is currently beta-testing the C++ software, and will release a product based on SWM in August.

Separately, USO is currently working on an Open Look and Motif-compatible application programming interface with the aim of diffusing the interface wars - it was originally promised for a Unix User Show debut, (UX No 277), and though it was no-where to be seen at Olympia, a version has been demonstrated to the POSIX group working on interface standards. This will not be developed into a product says USO, because apart from the technical difficulties, POSIX is now veering towards a meta-solution to the problem where rather than some kind of merged toolkit, a higher-level specification may be defined, sitting above the toolkits.

Unisys adds to InfoImage image processing range

On the first day of the Unix User Show at London's Olympia arena last week, Unisys was showing off its new InfoImage Folder software running on its as yet unannounced Unisys 2000 workstation, derived from the Solbourne Series 5 Sparc line. Unisys made the plunge into image processing back in October last year (UX No 253). Folder is a menu-driven electronic file folder management system allowing users to capture paper-based information in electronic files which can then be managed and manipulated as if they were paper files. Supported under Unix and MS-DOS, with Ethernet, TCP/IP, CCITT Group 3 and 4 compression algorithms and Tagged Image File Format, InfoImage Folder can map data to and from files across networks, which may include mainframes. The Folder Director software is derived from Costa Mesa, California-based FileNet Corp's Image Access Facility, and the MS-DOS interface is provided by Sigma Imaging Systems. The Event Manager module which controls activity on the system as a whole is being developed by Unisys. InfoImage Folder is available in the fourth quarter priced £230,000.

Unipalm ready with Motif for Sun

As promised back in May, (UX No 280), Cambridge-based Unipalm Ltd's XTech division - which it salvaged from the now-defunct Torch Technology in March, (UX No 275), has released X11.4 X-Window server software and an OSF/Motif developers kit for all Sun Microsystems Inc workstations. The server software is optimised so that it requires only 17Mb of disk and 4Mb of main memory, it costs £500, and XTech claims it is the fastest yet available.

Alex X extension opens proprietary applications to Unix System Strategies Ltd, the west London-based software outfit which struck up a deal with AT&T at the recent Xhibition in San Jose (UX No 284), has been talking about its Alex - A Language Extension to X - product, which it says will allow corporate DP departments to write graphics front-ends to their existing character-based applications, which may be running anywhere on the network. Although it is a language - looking somewhat like C - in its own right, Alex avoids the complex task of grappling with the X toolkit itself, by modelling the overall structure and control flow of existing applications and matching it to the new graphics version running on an X-terminal or workstation. The original program is unchanged, and receives back from Alex characters which it can interpret. The AT&T deal specifies the Open Look interface, but System Strategies has an OSF/Motif version waiting in the wings, and claims that a number of further large OEM deals are to be announced shortly.

TIS gets custom 386/486 range from Intel itself

UK systems company TIS Ltd appears to be easing away from its hardware deal with Unisys Corp, following its introduction of custom-built workgroup server systems from Intel Corp, introduced at the Show. The new i-Server series, based on 386/486 motherboards, are being manufactured by Intel to strict specifications from TIS, intended to fill the gap between low-end multi-user systems such as the Altos ("which deliver the performance but are expensive"), or "souped up" PCs from the likes of Olivetti and Compaq ("which don't provide the performance and are short on software and peripherals"). The three models include the 386-based 325 and 333, and the 486-based 425, rated at 15 MIPS. Prices start at £7,500 for the 325, £12,000 for the 333 and £16,000 for the 425. All run Intel Corp's Unix System V Release 4. TIS says it was starting to miss out on the fast growth rate (62% last year) in the small multi-user systems sector. It is still interested in its Unisys/Convergent range of Motorola-based systems, and uses MIPS-based systems at the top-end. Also at the Show, TIS launched the recently introduced MIPS Magnum workstation.

OBJECT DATABASES ARE HERE - IS THIS THE END FOR RELATIONAL MODELS?

by Katy Ring

The first object-oriented databases are now rolling off the production lines courtesy of companies such as Burlington, Massachusetts-based Ontologic Inc and Versant Object Technology Corp of Menlo Park, California. But aside from employing one of the most fashionable software techniques around, what does the arrival of object-oriented databases mean to the computer industry. Are there grounds for excitement?

According to Robert Martin, a vice-president at Ontologic, an object database integrates an object programming language (usually C++) with database functionality, thereby fulfilling the requirements to build high-performance database applications with well-structured, easily maintained applications. Such databases save objects on the disk so that they can be used in future sessions and shared by many users, and they also provide applications programs with an abstract interface to data, enabling programmers to change or reorganise the database without changing any application code. Martin claims that object databases have one major advantage over relational databases: namely that relational databases aren't flexible as they have to store all data in fixed-length records - all applications data must be converted to these records making relational databases slow and prone to error.

Abstract pointers

However, with Ontologic's product Ontos, the database can directly store and retrieve objects as a whole rather than trying to fit every thing into records as a relational system does. Furthermore, Ontos uses abstract pointers to implement relationships among objects whereas relational systems use keys to "join" operations, and while a relational system cannot get hold of an entire complex object in one query, an object database can retrieve an object composed of many other objects as a whole. As far as Martin is concerned, this means that object databases have three highly marketable features vis a vis relational databases: they are designed to handle any type of data (rows and columns, graphics, finite elements, bit-map imaging and so on); secondly, they can handle such complex data at high speed, being up to 1,000 times faster at graphics and documentation than relational systems; thirdly, they offer high programmer productivity, since applications are easy to build and maintain using them. So far all this might sound like little more than vendor-hype, however, the politics of database marketing has recently been stirred up by the publication of the ButlerBloor report "Database: An Evaluation & Comparison". In the report the authors Martin Butler, Robin Bloor and Paul Beach make some striking statements about relational databases. They say that they found no evidence to suggest that many relational data base management systems can offer satisfactory solutions for the large, complex database implementations that are needed for an organisation's core business data processing.

The software triad continues by stating: "performance limitations associated with the relational approach may cause a backlash in the market, with the re-emergence of non-relational options... object-oriented methods... will come to dominate the database market over the next three to five years." Messrs Butler, Bloor and Beach are particularly unhappy about Oracle's dominance in the database market saying "despite its dynamic marketing, many of Oracle's products have been relatively static and in the database area it has been overtaken in sophistication by Ingres and Sybase. If it loses its sales momentum it will find it difficult to recover." On the next page the Canadian company Cognos is discussed as follows: "PowerHouse StarBase is an impressive product with a number of unique features, such as multiversioning, and could become quite popular if it acquires sufficient momentum".

While both these statements are very probably true, each contains an extremely large "if" qualification which centres around the marketing of databases. ButlerBloor Ltd finds the concept of "hard sell" distasteful because it draws attention away from the technical merits of a product, which is a perfectly reasonable viewpoint, except when it clouds the issue of forecasting the development of a market. Will object-oriented databases really dominate the market in three to five years time? And are relational databases about to die out and with them a huge company such as Oracle? From talking to Ontologic's Robert Martin the answer to both these questions would seem to be no. To take the second question first. Most relational database vendors are beginning to add object-oriented features to their relational databases - this is only at the front end, but with time and money there is nothing preventing them moving to object databases. The issue is more of a religious one than a practical one - those vendors that are adamant that the relational model rules, despite a changing market, may suffer. However, ironically enough for the ButlerBloor scenario, top of the list of relational vendors that may go under in this way are the technically led companies that will, arguably, find shifting to another database paradigm more difficult than market-led companies. As for the first question, although Martin describes his company as precocious, it is largely marketing its Ontos database for the benefit of customers that never moved to a relational database in the first place. In other words, Ontologic's natural constituency is the computer-aided design and manufacturing community that couldn't have used a relational database because its application files are too complex. They are also confirmed Unix users who are familiar with the C language. Where Martin does replace a relational database product it is more than likely to be Sybase - a fact to be weighed when judging which relational vendors may fall prey to rival object databases. Martin argues that object databases will take hold of the database market much faster than relational systems did in the 1980s.

Rising wave

This is because they already have a standard language interface in C++, they are in a position to ride the rising wave of network computing because they can take advantage of graphical applications, and if, like Ontos, they support SQL then they also provide a link with past applications and data. However, when it comes to the business community where the majority of software is sold, object databases don't look as if they're about to stage quite the revolution they could in the design world. Although Martin argues that people are clamouring for complex graphics in their management information systems, and that banks, stock exchanges and leading high street chain stores are all in the process of evaluating object-oriented technology, he admits that object databases are no faster than relational databases when it comes to things like on-line transaction processing. The one factor that may unleash object databases onto the business world is the arrival (expected sometime next year) and consequent success of object-oriented Cobol. But since no such language has yet appeared - and when it does it won't be compatible with previous versions of Cobol - the speed with which object databases penetrate the business world is likely to be slow.

SIEMENS "TO ABANDON NAT-SEMI FOR INTEL"

A spokesman for Siemens AG has confided that, although "he wouldn't like to read it in a newspaper just yet", Siemens is likely to replace the National Semiconductor NS32332 chips used in its MX Unix range with Intel processors. The range currently includes both Intel and Nat-Semi-based systems, and includes top-end multi-processing models sourced from Sequent Computer Systems, which Sequent currently supplies exclusively to Siemens, having switched chips to Intel way back in 1987. However, the spokesman, who made the revelation to Computerwoche, would not confirm that the move was the first step of a general move away from the Open Software Foundation's OSF/1 Unix derivative into the AT&T Unix System V.4 camp - this is the interpretation that industry observers have been quick to put on the comment. Nonetheless, the rumour that since the Nixdorf acquisition a strong element of time-pressure has crept into the Siemens decision-making process - which could mean, among other things, that Siemens will be unwilling to wait for the promised November launch of OSF/1 - has apparently reached both the warring Unix camps. Not surprisingly, Unix International was the more eager to comment, with Steinar Hoistad, general manager of Unix International Europe enthusing: "If indeed Siemens does intend to move over to System V, then it has made the right decision in choosing Intel chips". If Siemens does finally desert the National Semiconductor microprocessor family, about the only significant manufacturer still using the part as the processor for a major computer line will be Encore Computer Corp - and Encore has already indicated that its future lies with the Motorola 88000 RISC.

3COM OFFERS 3+OPEN FOR NETWORK AND MACINTOSH

3Com Corp, Santa Clara is offering 3+Open for NetWare, an extension that enables LAN Manager and Novell NetWare systems to operate as a single network, giving MS-DOS users access to files and applications in both environments. It is \$250 for single user, \$1,000 for 10-user licence from August. And the new 3+Open for Macintosh enables Apple Macs to act as clients in 3+Open networks, with MS-DOS and OS/2 stations, giving Macintosh users direct access to LAN Manager. It's out now and will be \$1,200.

HP CLAIMS LION'S SHARE OF UNIX MARKET

Hewlett-Packard Co has been on a press tour in the US touting its claim to be the world's biggest Unix supplier with an estimated 44% of the RISC market, and at least the equal of Sun Microsystems Inc with revenues last year of \$2.1 billion from Unix alone. The company gives a lot of the credit for its position to its competitors. According to general systems division manager Bernard Guidon, only DEC and IBM really count, and DEC's asleep at the switch pressing its VMS over Ultrix, whilst Big Blue still hasn't got its Unix act together. AT&T, Unisys and NCR are dismissed as second or third tier, and newcomers like Pyramid and Sequent are too young to give major customers that warm and cuddly feeling, despite the strength of their technology. Guidon expects things to remain pretty much this way for at least two years, with only IBM and its new RS/6000s possibly posing much of a threat. DEC could wake up, but then it'll be playing pretty much a catch-up game. Later this year, probably in November or December, HP, which is already proud of its reliable systems, is planning to add 9000 series 800 machines that'll be the first Unix boxes using a processor fall-over scheme for automatic processor recovery.

SANTA CRUZ SHIPS MPX

MULTIPROCESSOR UNIX FOR SYSTEMPRO

The Santa Cruz Operation Inc has formally launched fruits of its venture with Corollary Inc - which actually did the crucial work - to develop a version of Unix System V that runs symmetrically over multiple Intel iAPX-86 family processors. Called SCO MPX, it is a multiprocessor extension to the Unix System V/386 3.2 and Santa Cruz is particularly pitching it at Compaq Computer Corp's Systempro server, which currently comes with one or two 80386s or 80486s in any mix - it says it worked with Compaq to enhance the initial release of SCO MPX so that it immediately takes full advantage of the Systempro. The company is also touting it as a multiprocessor extension to its Open Desktop graphical operating system for 80386 and 80486 personal computers and is adapting it for other AT, EISA and Micro Channel bus machines. It costs \$900 for the Systempro, System V/386 3.2 is \$900, single-user Open Desktop is \$1,000 and the Server Upgrade for Open Desktop is \$1,500 in the US.

PHILIPS CUTS JOBS:

HARDWARE TO BE PHASED OUT

Philips NV last week committed to bringing its information systems division back into profit by 1992, but the moves will require drastic surgery, and the company is going to phase out most hardware manufacturing and development. As a first step, 210 of the 700 people at its Dutch computer division in Apeldoorn are to go, but in the longer term it will buy in much of what it now makes, which suggests that personal computer manufacturing will be the first to go. The company says that it has not yet decided on the future of the P9000 Unix family - currently it consists of Intel APX-86 family-based models at the bottom, 68030 models - with 68040 ones planned - in the middle from Motorola Inc, and Edgcore-based 68020-compatible models at the top. It had been considering a move to the Motorola 88000 RISC: now any such move is likely to be via bought-in product as it switches its research and development effort over to systems integration and vertical market applications development. The proprietary P4000, which competes in the IBM System 36 market, is likely to go.

DAISY SEEKS THIRD PARTY CASH AS LENDERS WITHDRAW

Daisy Systems Corp, now in Boulder, Colorado, has moved a big step nearer oblivion with the news that its secured lender, Heller Financial Corp, has refused to extend the standstill agreement that froze the consequences of Daisy's default on loan repayments, beyond June 25th. As a result, Daisy will not be able to buy all the Sun Microsystems Inc workstations it needs to meet orders in the US, and will see a slump in business in the third quarter compared with the second. The company is seeking third party cash to fund its operations, and says that the situation should be rather better here in Europe, where it thinks it is close to agreement with a number of interested parties here. Racal Redac subsidiary, which bought part of the company's Cadnetix acquisition, may well be interested in buying more.

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MATRA HARRIS SEMICONDUCTOR TO SECOND-SOURCE SPARC IN EUROPE

The mystical "other European chip manufacturer" that was to take a licence to fabricate Sun Microsystems' Sparc chip set, (UX No 281), turns out to be Matra Harris Semiconductor SA, the French joint venture between Matra SA and Harris Corp. The company will become a second source for the Cypress Semiconductor Corp version of the chip set, licensed from Cypress' Ross Technology Inc subsidiary. MHS will develop the SPARC for commercial and military applications at its manufacturing plant in Nantes and says products will be out this year.

In the courts last week, Judge Luciaus Bunton again ordered Motorola Inc to stop selling the 68030, said to infringe a Hitachi Ltd patent, after the two companies failed to take advantage of the 60 days grace to come to an out of court settlement: Motorola immediately filed an emergency appeal to the US Court of Appeals to stay the injunction, which it was duly granted. The stay will allow both to present arguments on Bunton's ban order to the appeals court.

Integrated Micro Products Inc, the Santa Cruz-based US arm of the Consett, County Durham Unix systems specialist has won an order from the Sandia National Laboratories to install its Unix-based fault-tolerant computer systems in a secure network environment at the Albuquerque, New Mexico research laboratory: Sandia will install three XR 655s on its campus-wide supercomputer network, each XR 655 having 16Mb memory and at least 1.5Gb disk; the machines will run the Ingres 6.2 relational database and Fortran software with C2 security; value of the pact was not given.

Legato Systems Inc, Palo Alto, California, has a new software tool for Ethernet administration on Sun Microsystems workstations - the window-based Legato Networker runs on Sun-3 and Sun-386i platforms, cost is \$5,000: and Legato will add support for DOS machines running Ethernet in the Autumn, priced at \$300.

Two former directors of Multisoft, the company that was acquired by the Headland Group, have formed a new company called Fourfront Ltd: they intend to design an application development environment to produce accounting systems, and say that it will use both fourth generation language techniques such as screen painting and database handling, and standard languages for writing heavy duty applications; while the software duo are developing the tools, Fourfront will be based in Petersfield, Hampshire.

For TOPS, a Sun Microsystems Company, read Sitka Corp: the Alameda, California local area internetworking software and systems company that is now being operated by Sun as a stand-alone wholly-owned subsidiary with its own board, has changed its name to that of the Alaska township because while "originally a centre for Northwest coast Indian culture, later the capital of Russian America, and today, an important seaport for present-day Alaska, Sitka and its population are a unique example of different cultures co-existing".

As well as getting system builders on-board the Sparc ship, Sun Microsystems Inc is driving hard into the corporate Unix base, signing up United Technologies' Pratt and Whitney aerospace division in a three year deal for Sparcstations and Sparc servers which the engine-builder will use in its engineering and manufacturing plants: according to Sun, General Electric chose Sun workstations as its preferred solution and all its 18 divisions.

FPS Computing Inc has got off to a flying start with its forthcoming Model 540EA Sparc-based Unix super computer, (UX No 287), winning a \$1.5 order for a four-processor model from Nuclear Electric, the arm of the UK Central Electric Generating Board that is to retain in government hands. The machine, rated at 133 MIPS - none of the 80860 co-processors fitted - will support 10 Sparcstation-1s from Sun Microsystems Inc on an Ethernet, and will be used in total nuclear power plant simulation to assist in the design of control systems and operating procedures.

Control Data Corp has signed an agreement - one of the first of its kind - with the USSR Academy of Sciences, and will exchange information about its MIPS Computer Systems-based workstation line in return for software expertise from the Academy: the deal was finalised early in June, when Soviet president Mikhail Gorbachev visited CDC headquarters during his US visit.

DEC is set to add faster processors to its DECserver ranges at DECworld next month, alongside the introduction of the new VAX 4000 line (UX No 287): US press reports say that a new version of the DECserver 3100, using the MIPS R3000 chip will be introduced on July 9th - current versions use the R2000 chip - along with an upgraded DECsystem 5400 using a faster 33MHz R3000.

Unify Corp, which came out with support for the Open Look graphical interface a few months ago (UX No 256), has now added support for OSF/Motif: Accell/Workstation Plus integrates support for a GUI more closely with the rest of the Accell applications development toolkit.

Santa Cruz Operation is expected to release Version 3.2.2 of its SCO Unix product next month, which includes new device drivers and system administration features as well as bug fixes: but sources said that the company, annoyed by the entry of Intel Corp into its home territory last October, is starting to look beyond the Intel architecture for future product lines.

IBM's UK AIX systems manager David McKenzie blew the gaffe at the Open Solutions conference this week, and in future, whenever an IBMer uses a common industry term, we'll have to ask whether it is the generally accepted definition or the IBM definition being used: McKenzie defined an Open System as providing a Common Application Environment where an application can run on multiple architectures unchanged apart from recompilation, plus a common communications environment and then declared "IBM's System Applications Architecture is an example of this definition of an Open System" - so that's what IBM means when it says it is committed to open systems.

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BP OIL EUROPE TO TRANSFER MAINFRAME ACCOUNTING TO UNIX

BP Oil is to consolidate its European computer operations by turning to open systems, and is working on a major initiative to transfer its current IBM and IBM-compatible mainframe systems over to a distributed system using Unix-based minicomputers. The company's European Systems Programme, part of its run-up to 1992, could turn out to be the largest non-government Unix contract to emerge so far in Europe, although a BP spokesperson said that reports of a spend of £100m on the contract were "somewhat inflated". The contract covers accounting systems for 16 countries, including the main operations in the UK, France and Germany. BP Oil has already signed a £2.5m contract with Oracle Corp for the Oracle Financials software, with initial implementations planned for next year, and continuing for the next two and a half years. Price Waterhouse Management Consultancy will carry out automated system testing of the software. A decision on the hardware has yet to be taken, and will be revealed in September. BP has already standardised on Unix for its European oil retailing operations, and its Chemicals division has been instrumental in setting up the so called "Petrotechnical Open Software Corporation" with 42 other oil companies (UX No 283).

SODERBLOM PATENT IS INVALID, ENGLISH COURT RULES

A UK court has ruled that the Olof Soderblom patent on Token Ring technology is invalid. The patent was challenged by Robert Madge of UK company Madge Networks Ltd (UX No 272), who proved that the patent doesn't refer to token-passing technology, or cover local area networks. While Madge's victory is shallow in the UK since the patent expired here in 1988, Madge is also contesting the patent in the US where it is valid until 1998. If Madge wins in the US, then companies such as IBM and Hewlett-Packard/Apollo may reclaim the \$20m in royalties Soderblom has reaped from the patent. Details, page 5.

UNIX SOFTWARE LABORATORIES INC STARTS LIFE WITH LARRY DOOLING AS SOLE EMPLOYEE

Last week AT&T's 18-month-old Unix Software Operation made its name change official, (UX No 282). From now on it's going to be known as Unix System Laboratories Inc. Currently, it's a company with only one employee, its president Larry Dooling. How to move the Unix development team, staunch Bell Labs boys and girls, out from under Ma Bell was an issue that contributed to the demise of the USO/UI "Unity" talks with the Open Software Foundation, (UX No 279). To ease the transition, much fretted over by AT&T/USO higher-ups, all of USO's present staff, except Larry Dooling, are still officially AT&T employees contracted out to USO, or as of now USL. This week they'll be made an offer to join the new organisation and given until November to make up their minds. By then USL should no longer be wholly-owned subsidiary of AT&T, the rechristening being merely a prelude to an expected private placement that could see the sell-off of 30%-40% in USL by AT&T sometime this summer, (UX No 284). USL's spokesman Dick Muldoon last week said the mood inside was buoyant and progressive. The company, he said, currently estimates that the folks leaving Bell for USL will be "more than expected". USL, which was invested with all of AT&T's intellectual property rights in Unix, has been in existence since November, shortly after AT&T Data Systems Group president Bob Kavner made his first peace overtures to the OSF board. USL delayed making the restructuring public, not only because of prior uncertainties over how the "Unity" talks would go - but also because of the time needed to reincorporate its European and Asian operations, both formerly part of AT&T International, as wholly-owned subsidiaries of USL. Last week, USL also announced an internal restructuring into two business units: Unix System V Software headed by vice-president Mike DeFazio who is responsible for the base operating system, and Open Solutions Software, led by vice president Joel Applebaum who is responsible for complementary systems software such as C, C++, Tuxedo and OSI. USL Europe is being run out of London by Robert Mitze and USL Pacific is headquartered in Tokyo under James L. Clark. There was, however, no word on the results of the executive search AT&T has been conducting for a new CEO for USL, (UX No 284).

X/OPEN SPURNS MOTIF - BUT PRESSURE MOUNTS FOR A GUI DECISION

News reaches us that X/Open came under intense pressure from members at its meeting in Tokyo last week to make a decision on which graphical user interface it will adopt. Whilst the combined choir of OSF delegates were singing the praises of Motif, their hymns seem to have fallen on deaf ears. X/Open decided that it will wait until October - holding off whilst all the graphical user interface players are declaring themselves - when it expects to adopt a virtual application programming interface that will serve multiple environments - more details on page four.

ACER IN TALKS TO BUY ALTOS

Altos Computer Systems has revealed that it is in negotiations with Taiwanese company Acer Corp that may result in a takeover bid. Acer, which is looking to pay \$93m or 8.35 per share for the San Jose based Unix micro-maker, has concentrated mostly on low-end Intel-based PC compatibles, and has OEM deals with Texas Instruments and ICL, as well as a worldwide network of some 10,000 dealers. Acer also acquired Intel-based multi-processor manufacturer Counterpoint Computers in 1988, but has kept very quiet about the results. Twelve year-old Acer had a worldwide turnover of \$702m last year, while Altos turned in \$140m to June 1989: the new figures, out in a few weeks are expected to show some growth up to around \$160m, with the final quarter the first break-even quarter following losses for two years.

IBM "AT WORK ON 64 CPU RS/6000"

IBM is reportedly working on a "highly" - as opposed to massively - parallel processor built up of 32 or 64 of the RISC processors used in the RS/6000. According to Electronic News, the new machine should be ready to go in 12 to 18 months, and is likely to be offered as an attached processor for 3090 mainframes. It will come with a massive 50Gb disk array, and is expected to be aimed at such applications as visualisation, the paper suggests.

ONE STEP BEYOND

by William Fellows

Everyone knows that Intel Corp will continue its enormously successful 80X86 CISC micro-processor line by adding upwardly-compatible, ever more powerful successors. We are currently on the 80486, which in due course will be followed by an 80586. But what then?

Ted Hoff got the whole micro-processor show on the road back in 1971 when he presented Intel Corp with the idea that led to the introduction of the four-processor Intel 4004 chip-set. It had a 4-bit data bus, could address 4.5Kb of memory, and had 45 instructions. Two decades on, and the same company is talking in terms of a micro-processor that has upwards of two million times as many instructions - although the underlying rationale is essentially the same.

Cash cow

The 80486 - often abbreviated to i486 - is very much Intel's sacred cash cow at the moment. Although rival chip-maker Motorola Inc tried to steal a march on Intel by announcing its 68040 processor - the same generation as the 80486 - just a few days before Intel lifted the veil on its hottest new part back in April last year, (UX Nos 224, 226), the company has been unable to compete with Intel's lead times to silicon. Apricot Computers had an 80486 system out later in the same year - despite the bug that Compaq Computer found in the part - but problems with the 68040 have sent shipment dates slipping and sliding, leaving system builders struggling along with only sample quantities of the chip. Volume deliveries of the 68040, even to Motorola's largest customers like Hewlett-Packard/Apollo, will not begin before this autumn.

Meanwhile Intel has been quietly putting the finishing touches to its plans for a micro-processor architecture dubbed Micro 2000 that will take it up to the turn of the century and beyond. By this time the company envisages a part with up to 100 million transistors on a one inch die with 2Mb of cache, running at 250 MHz, performing 2,000 MIPS - and fully compatible with the 80386. Going by the release timetable for the 80X86 line, this is around the time an 80786 would be due to make an appearance. The current 80486 has 1.2 million transistors, and the 80786 will be preceded by an 80586 chip in 1992 with four or five million transistors, and an 80686 in 1996 with many more transistors again. Intel is confident that a steady and predictable stream of technological advances will deliver practical devices for achieving its goals.

Vision

Firstly, the total number of transistors that can be crammed on to a given area has been steadily increasing, resulting in a continuous reduction in device dimensions. Intel says it has already produced sub-micron components in the labs - down to 0.1 micron size. It is also relying on improved manufacturing procedures to reduce the number of defects per square centimetre of silicon, making larger die sizes possible, and with larger parts, an increase in the number of transistors per die to around 50 million by the year 2000, and 100 million in the future. Its vision is a four-processor CPU, each having five million transistors, two vector units with another five million transistors apiece, another five million on a self-test unit, two million on the bus unit, 40 million for cache requirements and a further 20 million for delivering the human interface, including Intel's Digital Video Interface technology. By comparison, even though one of today's 80386 personal computers has only about 525,000 transistors, its power is equivalent to that of a mini-computer that would have been bought for up to \$250,000 five or six years ago.

Clock rate capability, the frequency (hertz) at which active transitions of the clock signal occur - or how fast the processor can be driven before it gets too hot to handle - is dependent on a range of factors: power consumption, packaging, interconnect technology and transistor current drive. The faster the thing goes and the more power it consumes, the hotter it gets and the more unreliable it becomes. Intel says it will be using four or more multiple layer interconnections to optimise clock signal routing within a chip, on material with a lower resistivity than those used today. With smaller component sizes, increased drive capability and channel lengths as small as 0.1 micron, the firm expects to realise clock rates in excess of 250MHz.

Mainframe refugees

Intel stands by a maxim that one of its researchers - Pat Gelsinger - outlined in the Micro 2000 white paper - "every good idea proven in the mainframe or minicomputer migrates onto the microprocessor" - citing memory management on mainframes in the 1970s that was delivered on the 80286, and the paged virtual memory on late 1970's VAXes that is now found in most commercial microprocessors. The integration of these features on to micro-processors occurs - or is focused - when successive performance bottlenecks are found. With each generation of mainframes, the next system bottleneck migrates on to the micro-processor. Intel predicts the next refugee will be parallel processing. Multiple processors are used on mainframes and minis - now even on micros - to extend performance, eventually multiple CPUs will be incorporated on to a single die. Furthermore, it is already possible to execute two or three instructions per clock cycle today, and Intel is working on getting down to 0.2 or 0.3 clocks per instruction by the turn of the century. These architectural enhancements, together with a 250MHz clock cycle should mean a single CPU will perform at around 700 MIPS - four on a single die going to 2,000 MIPS.

Compatibility ?

If all this makes existing micro-processors look like museum pieces - before we've even got properly to grips with them - what is to become of the vast amount of application software that is currently available for the 80X86 line? Do we throw it all away, or re-write the whole lot when Micro 2000, 80786 or whatever it will be called eventually arrives? Will Intel be able to offer compatibility across this timezone? For an industry which loves to draw on nomenclature from the motor world, it's like comparing a smoky old East German Trabant with the newest and fastest model BMW can offer. But even they are now driving side by side on the same autobahns - despite the fact that the two Germanys are eons apart in technological development. Intel maintains that the burden of compatibility will not be a problem. It reckons that the amount of on-chip space that'll become available with the advances described above should mean that compatibility with previous implementations will be a problem that shrinks in size as far a processor development is concerned. In addition it should allow what are now off-chip features - such as local area network and disk controllers, serial and parallel ports - to be integrated on a single processor, which would see all of a personal computer's present functionality implemented on a single chip. The massive increases in power that these developments look set to deliver will, says Intel's microcomputer components group president Dave House, give a tremendous boost to the scope for developing - and using - artificial intelligence, neural networks and, most importantly, the friendly user interfaces that have been missing for so long.

STRATUS "IN LINE FOR \$100m AT&T UNIX SYSTEMS PACT"

Fault-tolerant systems manufacturers are finding their move into Unix paying off quickly - and computer companies that win OEM contracts with AT&T Co are finding that the company prefers to spread its favours around as widely as possible. So it is that while Tandem Computers has a monster contract with AT&T for its new S-2 three-processor fault-tolerant MIPS Computer Systems Inc RISC-based system, (UX No 263), Ma Bell looks likely to give its arch-rival Stratus Computer Inc a \$100m OEM contract for XA2000s running FTX Unix for its long distance operations. The Marlboro, Massachusetts company is believed to have beaten both Tandem and Sequioa Systems Inc to the contract which is to support the switching equipment in AT&T's long-distance network - in particular support of 800 toll-free and 900 audiotext services. The machines will replace AT&T's own 3B20D fault-tolerant bit-slice Unix min-computers. However Stratus has now admitted that first shipments of its FTX fault-tolerant Unix - originally due this April - will not begin until the third quarter. Tandem is thought to have lost out this time, because its Integrity S-2 systems are effectively non-expandable single processor machines - they have three processors but all three do the same sums and compare results to ensure all three are working correctly.

FROST & SULLIVAN PREDICTS \$10 BILLION UNIX MARKET IN EUROPE BY 1994

In a study of Unix in Europe, Frost and Sullivan Inc, New York, predicts that the market will be worth up to \$10.4 billion by 1994, with government procurement policies playing an increasingly important role in its growth. The mid-range sector will account for around 42% of these sales, with West Germany remaining the single largest European market, albeit with a share declining from 23% to 20.5%. The UK will retain its second place with a 19.25% share, France coming third and Italy in fourth place - its share climbing from 10% to 12%. The report - E1268 - costs \$3,900.

COLOUR X TERMINALS WILL BE THE BATTLE GROUND IN 1991

Research firm, the X Business Group, Fremont, California, predicts that colour X-Windows terminals will account for 35% - or 25,000 - of the 68,000 X-terminals it expects to be shipped this year, and that colour X-displays will be the battleground for competing X-terminal manufacturers during 1991. It sees NCR, Hewlett-Packard and IBM as being best prepared for the fight, each already having complete families of colour products. Network Computing Devices - the leading monochrome supplier - will focus its efforts on the monochrome market the group says, whilst early leader Visual Technology has yet to introduce a colour model. Presently there are around twenty-three companies manufacturing X-display stations, with a further ten offering OEM versions. The X Business Group reckons that "colour will be the stimulus for the first X-display station industry shake-out".

MATSUSHITA SETS NOTEBOOK COMPUTER USING 64-BIT SPARC

Matsushita Electric Industrial Co is developing a portable Sparc-based workstation little bigger than a notebook, using the 64-bit version of the Sparc that it has developed with Solbourne Computer Corp. It will have a 15" liquid crystal display (big book) and is planned for launch next year, Reuters reports.

HELIONETICS VENTURE TO BUILD SPARCSTATIONS IN CHINA

Helionetics Inc, Irvine, California yesterday signed with the North Computer Application & Development Corp of Shenyang City in the People's Republic of China for a joint venture, Shenyang Shenlong Computer Systems Ltd, to build a personal computer based on Sun Microsystems Sparc technology, capable of running both MS-DOS and SunOS Unix. The thing will be built around the SP-II add on Sparc board for MS-DOS micros from Helionetics' Definicon subsidiary. First Chinese Sparc machines are planned for the spring.

SONY'S RISC NEWS HITS US

Sony Microsystems Co, San Jose, has launched its parent's first RISC-based News workstation model, the News 3710, which is based on the R3000 microprocessor from MIPS Computer Systems Inc. It provides full support of Kanji ideograms so can be used by software developers that want to do Japanese versions of their applications. It offers the Motif graphical user interface and uShare Plus communications for its use as a server to Apple Computer Inc Macintoshes. The 20MHz 3710 is rated at 17 MIPS by Sony and the R3010 maths co-processor gives 2.3 MFLOPS performance. It comes with 286Mb or 640Mb disk, is \$6,800 diskless with a black-and-white 19" monitor; \$14,700 with 8Mb memory, 286Mb disk and 19" colour Trinitron monitor; and \$18,200 for the same system with a 640Mb disk drive. Manufactured in San Diego, it ships in the US in September.

PIOL TAKES OLIVETTI SYSTEMS HELM AS ILLNESS HITS CASSONI

Olivetti has replaced Vittorio Cassoni as head of Olivetti Systems and Networks due to ill health and given his responsibilities over to Elserino Piol, the company's long-time number two man and strategic director. Close friends of Cassoni, who reportedly underwent a six-hour operation last month that removed part of his pancreas, say that his doctors doubt he will be able to return to work full-time. Cassoni, whom Olivetti "loaned" to AT&T to run its computer operations when the two companies were still boon companions and who was in power there when the Unix industry ruptured into two camps with the formation of the Open Software Foundation, continues to serve as managing director of the Olivetti parent company. Since stepping into the breach last month, Piol is reported to have restructured Systems and Networks back to its pre-Cassoni form and brought in his old cronies to staff it. Since falling out with AT&T, the once high-flying Italian firm has gone into a tail spin hit by severely falling profits that are necessitating job cutbacks. Cassoni is in his late 40s.

BONFIRE OF THE INTERFACES

by William Fellows

The dream of a standard graphical user interface for Unix has turned into a nightmare. In the battle for a GUI standard none of the combatants - after nearly two years of struggle - have been unable to secure a victory or conclude peaceful negotiations. Standards bodies like X/Open and IEEE have foundered like unsuccessful United Nations negotiating teams, and are still flapping around in no-mans-land for answers. Meanwhile users and developers have been left to get on with the task of adopting - or deferring their choice of - an interface. The European Commission for one decided some time ago that it could wait no longer and plumped for OSF/Motif, (UX No 280).

The last few months has seen a jumble of API proposals come and go - none have borne fruit - now the target is on the move once again. Originally a solution to such dilemmas was thought to lie in the development of an application programming interface supporting both OSF/Motif and AT&T Open Look toolkits, a project technically feasible - as proved by AT&T's now-abandoned N3 project that was demonstrated to IEEE's 1201 interface group, (UX Nos 288, 280) - but politically impossible to implement. However the intervening time period has seen other interfaces put in a Unix appearance - Hewlett-Packard's Visual User Environment and Apple's Mac for instance - and the ground has shifted away from developing a solution specifically at the toolkit level towards a higher-level method that will embrace non-Intrinsics and non-X-Windows-based environments by concentrating on "look and feel" aspects.

OSF staff "in favour"

This is the premise that IEEE is currently working with. X/Open has bowed out of the debate for now, despite pressure from users at its recent Xtra conference in Luxembourg who put the issue at the top of a list of priorities they submitted for X/Open to address, and from member companies at last week's Tokyo meeting - see front page. Unix International says it has completed a document defining the requirements of a common look and feel API supporting a range of interfaces, which will reside on top of Unix V.4. A draft is currently going to UI members for approval, from where it will be forwarded to USL and is expected to cost around \$2m to develop. A UI spokesman said that OSF staff have been present at recent IEEE 1201 group meetings in Utah and most recently in San Jose where the issues have been discussed, and believes they are in favour of defining a standard for an API that will serve multiple interface environments. The same spokesman laid the blame for lack of progress at the feet of OSF member companies which are known to believe that a common API for Motif and Open Look is technically impractical and politically inappropriate.

Negotiations

In view of the political impasse between the industry camps, the whole issue is in the melting pot at the moment, though UI, USL, standards bodies and large Unix users are known to be casting hungry eyes around the commercial software market looking for technology that can meet some, or all of the objectives. Indeed at last week's Unix User show in London, (UX No 288), UI's Peter Cunningham went so far as to say that negotiations are underway with an undisclosed firm that has just such technology.

Other sources say that in the US, NIST - the National Institute of Standards - has already signed with a software house for API interface technology that runs on Sun workstations which could in theory lead to the US government standardising on it. And in Europe, latest information suggests that the European Commission's Informatics Directorate has been working internally on a piece of software to support Motif and Open Look, that it may be preparing to copyright.

There are several companies known to have technology which can provide API's for multiple interfaces. One is XVT - X-ray Vector Tango - Denver, Colorado, formerly known as API, whose XVT - Xtensible Virtual Toolkit - is a C-based look and feel independent API, allowing developers to write an application once, and route it to the required interface at compile-time. Currently supporting X-Windows, Motif, MacOS, Microsoft Windows as well as some character-based interfaces, the company is evaluating the possibility of extending XVT to Open Look. XVT says that a lot of people are working on similar things at the moment, though most are internal projects.

SYSTEMATICA'S VIRTUAL SOFTWARE FACTORY WINS INFORMIX OVER

Informix Software Inc has turned to UK software developer Systematica Ltd, Bournemouth, Hants, and signed up for its Virtual Software Factory CASE tool generator that will net the two-year-old firm "several million dollars a year", according to chief executive officer Andrew Wells. OpenCase/SSADM - an implementation of Systematica's VSF/SSADM for the Informix database, including the OnLine transaction processing version - is the first stage of Informix's worldwide OpenCase programme which will see further additions over time. An initial release, scheduled for the end of the year, will provide database schema generation facilities in Informix SQL. An upgraded version will add the capability to generate forms, reports and 4GL applications automatically - expected during the second half of next year. It will cost between £5,000 and £10,000 per user. OpenCase/SSADM will be available on Sun-3 and Sun4 platforms running SunView, on DECstation 3100s running DECwindows and Motif, and on personal computers with OS/2 and Presentation Manager. An IBM RS/6000 version is planned for the second quarter of next year. It is targeted mainly at the UK market, where the CCTA has already standardised on SSADM, but will also be available in Europe and the US. Indeed the two firms are confident that following meetings between the UK, French and West German governments that a Europe-wide standard methodology will emerge based on SSADM, rather than upon its French equivalent - Merise. The Informix deal is the first of two major US software companies that Systematica has won over to VSF, (UX No 287), the other will be revealed "soon", according to Wells.

MADGE TO SEEK SUMMARY JUDGEMENT OF SODERBLOM CASE IN THE US IN LIGHT OF UK VICTORY

In a move that could have far-reaching effects on the token-passing local area network sector, the UK High Court ruled last week that the Olof Soderblom patent on token ring technology was invalid.

The six-day trial follows a challenge to the patent made by Robert Madge of UK networking firm Madge Networks Ltd: Madge successfully claimed that the patent, which was originally obtained in 1967 by inventor and entrepreneur Olof Soderblom and is now the property of the Willemijn Holding BV, Holland, was invalid firstly because it does not describe token-passing technology, and secondly because it is not applicable to standard, peer-to-peer local area networks. According to Madge, the Soderblom patent in fact describes an improved polling technology, where traffic messages are sent from a central machine on the same lines as the data itself; this data would then be sent to subordinated terminals on a wide area network that could not communicate directly with each other - the source and destination of all messages would be the central computer. Madge continued that the real token ring patent was taken out by AT&T's Bell Laboratories and has since expired - despite the fact that Soderblom also bought that patent some years ago. The short-term significance of the UK ruling is more symbolic than anything else since the Soderblom patent expired in the UK two years ago: after the hearing, a jubilant Madge nonetheless said that "it demonstrates to the world a proper judgement and that the Soderblom system is completely different to real token ring technology"; Madge expected that the decision would have the effect of "removing the uncertainty" from the token ring industry and would expand the market for token rings. Madge is currently involved in litigation with Soderblom in the US, where the patent is not due to expire before 1998: in order to force through a quick judgement, Madge is opting for a summary judgement procedure and is hopeful that the findings of the UK court could be used to good effect in the US - particularly since additional re-issue claims made recently by Soderblom have just been thrown out. If Madge is successful in the US, it would mean that IBM, Hewlett-Packard-Apollo and others could theoretically go about the business of reclaiming the \$20m of royalties that Soderblom has accumulated from the US market. When told of the news, a spokesman for Chelmsford, Massachusetts-based Apollo Computer Inc, which fought a protracted battle against Soderblom until Hewlett-Packard Co took it over, decided that the spat was undignified and settled with Willemijn, spontaneously yelled for joy, a reaction that he later characterised as "anonymous raucous laughter"; an IBM spokesman said between chuckles that he was "surprised" and "didn't know what to say" prior to an official statement. Soderblom is expected to appeal.

CALIFORNIA SOFTWARE GIVES BIRTH TO BABY/AS MULTI-USER

California Software Products Inc of Santa Ana has a multi-user version of its Baby/AS software which replicates the OS/400 RPG operating system on OS/2-based personal computers. Gunning for IBM's System 36 users that haven't already clambered aboard the Baby bandwagon, Baby/AS Multi-User supports up to 16 users on local or remote terminals. The software can support multiple tasks on multiple operating systems, so users can switch between RPG and native OS/2 applications. Baby/AS release 436 is available now, version 43X with RPG400 compiler will follow by year end, and Baby/AS 4XX with relational database facilities is due in mid-1991.

GLOBAL DIMENSION: BULL TAKES MODCOMP'S REAL/IX...

Bull SA has gone to Fort Lauderdale, Florida for a real-time implementation of Unix to add to its Unix System V-based Bull Open Software environment - but the deal does have a European dimension. Bull has opted for Modular Computer Systems Inc's Real/IX real-time Unix, which conforms to the System V Interface Definition - and ModComp is a subsidiary of Daimler-Benz AG's AEG AG of West Germany. Terms of the agreement were not given.

...AND BUYS SILICON GRAPHICS WORKSTATIONS OEM...

Silicon Graphics Inc's MIPS Computer Systems Inc RISC-based Iris 4D three-dimensional workstations with their proprietary graphics processors have already been given the IBM accolade - the top-end RS/6000 uses the Mountain View company's graphics technology - and now Bull SA has decided that the Iris 4Ds are the best in their class. The company has given Silicon Graphics an OEM order for 4Ds - value undisclosed - and will add them to its Design & Engineering computer-integrated manufacturing family.

...AS NEC TAKES BULL'S NEW UNIX MACHINES FOR JAPAN

NEC Corp, which took a few DPS 6 minis for the Japanese market in a token offset deal for the DPS 90 mainframes it builds for Bull SA and Bull HN Information Systems Inc, is to take some of Bull's new DPX/2 Unix machines in return for the DPS 9000 mainframes it ships to the firms in the US and Europe. NEC will team the machines, which include the top-end MIPS Computer Systems Inc R6000 ECL RISC-based DPX/2 510, as servers for its own MIPS RISC-based NEC 4800 workstations, with financial dealing room systems seen as the most promising application for the kit.

EASTERN PROMISE: HEWLETT VENTURE TO TAKE BERLIN...

Hewlett-Packard Deutschland GmbH and Stuttgart-based Debis Systemhaus GmbH, a division of Daimler-Benz Inter-services AG - Debis - have formed a joint venture computer supply and services company in East Berlin, reports Computerwoche. The as yet unnamed company, in which Debis has a 75% share and Hewlett the rest, will supply organisations in East Germany with standard hardware and software, as well as providing a number of back-up services. Hewlett's role will be to provide complete systems based on its computers; nonetheless, Hartmut Braun, in charge of strategic planning at Debis Systemhaus, stresses that the new company will be completely free in its choice of products for all software and project business. The company will start with around 200 employees, almost exclusively East German, and is planning to establish further East German offices in Chemnitz and Schwerin.

...SIEMENS TO INVEST \$500m IN 30 PRUSSIAN VENTURES...

Siemens AG plans to invest \$500m or so over the next two or three years in the German Democratic Republic, Agence France Presse reports from Munich. The Munchener is currently negotiating 30 different ventures with East German partners, six of which have reached the declaration of intent stage, and it sees its employee base in the East rising to 25,000 to 30,000 in the next few years, with annual sales of up to \$2,500m. Its plans for East Germany will not lead to redirection of funds from any projects the company has planned or under way in the rest of the world, Siemens insists.

...AS MIPS, INTEL, TOSHIBA, LSI, EYE ERFURT CHIP FIRM

MIPS Computer Systems Inc, LSI Logic Corp, Intel Corp, Sharp Corp and Toshiba Corp have all made the trek to Erfurt in the German Democratic Republic to discuss the possibility of taking over chipmaker VEB Kombinat Mikroelektronik, which employs 60,000, the Financial Times reports.

LOCUS ENHANCES PC INTERFACE FOR EUROPEAN MARKET

Locus Computing Corp chief executive officer Martin Waters was on hand in the UK last week to help launch the latest version of the Locus PC Interface DOS-Unix integration tool, including national language support. Locus does 40% of its business in Europe these days, and Version 3.1 of PC-Interface allows all messages to be translated easily into the user's own language, with Unix character sets automatically translated to DOS, irrespective of language. The new version also supports file names containing non-English characters such as accents. Locus bundles the PC-Interface server portion - the Unix end - in with SCO's Open Desktop, IBM's AIX and Interactive Systems' 386/ix, and more recently struck a deal with AT&T to include the product as a standard part of Unix System V.4. The PC part of the product costs \$210 per user. Waters promised that Locus would begin expanding from its traditional OEM and VAR-based business towards a more visible direct sales operation later this year, with a broader product line. Future developments are likely to include a version of PC-Interface front-ended by Microsoft Windows, and products for the OS/2 market, which Waters said firms "would avoid at their peril".

TEXAS INSTRUMENTS TO BUY CONTROL DATA INSURANCE UNIT

More divestments at Control Data Corp: it has agreed to sell its insurance investment system business and related technology to Texas Instruments Inc. Product development work, business, employees and technology will transfer to Texas on closing at the end of the month, the current Investment Management Information System product, business and employees will follow at year-end. It will become part of Texas' Information Technology Group which markets the Information Engineering Facility computer-aided software engineering product and is earmarked for expansion by Texas. Terms of the sale were not given.

CINCOM HAS OFFICE AUTOMATION FOR MVS, VMS, UNIX, MS-DOS

Cincom Systems Inc is making a determined effort to shrug off the loss of its Net/Master product to Systems Center Inc, and has entered the world of business automation with its Manage:Series package for IBM and DEC proprietary machines, Unix systems and MS-DOS personal computers. Cincom describes it as an integrated set of business components combining data and text processing, archiving and mail. Manage:Series, developed in Europe, is a modular package built on Cincom's M/Text text processing package. The company has added three other tools, M/Post, M/Archive, and M/Graph. They act as individual applications but may link at any stage of the automation process. M/Text enables users to access corporate data for the creation of documents, mailings, and text manipulation. It integrates with word processing packages, with Mantis, Assembler, Fortran and Cobol, and with relational databases. The mainframe version runs under MVS or DOS/VSE. M/Text PC is the personal computer version and enables the user to offload work and to move data between the mainframe and micro. M/Post is an electronic mail facility that integrates with M/Text and distributes documents and information either locally or globally. It provides full screen editor, message editor, input and reminder boxes, and file folders. M/Graph PC integrates images and text with M/Text documents, as well as mainframe and micro-based computer-aided design packages, and it interfaces with personal computer scanners. M/Archive is a storage and retrieval system that finds and saves documents on a user-specified basis. Cincom says that Manage-Office is the first integrated multi-environment system available, and the company is keen to add to the existing DEC, Unix, personal computer, and IBM offerings. The Manage:Series costs from £2,000 and £150,000 and will be available next month.

GERMANS PLAY BOARD GAMES: DSM WANTS TO TURN YOUR XT INTO A CRAY WITH 80860s...

DSM Digital Service GmbH, Munich, West Germany says it is ready to ship its Genesys SPC 860 expansion board, first demonstrated at Hannover's CeBIT fair this year. DSM is claiming that it is possible to link 256 of the Intel 80860-based boards together so giving every personal computer from the IBM XT upwards a maximum performance of 20 GFLOPS - in other words, for under \$6,000 a board, software developers would have almost the same computing power on their XTs, ATs and Unix workstations as on a bottom end Cray Research supercomputer with a price tag of \$1.5m. The problem for DSM at the moment, according to Computerwoche, is that its OEM customers have not yet accepted the claims made for the SPC 860 and prefer to stick with their established lines - indeed, DSM chief Manuel Vieira is resigned to a two year wait before the product gains proper acceptance. This has not, however, stopped DSM going ahead with its development of a 300 MIPS board, most likely to be based on the Intel 80870 RISC and available early 1991.

UNISYS TURNS TO MITSUI FOR CASH HAND-OUT

Labouring under W Michael Blumenthal's legacy of an intolerable burden of \$4,000m of debt, Unisys Corp has turned to one of Sperry's long-time friends for a little help. Japanese trading giant Mitsui & Co Ltd, which already holds 33% of Nippon Unisys Corp, has agreed to subscribe for \$150m of Unisys preferred stock in two series convertible into a 4.6% stake in Unisys, and to make a \$50m five-year subordinated loan to the company. The preferred stock will be convertible at the option of Mitsui into Unisys common at a conversion price of \$20 per share for the \$50m Series B and \$21 per share for the \$100m Series C. Both series of preferred stock will pay quarterly dividends at 8.875% per annum for the first five years and 9.5% per annum for the next two years. The five-year subordinated loan is unsecured and will bear interest at the rate of 11.375% per annum, payable quarterly. Mitsui has agreed to sell any Unisys shares it buys in the market after the term of the agreement, and Unisys will guarantee that it gets back at least what it paid for the shares. Further joint ventures between the two are also planned.

NETFRAME RAISES MORE CASH FOR RAPID EXPANSION

NetFrame Systems Inc, the Milpitas, California specialised network server pioneer has completed its third round of venture funding, raising \$12m to finance the company's rapid growth and further penetration of the network computing market. Part of the capital came from several new investors, including PW Private Capital Technology Fund, managed by PaineWebber Development Corp, Morgan Guarantee Trust and the Fleming Venture Fund of London, as well as current technology and venture investors including Olivetti, Apple Computer, Xerox Corp, Bessemer Ventures, Kleiner Perkins Caufield & Byers, Menlo Ventures, MK Global and 3i Ventures. The new cash brings the total raised by the company to \$29.25m.

Promises, promises again as IBM "Position" highlights how little of OSI is in place...

Users are clamouring, and IBM has elaborated on its two year-old position on Open Systems Interconnection (UX No 199) and says that last week's announcements provide future direction for customers planning their OSI network requirements. The areas addressed are OSI protocols included in SAA Common Communications Support; OSI in IBM's AIX Unix; SAA OSI support for wide area networks and local area networks; support for OSI Common Management Information Services and OSI Common Management Information Protocols; OSI X500 Directory standard support; OSI support for worldwide profiles; OSI interoperability and conformance testing; OfficeVision/VM and OfficeVision/MVS support of OSI Message Handling System; TCP/IP to OSI transition direction and support; OSI-SNA integration; and Manufacturing Automation Protocol Version 3.0 support.

...Commits to FDDI - in two years

IBM says that over the next two years, it intends to offer Fibre Distributed Data Interface local-area network products that conform to current and emerging ISO 9314 standards developed by the ANSI X3T9.5 committee. It also plans to offer FDDI workstation, host attachment and interconnections between FDDI, Token Ring, and Ethernet local area networks; to provide network management for FDDI; and offer an FDDI backbone local area network extension incorporating single-mode optical fibre and laser technologies - for transmission over significantly longer distances than with multi-mode optical fibre and light-emitting diode technologies.

IBM bows to prevalence of Ethernet

IBM has announced enhanced local area network products, said to give customers more flexibility in controlling their computer networks. IBM Local Area Network Support Program Version 1.2 enables MS-DOS workstations on Ethernet local area networks to communicate with each other and with OS/2 work stations on a Token-Ring network. The Distributed Console Access Facility Version 1.0 enables one workstation to be controlled by another workstation and helps operators to administer departmental networks remotely. Token-Ring Network 16/4 Trace and Performance Program and Adapters provide a real-time view of the traffic on a Token-Ring Network and send data at either 4M-bits or 16M-bits per second. This enables customers to trace application use, to collect data, and to perform capacity planning. Token-Ring Network Bridge Program Version 2.2 connects two Token-Ring networks either locally or remotely over communications lines. It offers dial-up support for customers using public switched telephone lines for remote links. The Personal Computer Network Enhanced Extender and Personal Computer Network expand the distance between baseband networks from 800 to 2,600 feet, and increase the potential size of the network from 80 to 800 workstations. The bridge enhancements enable baseband personal computer networks to communicate with Token-Ring networks. IBM also introduced the 7855 V.32 modem, which sends data at up to 19,200 bits per second, claimed to be up to eight times the transmission speed of most personal computer modems. The LAN Support Program Version 1.2 costs \$66 for one copy and \$44 for each additional copy. It will be available on July 27, 1990. Prices for the Distributed Console Access Facility are \$135 for one copy, and \$95 for additional copies. It will be available on November 30, 1990 in the US. The 16/4 Trace and Performance Program costs \$1,500 and is available on June 29, 1990. The Adaptor and Adaptor/A each cost \$1,220 and are available from June 29, 1990. The Token-Ring Network Bridge Program Version 2.2 costs \$1,750 and upgrades from Versions 2.0 and 2.1 cost \$335. It will be available on September 28, 1990. The 7855 V.32 Modem costs \$1,350 from month-end.

TCP/IP for VM 2 brings string of Unix facilities to the VM world

TCP/IP Version 2 for VM enables VM users to participate in a multivendor network using the TCP/IP protocol set. The addition of Simple Network Management Protocol support enables TCP/IP for VM Version 2 to communicate with IBM's NetView network manager. This means it can act as a "focal point" for network management of TCP/IP networks and SNA NetView-managed networks. The addition of Resource Access Control Facility support for the Network File System server and Kerberos authentication enhance security. Other enhancements include improvements to the socket library, the addition of Network Computing System libraries, and an application development toolkit based on OSF/Motif. Applications include the ability to send mail, transfer files, log onto a remote host and act as a file server to network nodes. The network protocols supported are the Token-Ring, Ethernet, IEEE 802.3, DDN X25, PDN X25 and PC Network. Attachments to the host include the 3172 Interconnect Controller and the 8232 LAN Channel Station, the 37XX line of communications processors for X25 and SNA backbone transport, and Hyperchannel support. Prices for TCP/IP Version 2 for VM range from \$15,200 to \$35,840, and monthly charges range from \$317 to \$747, depending on the size of the processor. The Network File System feature is priced separately, ranging between \$3,040 to \$7,165, and monthly charges between \$63 to \$149. TCP/IP Version 2 for VM will be out on December 28 in the US.

Open Systems Interconnection Messaging and Filing for the RS/6000 Unix machine

IBM has announced Advanced Interactive Executive OSI Messaging and Filing/6000 - AIX OSIMF/6000 for its implementation of Unix. This brings Open Systems Interconnection messaging and file transfer capabilities to the RS/6000, and enables it to conform to government OSI profiles - well IBM wouldn't get any business with the public sector in many countries if it didn't have it. AIX OSIMF/6000 also enables customers to transfer files and send messages between OSI and TCP/IP networks, giving users access to the new OSI functions and existing TCP/IP networks. Prices for the AIX OSI Messaging and Filing/6000 Program range from \$2,500 to \$12,000, depending on the size of the RS/6000. It will be available from December 14, 1990 - too late for tenders in the interim that specify currently-available products.

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Hoping to avoid the fiasco of the PCjr of a few years back, IBM launched its second attempt on the home computer market last week with the 80286-based PS/1, with prices starting from \$1,000: but the MS-DOS 4.01-based machine is admitted by IBM to be too skinny to run OS/2, so business users running OS/2 at work won't be able to bring work home and run it on the PS/1, one of the uses that IBM suggests.

Ing C Olivetti & Co SpA intends to cut its workforce by between 3,000 and 3,500 this year, and hopes to achieve the cuts by early retirement and government-subsidised redundancy programmes: the cuts, to reduce costs, will be made in all parts of the company; Olivetti says it is particularly worried about the overpriced lira exchange rate.

Apple Computer Inc is to make it easier for developers to offer the Macintosh interface when providing networking services: the source code and object code licensing programme is intended to provide low-cost access to the AppleTalk networking software instead of having to write it from scratch; licensees will pay a one-time fee to join the programme, plus an annual maintenance fee; no royalty will be charged, and the one-time fee will be halved if the licensee agrees to offer AppleTalk as standard equipment in its end-user product; terms were not disclosed.

Motorola Inc and Hitachi Ltd agreed in principle on settlement of their patent infringement suits, but Hitachi does not expect final settlement for two or three months. They will jointly seek a stay of the order barring each from selling the chips at issue in the US market.

Apple Computer Inc has tapped Robert Puette from Hewlett-Packard Co to be the new president of the Apple USA division from July 1: Puette led the start-up, development and expansion of Hewlett's worldwide personal computer business.

Servio Corp, Alameda, California, has announced release 2.0 of GemStone, its object-orientated database manager - claimed to be three times faster than the original copy which shipped around four years ago: it can access C++ libraries, has a bridge to the Sybase SQL Server and supports TCP/IP. Out in October for Sun Microsystems workstations, DEC VMS and Ultrix systems - an RS/6000 version will follow - it costs \$12,000.

Sun Microsystems has signed up TGV Inc, Santa Cruz, California, to port its XView toolkit to DEC's VAX/VMS platform - out in the third quarter its called MultiNet XView and will cost £1,000.

Hewlett-Packard has licensed Personal Visualiser, Personal 3D Edit and data translator demonstrators from Wavefront Technologies Inc, Boston, Massachusetts: Hewlett is to bundle the software on its HP-UX-based Personal VRX/P3 and TurboVRX systems announced last week, (UX No 288).

The Instruction Set has announced a new series of Object Orientated programming courses scheduled for the Autumn, aimed at Unix, DOS and OS/2 developers.

Silicon Graphics Inc has won a contract with NASA's Ames Research Centre for its PowerVision VGX workstations that could be worth up to \$60m over the next three years: Silicon Graphics will fill the Workstation II contract with as many as 600 systems for flight simulation research that will link into Ames' Cray supercomputers.

Two-year-old MasPar Computer Corp, Sunnyvale, California, has completed a third round of financing, this time to the tune of \$15.5m, bringing total investment in the company to \$33m.

NCR Corp has signed up for Menlo Park, California-based Gupta Technologies Inc's SQLWindows, SQLBase Server and SQLGateway as part of its Open Cooperative Computing Architecture environment.

Charles River Development, Boston, Massachusetts, has introduced version 2.0 of its Data-Station Dictionary CASE system for Sun workstations, PC-DOS and OS/2 servers - prices for the Oracle-based software go from \$13,400 to \$100,000.

Hewlett-Packard Co and IBM Corp are both to open manufacturing plants in the People's Republic, the Nippon Keizai Shimbun quotes visiting Chinese officials as saying: the official from China's Ministry of Electronics Industry said that HP would form a joint venture with the Chinese government to build RISC-based HP 9000 Unix machines at a rate of 1,000 a year, and develop Mandarin language software, and that IBM intends to manufacture high-end models of the PS/2 in Tianjin.

Having set up subsidiaries in all the minor as well as the major European countries, Compaq Computer Corp reckons that it can afford to ignore the Big One no longer. Seeing the [success of Apple Computer Japan, it plans in August to form a wholly owned Japanese subsidiary.

UK consultants Price Waterhouse claims that Unix-based systems can be from one sixth to one half cheaper than proprietary systems, measured in terms of the dollar spend on information technology per unit of sales: the figures were based on company comparisons measuring the same products and markets for those using Unix and non-Unix systems, and Price Waterhouse found that those companies using mainframes had the most to gain from turning to Unix.

Omron Corp has combined with Motorola Inc to donate 40 of its 88000-based Luna 88K workstations to Carnegie-Mellon University, where they will be used to develop a new version of the Mach distributed operating system Unix kernel: the new version will be ideogrammatic and non-alphabetic, and Omron hopes that being in on the game this early will save considerable effort in converting to a Japanese version of Mach at a later stage.

Canon Inc says it will be selling Next Inc's Next computer in the South-East Asian market, and looks to move around 200 of the things a month through its wholly owned subsidiary in Singapore: it is also planning to launch it in the South Korean market by the end of the year.

Microport Inc of Scotts Valley California, which was recently taken over by Abraxas Software (UX No 280), says that its Formula One System V/4 will begin shipping on July 9th 1990 to qualified software and hardware developers: it is a complete binary distribution of AT&T's System V Release 4 costing \$2,500 per copy: the price includes a no-charge update to the first commercial product release of Formula One System V/4, scheduled for November 1 1990.

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OSF EUROPE READIES SYSTEM MANAGEMENT RFT - ANNOUNCEMENT "WITHIN SIX WEEKS"

The Open Software Foundation is on the threshold of issuing its next Request for Technology (RFT) - this time for Distributed System Management (UX No 283) - and the team it puts together to evaluate the technology submitted may be headquartered in its Munich office. It would be the first time OSF conducted an RFT out of Europe. OSF business manager Jonathan Gossels, who is responsible for the RFT as he was for OSF's Distributed Computing Environment (DCE) search, says it's because so much of this kind of technology resides in Europe. He noted that over half of the companies sitting on the consortium's System Management Special Interest Group (SIG) are European-based. Gossels figures OSF is at most four to six weeks away from issuing the RFT, delayed mostly by the summer vacation schedule. "The content," he said, "is just about done." OSF members companies have been making their recommendations over the last year and now it's up to OSF to pull together a core evaluation team. Submitters will have about 60 days after the RFT comes out to make their preliminary submissions. Gossels estimates the response could be "a whopper," with the number of submissions surpassing anything OSF has seen yet. As a point of comparison there were 50 initial submissions to the DCE RFT. Gossels added that if companies found it impossible to travel to Europe for the evaluation proceedings they will probably be allowed to make their presentations at OSF headquarters in Massachusetts.

TERAPLEX CHALLENGES RISC WITH 20 INSTRUCTION 65MHz PART

It always seemed strange that no-one had designed a RISC processor with an instruction set tailored to replicate those of complex instruction set processors when used in combination - so as to create a part that would run MS-DOS or 68000 code blindingly fast - and now a Champaign, Illinois-based start-up, Teraplex Inc, has come up with something very much along those lines. Its new architecture takes the concepts of reduced instruction set a stage further to create an extremely simple, super-fast Minimum Instruction Set Computer - MISC - architecture, and it has licensed the design to Atmel Corp of San Jose, California for fabrication as a chip. The MISC architecture strips down the number of instructions to fewer than 20, according to a Teraplex spokesman, using long instruction words to maximise bus efficiency, and relies on carefully-written compiler technology to use the thing efficiently. The instructions included are mostly computational operations deemed "absolutely necessary", and are known as "atomic instructions", which can be combined to replicate the same functionality of complex or reduced instruction architectures. In this way, Teraplex claims that it can provide binary compatibility with the software of other architectures, and it has already implemented the Intel iAPX-86 set, claiming that MS-DOS software ran at an average of five to six times faster on the processor than on an 80386, with a six times memory expansion. Running at 62.5MHz, the 32-bit CMOS processor is claimed to run at 65 MIPS. Use of such simple architecture means that many fewer devices need to be crammed onto the chip, which in turn means conservative process technology can be used, making very high clock speeds possible. The first commercial version is due in the second quarter of 1991, with board level products and eventually workstations using a parallel implementation to follow. The first operating system is expected to be Unix System V.4. The design work on the MISC technology grew out of a 10-year-old research programme carried out by Jeff Glickman at the University of Illinois. Teraplex is a subsidiary of computer think tank Advanced Analytics Corp, set up to "commercialise RISC", and is funded by private investors and the State of Illinois. It is seeking further licensing agreements with semiconductor and computer manufacturers looking to fabricate the chip. Start-up Atmel is the firm that bought Honeywell Inc's Solid State Electronic Components arm in Colorado Springs, Colorado.

IBM JAPAN "DOING UNIX LAPTOP FOR IBM TO SELL WORLDWIDE"

IBM may be weak on innovation in its personal computer business, but it can't be faulted on its tenacity. Admitting that it still hasn't managed to set the portable and laptop world alight despite three bites at the cherry, it has commissioned IBM Japan to develop two new laptop computers. According to an informed source tapped by the Teleputing Hotline, both machines are improved versions of current PS/2 models - and one will be IBM's first Unix laptop. The wire says that both will be supplied to IBM for worldwide distribution. IBM Japan is also designing a 2.5" Winchester to complement its 3.5" line.

"THIRD GENERATION DATABASE MANIFESTO" REJECTS STANDARD SQL

A group of leading relational database vendors is threatening to derail the move towards vendor-independent computing standards by rejecting the standard definitions of SQL and declaring war on emerging vendors of object-oriented databases. The so-called senior statesmen of database management systems including Bruce Lindsay (architect of IBM's DB2), Phil Bernstein, director of DEC's database lab in Cambridge, Massachusetts, Oracle's David Beech, and Michael Stonebraker, who developed Ingres, have drawn up the "Third-Generation Data Base System Manifesto" as a challenge to vendors of object-oriented databases. Speaking in London, Stonebraker claimed that vendors such as Ontologic and Versant Technology do not address data management, object management or rule management in the sophisticated manner in which the next generation of relational databases will do via the development of proprietary SQL extensions. He added that sticking to SQL standards as endorsed by ANSI and ISO was "technically unviable" and that no large database company that wished to win the race for the third generation database system could afford to conform to standards. Such a move by the likes of IBM, DEC, Ingres and Oracle would effectively shut the back door on object database vendors that claim compatibility with relational databases for their products via SQL - they will remain compatible with today's relational databases, but won't be able to access third generation relational technology.

SEPTEMBER DATE FOR STARDENT LAUNCH

Stardent Computer Inc has set a date for its new Unix graphical systems on September 18, when it will reveal low-end boxes using the MIPS Computer Systems RISC chip - for scalar processing - alongside the Intel 80860 functioning as a vector processing unit. Stardent president Bill Poduska promised some time ago that new machines would offer the same performance as its 3000 graphics supercomputer - 128 MIPS and 192 MFLOPS in top-end, four processor configurations - "for a third to half price", (UX No 262). Kubota Corp's Kubota Computer Co - which now does all Stardent's manufacturing - last week said that it will begin building what it calls "baby" versions of Stardent systems in California, from November, suggesting that these will form the basis of the new range, and the fact that the work is being done in Sunnyvale seems to indicate that Kubota is moving into the old Ardent base now that Stardent has decamped to the Stellar base in Newton, Massachusetts. Kubota will also use the new base to customise the systems it builds for Stardent for specific US customers. Kubota is Stardent's biggest shareholder.

HOUSTON 30 TAKES TIME OUT FOR OPEN SYSTEMS REPORT

The rebel group of multi-national Unix user companies that clubbed together after the breakdown of the Unix International/Open Software Foundation "Unity" talks is currently operating under the name of Houston 30, after the place and time - May 30 - of its last meeting. The members - Du Pont, Ford, General Motors, Hughes, McDonnell-Douglas and NASA amongst them - have voted to adopt the model of the Corporation for Open Systems as the basis for its organisation, though it does not plan to join or merge with COS. A working group is preparing a report on how to overcome the problems thwarting the drive to open systems - set for August - and a follow-up meeting is to be held in Detroit. Unlike the similar, but more outspoken rebel oilmen's group the Petrotechnical Open Software Corporation, Houston 30 is not so clear about its practical plans and methods. Although Houston 30 - an amalgam of hardware and software manufacturers, communications and engineering firms - lack the common basis that the oil firms share, Bud Huber of Hughes Aircraft, and spokesman for the Houston 30 reckons that underlying features of systems are common across all industries.

DEC BREAKS INTO PC DISTRIBUTION CHANNELS

Industry-watchers are calling the US distribution deal between Merisel, Marlboro, Massachusetts - formerly Softsel/Microamerica - and DEC, a breakthrough, because it is the first time that a personal computer distributor and a workstation manufacturer that has usually relied on a large direct sales organisation have got together in a dealer arrangement. Coming after two years of negotiations, Merisel has agreed to carry DEC's full line of RISC-based workstations and personal computers. The deal won't be the only one, as Sun Microsystems Inc and Hewlett-Packard Co are also understood to have had talks with similar distributors.

IDE PUTS C IN THE PICTURES

Interactive Development Environments and Saber Software Inc have teamed up to offer what IDE vice president Michael Thorma claims is a fully integrated software engineering environment for application development in C. IDE's Software Through Pictures CASE toolset will be linked to the Saber-C programming environment, allowing software engineers to do analysis, design and documentation using the IDE package, then develop, test and de-bug code using Saber's software. IDE is also working on object-orientated Ada and C++ modules for Pictures - it expects Saber to be offering a C++ environment within a year - and is also examining the possibility of adding SSADM to the US-favoured Yourdon design methodology it already supports. IDE is currently working to get Pictures running under X-Windows on the various hardware platforms it supports - Sun, Hewlett-Packard/Apollo and DEC - and says the next generation of Pictures software will also support a range of Unix graphical user interfaces. On the subject of a European-wide standard system design methodology, (UX No 289), IDE's UK marketing manager Howard Stone says an SSADM-based model will not be adopted. He says the European Commission has no plans to standardise on a methodology as such, but will instead specify that list of "deliverable items" be supplied at the design stage - such as an analysis of input and output functions - together with a lexicon of terminology that will compare data constructs and relationships within the various popular methodologies, to show for example where a Yourdon item is comparable with an SSADM, Merise or Jackson item.

PRIME INTO SERVERS WITH PRIME EXL PORTABLE NETWORK

Prime Computer Inc has turned its EXL 80386-based Unix machines into servers with the launch of its Prime EXL Portable NetWare implementation of Novell Inc's NetWare 386. The Natick, Massachusetts company has also developed a gateway to interconnect the local net with its minicomputers, and an electronic mail gateway. The new products run under Prime's implementation of Unix and ship on July 30. Prime claims that this is the first implementation of Portable NetWare to run on the 80386 and the only implementation complemented with menu-driven communication gateways - and follows a deal between the two at the beginning of last year, (UX No 218). Prime claims it is also the only Portable NetWare developer to have incorporated NetWare Value-Added Processes for system back-up and network monitoring. A system with a 25MHz 80386, a floating point processor, 8Mb of zero-wait-state memory; 323Mb disk; 150Mb tape cartridge; Ethernet; system console with keyboard; ARCserve, Monitrix and terminal emulation software; Unix System V.3 and Portable NetWare at \$28,745. Prime EXL Portable NetWare licences begin at \$5,000. Prime has now separated its computer systems business unit from its company-wide manufacturing operation, but both divisions will report to Delbert Lippert, who joins Prime this week as executive vice-president from from NovAtel Communications Corp of Canada, where he was the chief executive.

UNIX WELCOM FOR OPEN PLAN

UK-owned, and Houston, Texas-headquartered Welcom Software Technology International Ltd, has released version 3.3 of its project management software, Open Plan. It now available on AT&T Unix, Data General's DG/UX, IBM's AIX in the US - in the UK shortly - as well as on the Apple Macintosh, DEC VAX range and personal computers, and supports most local area networks. The Unix versions are built upon Recital Corp's database technology - the others on dBASE and FoxBASE - X-Windows and Motif editions are planned. Open Plan 3.3 incorporates multi-project scheduling, enhanced output graphics and network diagrams. Welcom claims 7,000 Open Plan users worldwide - 4,000 of them in the US, mainly in the defence and aerospace industries. Unix, Macintosh and personal computer versions start at £3,250, a LAN copy is £7,500, and the VAX edition is £9,250.

HEWLETT TURNS CASE SOFTWARE OUT TO UNIX PASTURES

Good news for developers using Hewlett-Packard's Case Edge programming environment writing on H-P 9000 and Apollo DN systems - the H-P SoftBench and H-P Encapsulator packages are to be licensed to third-party hardware and software vendors which should mean that applications using the tools will be able to run on non-H-P platforms via porting paths. Interactive Development Environments, Soft Tool and Verilog are all candidates for doing the migration technology - but no deals have been inked yet. Hewlett has also announced C++/Softbench for Case Edge, it will be available in August for \$10,000, in addition to HP Branch Validator, a tool for software testing and validation, which is out now for between \$2,000 to \$30,000 depending on the number of users.

FROM A SPARC TO A STAR - SUN LOOKS ON AS RISC SUPERCOMPUTERS EMERGE

This week, Star Technologies will officially launch its brand new Sparc-compatible "supercomputing" network compute server, the Star 910/VP, the latest entry into the Sparc-clone value-added lists. As anticipated (UX No 288), the machine tightly couples a 40MHz Sparc scalar processor, said to be capable of 40 RISC MIPS or 29 VAX MIPS peak, with a Texas Instruments 8847-based vector processor that can reportedly do 160 MFLOPS peak in single precision or 80 MFLOPS in double precision. The company casts the box as offering twenty times the compute performance of a Sun Sparcserver 490, Sun's high-end server. However, Star officials maintain their machine complements rather than competes with the Sun line. In fact, they said that although they do not have any formal co-marketing agreements with Sun, the two companies have already made sales calls together, a statement a Sun spokeswoman denied to Electronic News. Star, a nine-year-old \$35m-\$40m a year public company known previously for its array processors and image generators, intends to manufacture the boxes in-house. Currently it has prototypes which will be sent to Sun Expo this month to show off the Sparc binary compatibility of its scalar processor. It plans to start shipping in September with production beginning in November.

Although Star officials figure Sun's primary thrust is the desktop and that it will not come out against them, Sun's director of technical marketing, Bill Keating, noted that Sun has a whole division aimed at the high end. Sun, he said, is watching what happens to FPS, for instance, which is building a Sparc-based supercomputer to deliver between 480MFLOPS and 6.7GFLOPS. If Sun decides to make a move up-the-scale, Keating admitted, it is far more likely to offer something in Star's range first. Star says the 910/VP was designed from the ground up starting sometime last year. However, observers versed in supercomputing believe they notice a similarity between the 910/VP's architecture and the Culler 7 (UX No 56, 182), a failed product designed a few years ago as a "Personal Supercomputer" that strapped an array processor to a Sparc chip. The architect of that machine, Dr Glen Culler, is now vice-president of Star's technology integration and heads Star's R&D centre in California. Star denies that the 910 owes anything to Culler 7. There is also concern that Star may not have the applications software needed to break into supercomputing vertical markets. Companies like FPS believe third-party packages dominate supercomputer sites and claim a vendor will not be taken seriously without an array of them to offer from the beginning. Star, on the other hand, says supercomputer users write their own codes and that while Star will offer third party applications in time, initially it will shoot to sell into scalar applications that will prove its credibility. The firm intends to piggyback on to Sun sites where groups of 10-20 engineers, already confirmed Sun users, need added capabilities. Star employs a vector cache memory in its design but the company maintains that this will not slow down the vectoring. Star's spec sheets provide a Linpack benchmark for 100x100 Fortran execution against a Sparcserver 490 (3.8 for \$114,000), a Convex C210 (17 for \$595,000) and a VAX 9000/210 VP (18 for \$1.4m) The Star 910 came in at a price of \$216,000. A standard Star configuration offers: a 20 slot cabinet, 8 slot VME bus, 40MHz CMOS-based Sparc scalar CPU, 160 MFLOPS vector CPU, 1Mb vector cache, vector DMA, 32Mb main memory expandable to 1Gb, VME/SCSI host adaptor, Ethernet controller, 150Mb 1/4-inch cartridge drive, 766Mb SCSI disk drive, SunOS, networking and applications development software. The company says the Star 910, listing for \$99,950, can be field upgraded to vector capability. Initially the VP will be sold by the 20 man sales group that already sells Star's other product lines. A dedicated sales force will come later.

APRICOT COMPUTERS LAUNCHES LANSTATIONS - PREPARES FOR WORLDWIDE EXPANSION UNDER MITSUBISHI

With the might of Mitsubishi Electric Corp behind it, the new Apricot Computers Ltd is thinking big - its stated aim is to be the world's number one supplier of networking hardware behind IBM. The game plan kicked off last week with the launch of the five member Apricot LANstation family, built round the 80386SX chip, and with entry level systems starting from £1,000, excluding monitor. The LANstation 16 is a diskless workstation, running at 16MHz with 1Mb of memory expandable to 8Mb, followed by the LANstation 20-0, also a diskless workstation but running at 20MHz and with the added features of on-board graphics and security. For the up-market customer there are three hard disk models with up to 100Mb cached hard disks. LANstations will work in conjunction with MS-DOS and OS/2 host systems using Novell NetWare, Microsoft LAN Manager, Banyan Vines and DECnet PCSA, and as around half of Apricot's VX server range are shipped running Unix, there are a range of terminal emulators for Unix, including support for X-Windows. A new version of VisionWare's PC Connect will be bundled in for Unix users when shipments start in September. Apricot sees the LANstation as an ideal machine for X applications when they become available. The first are likely to be the Uniplex office automation suite and Santa Cruz Operation's Open Desktop package. Apricot is adamant that the company's identity will not be lost as Apricot zooms to its projected five-fold growth over the next two to three years. Short term goals include launching the Apricot brand at Comdex in the US, then taking it to the Hanover Fair in Germany for the Continental launch. Meanwhile, the VX FTserver will be launched in Japan, where Compaq has just arrived (UX No 289).

MULTI-USER OS/2 FROM EX-IBM DEVELOPER

A multi-user version of OS/2 under development at Florida company Citrix Systems Inc, is being touted in some quarters as a challenger to Unix as it is expected to offer comparable capabilities at around a tenth of the price. Due to ship late this year or early next, it will be compatible with existing character-based OS/2 applications, and eventually graphical applications too. Citrix was founded a former member of the original OS/2 development team at IBM, and there is some suggestion that IBM itself might licence technology in the future. IBM has said in the past that it intends to include multi-user capabilities in OS/2, though it has offered no timeframe, whilst Microsoft says it has no plans for doing a multi-user version itself.

OSF "STILL INTERESTED" IN LOCUS TECHNOLOGY FOR DCE

OSF is revisiting technology that was submitted for its DCE RFT but not included in its final selection. The consortium continues to be interested in the kind of remote execution or transparent computing facility offered it by Locus Computing as part of the DECorum submission. The reason it was excluded from the DCE decision, according to Gossels and his colleague, business area manager Marie Burch, is that the Locus solution needs to be embedded in the operating system and worked only in homogenous Unix environments rather than the heterogenous OS environments DCE aimed at. OSF, however, still wants something along these lines that could be incorporated in a future "dot release" of OSF/1, Burch said. Therefore it is contacting concerns that covered this terrain in the original DCE RFT with an eye to further evaluations. It is unlikely a full-blown RFT will be done but OSF says it is putting out feelers to make sure no one is overlooked. There are about six or eight organisations on their current list, they said, including Locus, the Research Triangle Institute, Chorus and the Hebrew University's Mosix project. OSF also expects to issue its first DCE snapshot in about 10 days and should make at least part of its contemplated DCE pricing schedule available this month.

APPLES AND ORANGES - OR LEMONS?

by William Fellows

Senior managers at Sun Microsystems' headquarters have responded to some of the charges laid at the Mountain View, California-based company's feet by the Open Software Foundation over its Open Network Computing platform, (UX No 287), in a continuing debate over the future for a standard method of doing distributed computing in Unix.

Although ONC enjoys an unquestionable lead in terms of installed base, a big question mark that hangs over it - and one constantly raised by the OSF - is whether the Remote Procedure Call element of the technology is actually being used at ONC sites. RPC is the crucial enabling element of distributed computing, and the OSF has argued that if - as they believe - virtually no-one is using Sun's RPC, then it had every justification in adopting the alternative Apollo-developed Network Computing System/RPC protocol for its Distributed Computing Environment technology.

Suspect

Sun's network computer group manager Craig Brown, and ONC product manager Stuart Noyce refute OSF's allegation. They say that companies including Visix Software, Frame Technology and Valid Logic - as well as Sun itself - have already incorporated RPC into their respective products, and others are in the process of doing so. Furthermore Brown and Noyce argue that according to the fundamental ways of doing distributed computing, OSF's claim that DCE is "transport transparent" is also suspect - at the very least there undoubtably remain some unanswered questions about DCE in this respect.

The minimum requirement for so called transport transparency must be that an RPC can run on any network transport protocol - and there are a couple ways of achieving this. One is to choose at compile-time which transport protocol environment the application will go on to. This will inevitably lead to multiple versions of any RPC, one for each protocol - and this decision process sits above the transport layer interface itself. The other - optimum - way is to get the required RPC to be invisibly executed at run-time. In this case the developer writes the RPC only once, and only one binary version is created. Brown and Noyce say that AT&T's transport-independent Transport Layer Interface - now incorporated into Unix - was developed with precisely this solution in mind, and that Sun's intention is to integrate TLI into the System V.4-compatible SunOS, the announcement of which "will be made before the end of the year". OSF has not said whether DCE will embrace compile-time, or the more preferable run-time solution. In addition Brown and Noyce say that Sun's RPC can be de-coupled from the naming service or protocol layer - default options as well as development choices are included - overturning the notion that RPC is non-extensible.

Turning to the file system itself, and OSF's claim that Sun's Network File System is "seriously outdated" when compared to the Andrew File System which it has adopted from Transarc Corp for DCE, Noyce and Brown say that trying to draw distinctions between the two is waste of time because "it is like comparing apples and oranges".

They argue that because AFS was originally developed for a mainframe-based academic environment at Carnegie-Mellon University, not on personal computers - first appearing at around the same time as NFS 1.0 - by the time AFS 4.0 for DCE is out, which could be anytime between 6-12 months for source code - longer for customer versions - "we will see two products that are somewhat equivalent", although they added, "there will be limitations to both."

Transarc will have to add some PC functionality to AFS it doesn't currently allow disk booting, and OSF has additionally gone for PC-NFS and Lan Manager/X to do PC connectivity. Meanwhile Sun, which developed NFS on diskless Sparcstations is having - over the same time period - to add support for larger systems and servers, including local disk caching and a replicated file system function. Brown and Noyce stress however that NFS will now support 60 or more clients, from PCs up to mainframes, and is not limited to the 30 that OSF has claimed.

However OSF's charge that in any case Sun withdrew its NFS 3.0 submission to the DCE request for technology is true the two say, but only because OSF stipulated a second quarter delivery date and "we didn't think we would make it with NFS 3.0". They say OSF had the choice of going with NFS 2.0 - and receiving automatic upgrades to subsequent releases - or AFS.

Slowdown

The main criticism they level at OSF however is that "it is slowing down distributed computing". In addition to the likelihood of two standards emerging - both of which developers will have to support - they say that OSF is reverting to the type of discussions about distributed computing that were raised in 1987 - Apollo for one wrote a white paper on the subject at the time. Brown and Noyce say the debate should be far away from RPCs and protocols by now, and on to distributed services and applications software. Certainly the work going on to integrate ONC with Novell, 3Com and Banyan networking technology is a step in the right direction, (UX No 249), it is said to be on schedule, and Sun itself will be showing off new DC software at Networld in the Autumn.

The one thing on which the protagonists do agree is that distributed computing remains more a vision than a reality, and that widespread use of the distributed technology is still some way off - as are the services and products to support it. One reason is that not all of the benefits are clear yet. It follows that the longer the players argue, the further the vision, the benefits - and the returns - will recede into the future. For potential distributed computing users, apples and oranges could yet end up tasting more like lemons.

LOTUS LOOK-AND-FEEL WIN OVER PAPERBACK BOOSTS APPLE'S CASE...

Apple Computer Inc's suit against Microsoft Corp and Hewlett-Packard Co over the look and feel of Microsoft Windows gained a fillip late last week when Judge Robert Keeton ruled in Boston that VP Planner, the 1-2-3 clone from Adam Osborne's Paperback Software International Inc infringed Lotus Development Corp's copyright in 1-2-3. The judge ruled that although the Berkeley, California company's code was completely different, the commands and user interface were so similar as to violate Lotus's copyright and described it as "overwhelming and pervasive". Apple is suing Microsoft and Hewlett-Packard over later versions of Windows, arguing that the similarity with the Macintosh user interface goes beyond that permitted under its 1985 agreement with Microsoft.

...AS BORLAND SHARES PLUNGE, SCO HIT BY LOTUS LAWSUITS OVER 1-2-3

Borland International Inc's shares plunged 272 pence to 943 pence in London last week after news came through that Lotus Development Corp, flushed with the success of its suit against Paperback Software, had filed suits in Boston against Borland and against Santa Cruz Operation Inc over alleged infringement of its copyright in 1-2-3 by Borland's Quattro Pro and Santa Cruz's SCO Professional spreadsheets. Borland anticipated the Lotus suit by filing its own suit seeking declaratory relief - confirmation that Quattro Pro does not infringe any Lotus copyrights. Borland filed the suit in San Jose in part because it wants the spat to be argued out in California rather than in Boston. Lotus is particularly keen to get after Quattro Pro because Borland is offering the \$500 product at \$100 to people that trade in their 1-2-3 for it. Santa Cruz argues that it has been selling its Unix spreadsheet since 1986 and that Lotus did not launch a Unix 1-2-3 till this year.

MORE JOBS TO GO AT PHILIPS AND NOKIA DATA

Major continental computer companies are not good places to work these days, and following the big cuts announced at Nixdorf and Olivetti, Philips NV last week forecast losses for the current year of over \$1,100m after restructuring costs of \$7,000m. The worldwide workforce will be cut by 10,000, with most of the cuts in Europe, but will not quit the computer business - rather it will focus on areas of strength such as optical imaging, banking software and services. New chairman Jan Timmer said that all areas of activity would be expected to reorganise where required to turn losses into profits, and warned that if profits then fail to materialise, these activities would be ended. And later in the week, Nokia Oy announced a major restructuring of its 6,000-strong Nokia Data into three divisions, personal computers, terminals and systems. Jobs to go will be announced next month.

UK LOCAL AUTHORITIES CHOOSE UNIX FOR DEPARTMENTAL SYSTEMS

A new report from market research firm Romtec reveals that over three quarters of the departmental minicomputers expected to be bought this year by UK government local authorities will run Unix. The data, obtained from detailed interviews with 157 local authority IT managers, indicated that most of the machines would be used to run new applications rather than to replace proprietary systems - although 15% said they would be converting from proprietary to Unix technology. And most of the machines will come from ICL, traditionally a strong player in this marketplace. The report finds that 60% of planned departmental system purchases will go to ICL, with Bull and Unisys on 12% each, and other vendors sharing the remaining 16%. ICL is also getting its share of new PC purchases, coming close behind IBM's 31% with 27% of the market. Last year, the 500 plus local authorities spent £727m on information technology. This year, applications for new legislation such as Community Charge and Compulsory Competitive Tendering will account for some £70m of the software bill.

"CAN'T WAIT FOR OSF/1 SO SIEMENS WILL USE AT&T UNIX V.4"

A Siemens insider, contacted by Computerwoche, hears that its forthcoming Intel-based MX machines (UX No 288) will run Unix System V.4 from the rival Unix International camp - the new MX range machines were originally to run the OSF/1 Unix derivative, but the Foundation's decision to opt for Mach as the operating system's kernel again resulted in unacceptable delays, says the paper. Siemens will however offer the OSF/Motif user interface and Distributed Computing Environment. In the meantime, the same sources indicate that Targon and Sinix users can - for the time being at least - breathe again. While it appears that the planned Siemens-Nixdorf-Informationssysteme AG has concrete plans for a machine that will eventually supersede both lines, it will continue with both the Nixdorf Targons and the MX for the present.

...AS HP ADMITS OSF/1 WILL NOT BE SIGNIFICANT UNTIL 1994

And Hewlett-Packard Co has delivered a further blow to the credibility of the Open Software Foundation's promised alternative Unix by saying that while it plans to offer OSF/1 next year, it doesn't expect many "prominent" workstation applications for it until mid-1992 - and doesn't expect it to be bought by the majority of its workstation customers until 1994 or 1995. The company will therefore, reports Electronic News, continue developing its HP-UX and Domain/OS versions of Unix beyond that date as well. With Motif the hands-down winner over Open Look in the graphical user interface stakes, and other promising Unix extensions emerging from the Foundation's Request for Technology it looks increasingly likely that the future direction of Unix will be Unix System V.4 at the core, with the Foundation confined to providing some major extensions to the operating system.

HEWLETT LAUNCHES UNIX PROCESS MONITORING & CONTROL SUITE

Hewlett-Packard Co last week plunged its Unix systems into the industrial automation markets previously served primarily by its proprietary HP 1000 minis with the launch of Real-time Applications Platform/Plus. The new product is described as an integrated, scalable software toolkit for building networked industrial-monitoring and control applications. It is designed to acquire data from end devices such as programmable logic controllers or remote terminal units, and to integrate the data to help automate company operations. RTAP/Plus is based on industry standards for use in a multi-vendor environment: these include the X-Window System, HP-UX Unix and ISO Open Systems Interconnection networking. Hewlett says that RTAP/Plus is a flexible toolkit designed to enable software engineers to configure it themselves to build supervisory-control systems for a spread of industrial automation applications. It consists of a real-time database, calculation engine, scan system, process scheduler, event manager and time keeper; a User Interface Platform toolkit based on X-Windows for the creation on-screen of process schematics and control panels that communicate with the database; Alarm Tools to support the set-up and detection of alarms and log user-defined messages and trigger control actions; Trend Tools to capture and display graphically historical information from the database; and Report Tools to enable the user to lay out, schedule and run the database reports interactively. A fully documented application program interface provides developers with access to and control over all its features. It directly supports Allen-Bradley and Modicon programmable controllers, HP 48000 terminal units and the HP 3852 data-acquisition and control device. Scan tasks can be written to interface with other front-end devices, and Hewlett is pitching it at oil and gas production, pipelines, gas distribution, telecommunications, network management, transport, electric utilities and water management firms.

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The Open Software Foundation maintains that a number of its member companies - none of them identified - are approaching a point where they could introduce a product running OSF/1. "I'm having trouble reigning them in," says business area manager Marie Burch. The Foundation also expects to have a swot of third-party applications packages available when the operating systems makes its scheduled appearance in November because of the work currently being done in their portability lab.

And OSF has stripped its chairman - Hewlett-Packard Co systems technology sector vice president John Doyle - of his vote on the OSF board, although he retains his current post following re-election: Doyle is replaced by William Kay as Hewlett's voting representative on the board, who comes from the company's workstation group - Doyle is now supposed to act strictly as an impartial chairman; and DEC has also replaced its representative Donald McInnis with Kurt Friedrich from its open software group - McInnis left DEC to join Prime Computer Inc in May.

Wavetracer Inc, Acton, Massachusetts, has introduced a parallel processing subsystem with up to 16,384 processor units that can be attached to workstations hosts for scientific applications. The Data Transport Computer runs off the host's operating system and starts at \$98,000 for a 4,096 processor configuration with 128Mb memory performing at 325 MIPS and 30 MFLOPS, rising to \$413,000 for a 1,300 MIPS and 122 MFLOPS system.

AT&T is carrying the battle for its Open Look graphical user interface into the financial world, and says that 14 applications are now shipping for this sector, including FTT Alphanumeric's Open Trading System, Open Image from JTS Computer Systems Ltd, the Market Information Machine from Logistical Information Machine Inc, Programit Inc's NETI Intelligent Traders Workstation, Renaissance Software Inc's Opus, Access Technology's 20/20, Alphanumeric's Riskwatch and Hedgewatch, Intrader from Digital Solutions Inc, FX-Aide from Effix Systems, Fame Software Corp's Fame, and Athena from Market Vision Corp.

Network Computing Devices Inc is to implement the agent portion of the Simple Network Management Protocol in its range of X-Window terminals from August: the portion allows the collection of network data - like status and performance statistics - from a network of X-terminals from an SNMP management station, rather than physically accessing each device individually - upgrades for existing NCD users cost \$50.

IBM says that, as promised on February 15, volume customer shipments have begun for RS/6000 hardware, AIX 3 for the RS/6000 and some related licensed programs - but the company has had to put back the availability dates for some RS/6000 and Xstation 120 features and support. Only the baby RS/6000s - the Powerstation and Powerserver 320, 520 and 530 are currently shipping, but the good news on the AIX 3 front is that it has received X/Open XPG3 Base brand and that XPG3 conformance is now available rather than offered in a future release as IBM had said.

And IBM has updated the requirements for some of the add-ons for the RS/6000, and now says that to use the High-Performance 8-Bit or 24-Bit 3D Color Graphics Processors, the Powerstation 320 or 520 models must have at least 16Mb of memory available for software support.

The last date on which an RT System can be bought to qualify for the RT Migration Assistance Programme to the RS/6000 has been extended to December 31 from June 29: to receive the trade-in credit, the customer must order the replacement machine on or before December 31, 1990 and install it on or before June 28, 1991 and be using it on the day the ordered.

All will be revealed about the mysterious Plan 9 operating system developments taking place at Bell Labs at the UK Unix User Group technical conference at the Royal Lancaster Hotel in London all this week: on Wednesday, major Unix pioneers Rob Pike, Dave Presotto, Tom Duff, Ken Thomson, Dennis Ritchie and Tom Cargill will be talking. Thursday sees speakers from Berkeley, MIT and Carnegie-Mellon, while on Friday AT&T's Brian Kernighan will speak on Software Productivity, with Andrew Tanenbaum on Distributed Systems for the 1990s.

As we went to press, news came through that Acer Inc now has a definitive merger agreement with Altos Computer Systems Inc (UX No 289). The deal, worth approximately \$94m, will see Altos operating as an independent subsidiary of Acer, and was unanimously accepted by the Altos board of directors.

UK firm Softgen Technology Inc, is to begin selling Edmonds, Washington-based Fourgen Software Inc's Unix accounting software, first anglicising it for the UK market.

Apple Computer Inc has abandoned its attempted spin-out of its applications software arm as Claris Corp and has cancelled flotation plans and taken it back into the fold as a wholly-owned, independent subsidiary of Apple.

The sale of GEC's Hoskyns division, which now also includes The Instruction Set, is said to be near to a conclusion, GEC apparently having waited to get the buyer most agreeable to Hoskyns management.

Alliant Computer Systems Corp, Littleton, Massachusetts warns that second quarter turnover and profit will fall short of the company's and Wall Street analysts' expectations because of problems associated with the risks of a new product transition period, as it was the first quarter of volume shipments for the 80860-based FX/2800 minisuper, announced in January: some 30 of the machines have been shipped, and Alliant says it sees sales of \$20m rather than \$23m to \$24m, with an 8 to 12 cent loss per share against a 7 cent profit a year ago.

ICL says it has sold 350 DRS 6000 Sparc-based Unix machines worth £35m since January, and that the machine has been particularly well received by system houses and value-added resellers, who have been responsible for £1.4m worth of business so far.

DEC's elimination of 2,700 jobs since autumn has not been sufficient to get its cost base down to an acceptable level, and more severance incentives are on the way, according to the Boston Globe.

PaineWebber analyst Robert Therrien is insistent that Apple Computer Inc is going to win its copyright infringement suit against Microsoft Corp, and that "within the reasonably near future, we will see an injunction on Windows": his views pared \$1.125 off Microsoft's shares at \$72.50 in trading on Tuesday.

Interleaf Inc, Cambridge, Massachusetts warns that it will report a loss of about \$2.9m for its fiscal first quarter that ended June 30.

Sun Microsystems Inc has awarded \$222,000 in new community development grants to non-profit organisations in the San Francisco Bay and Boston areas, two regions in which the company has major facilities.

Ingres Corp, Alameda, California is now shipping its relational database management system and tools for IBM's RS/6000 workstation; IBM will also market the software for AIX on the RS/6000, PS/2 and RT; on a single node RS/6000, the price is from \$4,000 for the base product.

Researchers at Dataquest Inc expect the personal computer market to double to about 239m machines in use by 1994 with most of the growth coming from new types of machine such as notebook-sized portables.

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PLAN 9 USURPS UNIX AT BELL LABS

Unix operating system pioneers Dennis Ritchie, Ken Thompson and Brian Kernighan were on hand last week in London to speak at the UK Unix User Group's Summer 1990 Conference - and revealed that Unix is on the way out at its very birthplace, Bell Labs in New Jersey. Rob Pike, the Bell Labs windowing system expert who designed the "Blit" terminal, revealed that the Bell Labs team - which also includes networking expert Dave Presotto and Howard Trickey - now use their own designed successor to Unix almost exclusively. The system - named Plan 9 from Bell Labs after the cult 1950s science fiction film Plan 9 from Outer Space - is "culturally compatible" with Unix, but makes no attempt to follow standards. Plan 9 is a distributed system which turns its back on the current move towards workstations connected together via local area network, and instead opts for a combination of CPU servers, file servers and intelligent terminals. Pike said that although he would like "to see Plan 9 out the door" some time in the future, he was not aware of any plans from AT&T to ship the system at present. The highly portable system currently runs on Silicon Graphics and MIPS Computer Systems hardware at Bell Labs, along with purpose-built 68020-based terminals and AT&T's never released CRISP RISC processor, but Pike said a Sparc port is planned, along with a port to AT&T's own hardware, including an as-yet unreleased multi-processor i486. More Plan9 on page2.

INGRES "SET TO OFFER ITSELF FOR SALE" IN WAKE OF DEC RIFT

After a storming third quarter, Ingres Corp is preparing to report poor fourth quarter and year-end figures in the wake of DEC's sudden decision not to proceed with an investment in the company, and word in the industry is that rather than seek another major investor, it has called in Goldman Sachs & Co to find a buyer. "That is pure rumour at this point" was all that Ingres would say. An Ingres spokeswoman told Computer Systems News that the company would report sales of about \$150m for the year to June 30, which would represent a 15% rise over fiscal 1989, but an 11% decline for the fourth quarter, indicating a loss for the year. There are conflicting reports as to why DEC withdrew from its offer to take a 20% stake in Ingres. The most publicised version, and that repeated by Mark Wells, UK sales and marketing director for Ingres, is that the two could not agree on Open Systems - DEC said open systems equals Ultrix, and Ingres did not want to be compromised on this issue. Some industry observers believe that DEC wants to disengage from any relationship with Ingres, others say DEC is now committed to a diverse database strategy for Ultrix: Ingres is currently working with Ultrix, while Sybase is recommended for security-conscious markets. If DEC does abandon Ingres, Mark Wells believes that Ingres would not be impacted. He says that at a corporate level up to 10% of Ingres' revenues come directly from DEC, around 2% directly from ICL - but sales of Ingres for DEC's VMS represent a massive 60% of turnover. Wells also disputes that the DEC and ICL pacts mask the fact that growth in the rest of the business has been slow over the past two years, saying UK staff has grown 33% to 200 this fiscal. If Ingres does offer itself for sale, most fancied buyers are Hewlett-Packard Co and ICL - some say it was the former cosying up to Ingres that prompted DEC to announce plans for an equity stake; Wells says Hewlett-Packard has the fastest-growing Unix line on which Ingres runs; Hewlett would not comment.

NOW AUSPEX HAS TO GO TO JAPAN FOR CASH TO EXPAND

Almost all the venture capital going into Silicon Valley start-ups these days seems to be coming from Japan, and the latest to have to cross the Pacific is file server builder Auspex Inc, of Santa Clara, California. Auspex launched its first product, the NS 5000, last October (UX No 252). The machine uses four Motorola 68020s supported by a proprietary bit-slice processor, runs Sun Microsystems Inc's SunOS and Network File System, and was claimed to be the first machine to separate the Unix file system from the operating system to create a server capable of supporting over 100 diskless workstations. The company said at the time that it wanted to progress to a Sparc-based version of the machine, raised more money in January to take total investment to \$14.8m (UX No 266), and has now received another \$6m from the other Rising Sun. The new backers are Fuji Xerox Co - Xerox Corp is firmly in the Sparc camp, but has not come out with anything yet outside Japan - and the Nissho Electronics Corp arm of the Nissho Iwai Co trading company. Both backers will import and distribute Auspex's NS 5000 file server under separate agreements - Nissho Electronics will distribute the server, which is pitched at the same market as NetFrame Systems Inc's servers, while Fuji Xerox will be offering the thing under its own name in Japan, Korea, Taiwan, Philippines, Thailand and Indonesia. Auspex reckons that the deals will bring in another \$6m in licensing fees.

SOLBOURNE ADDS 248 MIPS 5E/900 SERVER, SYMMETRIC MULTI-PROCESSING UNIX

Still matching Sun Microsystems Inc pace for pace, clone-maker Solbourne Computer Inc this week weighs in with its answer to the SparcServer 4/90, launching its top-end Series5E/900 multi-processor, built around up to eight 40MHz Sparcs from Cypress Semiconductor. But the Longmont, Colorado, outfit has also gone one step further and introduced a symmetric multi-processing version of its SunOS-compatible operating system for the new machines. A uni-processor 5E/900 is rated at 31 MIPS and 4.1 MFLOPS, carries a SPECmark of 19.1 and costs £79,000. The dual-processor version comes in at £87,000, and rated at 62 MIPS, is claimed to match the SparcServer 4/90 measure for measure. In a top-end, eight-processor configuration, the 5E/900 is claimed to perform at 248 MIPS - unofficially reckoned to come in at 120 on SPEC's multi-processing throughput scale - and costs £150,000. Each come with from 16Mb to 1Gb memory, up to 27Gb disk, an 11-slot Kbus space - Solbourne's own 64-bit, 128Mb per second data bus - seven VME slots, four SCSI ports, two serial ports, Ethernet, SunView, X11, X-Windows, a C compiler and Solbourne's own SWM - X-Windows manager. They are out in September. The new symmetric multi-processing operating system - OS/SMP release 4.0D - is binary-compatible with previous versions, as well as SunOS, and is claimed by the company to boost applications performance by an average of 20% over previous implementations. However, like Sun, Solbourne remains coy about its plans for a Unix V.4-compatible operating system, Barrie Murray-Upton, vice president of European operations says that at best it is "a year or two away". He claims a worldwide installed base of some 1,600 Solbourne systems in the fifteen months products have been shipping - 130 of which are in Europe. The 5/900 is likely to be the last in the Series 5, they will be followed by the Series 6 next year, again using the CMOS Cypress Sparc, but with a clock rate that will reach towards 100MHz, he said. In the background Solbourne is quietly putting together the final pieces of its plan for entering the low-end, volume workstation business, where it hopes to compete with the likes of Sun, DEC and Hewlett-Packard. As yet unnamed, the workstations will use the 64-bit Sparc being jointly developed with Matsushita - parts will be out before the year end, with systems set for early 1991. Like boards for Solbourne's existing line, the workstations will be manufactured by Matsushita in Chicago - the plant is currently being fitted out to meet the demands of high-volume production.

BELL LABS STARTS WITH A CLEAN SLATE ON PLAN 9, FOR LEAN, MEAN, "CULTURALLY COMPATIBLE" DISTRIBUTED UNIX ENVIRONMENT

Standardisation has played a major role in establishing Unix as a mainstream operating system - but that doesn't mean that the original authors of Unix have to like it. Dennis Ritchie and Ken Thompson have been highly vocal about their disapproval of the ANSI C standard (see below), and Rob Pike, in his keynote speech about Plan 9 at the UK Unix User Group meeting last week, condemned a number of trends that are currently transforming the Unix industry in the commercial world.

Aside from the natural desire of a systems programmer to have free access to the source code for "hacking" purposes, Pike pointed to X-Windows as a standard that had been forced to develop too quickly due to commercial pressure, negating the possibility of a more technically elegant solution. He also argued that the use of networked workstations, each with its own private data and administrative problems, was wasteful and expensive.

Plan9 - "to make Unix fun again"

The response at Bell Labs was to re-think the technology "to make Unix fun again", and last week Pike, Dave Presotto and Tom Duff revealed the details of their Plan 9 distributed system for the first time. Plan 9 includes compilers, operating system, networking software, command interpreter and windowing system, as well as a specially-produced terminal - the Gnot - which uses a 25MHz 68020 with 4 or 8Mb memory, 1024 x 1024 two-bits per pixel display, keyboard and mouse, but no external storage or expansion bus. Plan 9 needs CPU servers (which can be multi-processors), file servers and terminals such as the Gnot to operate efficiently. The CPU server and terminal have the same operating system, although the terminal's version is configured for a single, smaller processor for running the windowing system and text editor. The CPU server, which has no local storage, deals with compilation, text processing and other applications, and is connected via direct memory access links to the file server, which holds all the permanent files (at Bell Labs the Silicon Graphics machine has 64Mb memory, 600Mb magnetic disks and 300Gb juke box of write-once read-many optical disks). Frequently used files are kept in the cache, with the magnetic disks acting as a secondary cache for the WORM disks, where the true file system resides.

The Plan 9 software uses a single file-oriented protocol and local name space operations, and avoids one of the main problems of current day Unix - size. The multi-processor operating system running on the CPU server has 454 lines of assembly language code, while the kernel proper use 3,647 line of C plus 774 header files - with 1,029 lines of code to interface to the 29 system calls. Drivers and network software add another 9,511 lines of code, resulting in a highly efficient operating system. Users interface to the system via the Gnot terminals, of which AT&T have produced several hundred. Unlike X-terminals, these offer the user a fully programmable computer running a virtual memory operating system that maintain a complete view of the Plan 9 system. The Gnot runs a windowing system that is implemented as a user-level file server, and with no bitmapped graphics code can be run on any machine. Users can work locally, or connect to the CPU server using the `cpu` command, still retaining the terminal's local name space. Most utilities have a familiar Unix feel to them, but all have been re-written, and Pike's "cultural compatibility" with Unix is all that has been aimed for.

First emerging between 1987 and 1988, Plan 9 was re-written from May 1989 to take advantage of multi-processing, with the Silicon Graphics file server first coming on line in February of this year. One of the main advantages of the system is seen as its portability - although MIPS-based systems and the Motorola-based Gnot terminals are used at Bell Labs, fast ports of the system to other appropriate hardware platforms, including Sparc and Intel systems, should present few technical problems.

But with its healthy disregard for standards, the system is unlikely to be offered as a commercial venture for the present at least, and like Unix itself, might have to gather support in the academic community before it is taken seriously elsewhere.

Ritchie on the limitations of C language

Unix and C language inventors Dennis Ritchie and Ken Thompson - both still with AT&T's Bell Labs research centre in New Jersey - concentrated on the intricacies of C and C compilers. Ritchie started off dealing with the pros and cons of the recently adopted ANSI C language standard, (UX No 262). "What do I think? I think its pretty good - they took the thing, and didn't make it any worse! In fact they made some improvements, but they it took them longer than it should have, and they would have done better to be more radical". One of the main headaches for C compiler developers is that because the new standard took so long to put together, there are now as many C programs around that use the old ANSI standard as the new - "its all very messy", Ritchie mused. Under ANSI rules, the standard now cannot be altered for five years, however Ritchie said that in the US, a body which goes by the name of the Numerical C Extensions Group - apparently composed of Fortran refugees - is working hard to address some of its limitations, such as how to take advantage of IEEE mathematics such as non-numbers and vector extensions, and parallelism. He went on to talk about the extensions and deletions that have been made to the language for the new C compiler that is being used by Plan 9, implemented in their labs on the - now commercially abandoned - AT&T Crisp RISC chip, and on Motorola and MIPS Computer processor architecture. One continuing problem with C is that it does not allow variable array sizes. "The solution was obvious to me", said Ritchie, "let arrays be expressions". He said that such a move had been considered ten years ago when C was originally being put together, but was dropped because "it was a pain to program". In fact the Free Software Foundation's C compiler tried to do the job - but it didn't work, he said. The problems, according to Ritchie, are where to get the space to do the job, and what to call them.

Thompson on ANSI C and syntactic sugar

Before Thompson went on to talk about the new C compiler itself, he offered his his own views on the ANSI C standard, "I have poor self-discipline, I am totally unable to follow a set of instructions - ie the C standard" - and that from the guy who invented C! And he warned the packed auditorium before he started - "C compilers - it's not an exciting subject". He revealed that the compiler AT&T is working on is structured differently to conventional C compilers, though the components are basically the same, and there are a host of extensions - "but its all syntactic sugar", he said.

Papers on Plan 9, C and C++ by Rob Pike, Dave Presotto, Tom Duff, Dennis Ritchie and Ken Thompson have been published in the UK Unix User Group Conference Proceedings, available from UKUUG Secretariat, Owles Hall, Buntingford, Herts, SG9 9LP, UK.

PACER TURNS HEWLETT UNIX LINES INTO MAC SERVERS

Following DEC and Sony Corp, Hewlett-Packard Co is the latest to make its midrange computers capable of acting as servers to net-works of Apple Computer Inc Macintosh machines. The company has turned to Pacer Software Inc, the La Jolla, California company that worked with Apple on development of the implementation for VAXes under VMS, and will offer the software on all its Unix machines the HP 9000 Series 300 and 800 workstations and minicomputers, and Apollo workstations. The software, to be marketed by Pacer, comprises PacerLink, PacerShare and PacerPrint for file, application and print services on the Unix server. More than 40% of Fortune 1000 companies are claimed to use both Apple Macintoshes and either HP 9000 or Apollo machines. The PacerLink communications software provides multiwindow terminal emulation using an asynchronous or Telnet communications. PacerShare is an implementation Apple's AppleShare 2.0 file server for the Unix machine and enables users to integrate their Macintosh and Unix system files, applications and database information. The Mac link to the server can be via AppleTalk over direct Ethernet connections or via Apple LocalTalk networks bridged to the Ethernet network. And PacerPrint enables users in either the Unix or the Mac environment to use Adobe PostScript-compatible laser printers. Up to 200 Macintosh users can be supported on an HP 9000 800 RISC machine. Pacer Link starts at \$1,200 per server and is available now worldwide. PacerShare costs from \$1,200 and PacerPrint starts at \$1,000 per server and both are planned to be available in the autumn.

LEGATO WINS SUN ENDORSEMENT FOR NFS ACCELERATOR PRODUCT

Palo Alto-based Legato Systems Inc looks to have won its big break, with Sun Microsystems officially endorsing the company's Prestoserve software and hardware accelerator for servers that use Sun's Network File System. Legato introduced the first Prestoserve products a year ago to help tackle performance bottlenecks with the file system by caching writes in non-volatile memory; Version 2.0 came out at the end of April (UX No 280). Sun announced the licensing deal with a series of other products designed to boost the database and file serving performance of its Sparcserver line. Sun Prestoserve is said to improve response time on a Sparcserver 470 and 490 by up to 75%: it will sell for £4,950 and will be available fourth quarter. Also introduced were a new intelligent peripheral interface disk drive subsystem, doubling the input-output transfer rate to 6M-bytes per second on 911Mb 8" IPI disk drives, and a 128Mb memory board to increase maximum memory to 672Mb on Sparcserver 470 and 490 systems, which sells for £337,400. The company also reduced the price of its 32Mb memory boards 32% to £10,800.

...AND FOLLOWS UP WITH A DEAL FROM DEC

Legato scored further points this week by also signing an agreement with DEC to license Prestoserve. It will enable DEC to provide enhanced disk input-output speed and throughput for its Ultrix RISC-based DECsystems which are used as file and database servers in much the same way that Sun expects it to boost the performance of its Sparcserver line. The product maintains full Unix file system semantics and compatibility with existing disk, controllers and software drivers on DEC systems.

BUSINESS GRAPHICS RUN SLOW ON RS/6000, SAYS MERRILL LYNCH

IBM, in its artless IBM way, may have carefully crippled the RS/6000 when it comes to running multi-user business applications supporting X Window stations if talk on Wall Street emanating from Merrill Lynch & Co can be substantiated. Merrill has some applications that it wants to put up on Unix servers supporting X-stations, and word out of the house is that the RS/6000 is not showing up well in the benchmarks. The problem seems to be that while the machine with the vector graphics accelerator is extremely impressive, when it comes to pixel-by-pixel graphics used to put up windowed applications for spreadsheets and such, the raw performance of the RS/6000 CPU is dissipated when a large number of X terminals need to be supported - but then most IBMers will tell you that the thing is intended primarily as an engineering workstation and not for running commercial applications.

DEC STORMS TO TWO-YEAR LEAD OVER IBM IN FDDI STAKES

DEC has moved ahead of IBM in the local area networking world, coming early to market with a full set of Fibre Distributed Data Interface networking products, something IBM can't promise before 1992 (UX No 289). The products, which use a DEC-designed FDDI chip set licensed to chip-makers such as Motorola Inc (UX No 250), include an FDDI bridge, concentrator and controller, and software to manage Ethernet and FDDI local net devices from a single network management station. The DECconcentrator 500 supports direct connection of systems, workstations or bridges to the FDDI's dual-ring backbone and costs £11,100 fully configured. The DECbridge 500 is an intelligent hardware, multi-protocol device which interconnects FDDI with existing Ethernet networks, transparently translating network data packets between FDDI and 802.3 Ethernet networks: it costs £18,500. And DEC's FDDIcontroller 700, out by the end of the year, will support direct connection of DEC's Ultrix-based DECstation 5000 range. DECelms network management software is a tool for managing both Ethernet and FDDI networks from a single station, and costs £1,753. DEC has been working on the 100Mbps timed token-passing technology for six years: the American National Standards Institute has now ratified the physical medium-dependent, physical layer protocol and media access control components of the FDDI standard, and is expected to complete the final station management component by early 1991. DEC and others are using an intermediate version of SMT expected to be compatible with the final standard.

...AS IT ENHANCES ITS ENTERPRISE MANAGEMENT ARCHITECTURE

Also at DECWorld last week, DEC added the latest components to its Enterprise Management Architecture, something it says has cost more to develop than either VMS or DECnet since it was instigated two years ago. The four new packages, known as DECMcc, Management Control Centre, enable multi-vendor networks to be managed from a single point. DECMcc Director, included with the DECnet licence, provides a structure for the storage, modelling, collecting and processing of multi-vendor network management information, and includes an integrated database management system for network management data, as well as object-oriented programming facilities. There are two packages, Basic Management System and Site Management System for local area network management, and a developers toolkit and wide area network designer for evaluating large networks. All run under VMS, with the Director package promised under Ultrix in September 1991; DEC also has a DECMcc Management Station for Ultrix as the first stage in Ultrix DECMcc line.

**GERMANY'S LITTLE GREEN BOOK ON OPERATING SYSTEM SECURITY
MAY BE FOLLOWED BY EUROPE**

Janice McGinn reports

GISA, the German Information Security Agency, recently awarded security approval to Tandem Computers Inc's Guardian operating system on the basis of its Green Book classification (UX No 286). The Book is the first European attempt to address the problems that many companies face when they apply for US Orange Book classification, which is accused of being difficult to obtain and oriented towards military rather than commercial needs.

The Agency says that the Green Book's information security criteria have been developed for the the evaluation of the degree of trust that can be placed in information technology systems. The book and criteria are divided into six chapters. Chapter 1 introduces the objectives underlying the criteria, and focuses on the difficulties of evaluating the degree of trust that that can be placed in a system. Chapter 2 lays the foundations that form the structure and content of security criteria, and it defines the three basic threats as loss of confidentiality, loss of integrity, and loss of availability. Chapter 3 introduces the basic security functions of secure systems. These are identification and authentication, administration of rights, verification of rights, audit, object re-use, error recovery, continuity of service, and data communications security. Chapter 4 describes the points to be satisfied by a mechanism for each security function in order to achieve an assurance rating, and these ratings relate to the degree of trust that can be placed in a mechanism. Chapter 5 describes 10 different classes of functionality. The first five describe the security policy derived from the Orange Book, and the rest show various security requirement combinations to be enforced by differing systems. The number of classes of functionality is not limited so that future advanced systems can also be evaluated. Chapter 6 contains a detailed list of the criteria that enable the degree to which a system can be trusted to be rated. The eight assurance levels are arranged hierarchically and Q0 applies to those systems which do not meet the requirements of the higher levels. The principal features considered in rating are the the quality of security policy; quality of the specification of the system components to be evaluated; quality of mechanisms used; quality of the separation from system components not to be evaluated; quality of the software development process; quality of the operational behaviour; and quality of user documentation. The UK, Germany, and France are to publish jointly agreed security standards later this year, but copies of the Green Book may be obtained from GISA, which is based in Cologne.

**LAY-OFFS: 130 JOBS TO GO
AT ENCORE COMPUTER...**

Fort Lauderdale, Florida-based Encore Computer Corp hasn't yet got its vastly expanded operations onto an even keel after the acquisition of Gould Computer Systems, and the company has announced that it will make redundant 130 of its 1,825 employees. It warns that it expects a significant loss for the second quarter to June 30 and blames a shortfall in revenue and restructuring costs associated with new product introductions. It thinks it may be back in profit this quarter.

...AND 91 AT DATAPOINT

Datapoint Corp, San Antonio, Texas is cutting its workforce by 91, 54 from headwaurters, 37 from the US-wide sales force. The firm blamed continuing depressed sales in US.

**ICL TO MAKE CIRCUIT BOARDS
FOR SUN'S SCOTTISH PLANT...**

Sun Microsystems Inc has strengthened its relationship with ICL by giving the UK company the contract to manufacture the circuit boards for the Sparc-based workstations it will manufacture at its new plant in Linlithgow, Scotland. The contract, with an initial term of two years, is valued at £20m annually and starts in the fourth quarter. ICL has one of the most advanced multi-layer circuit board manufacturing plants in Europe at its Kidsgrove base, where it currently makes the boards for its Series 39 mainframes, DRS 6000 Unix machines and personal computers. The pair will jointly invest £1m in board processing kit and test equipment.

**...AS SUN AGREES TO JOINT
MARKETING OF ICL DRS 6000 IN US**

Recognising that its Sparcservers are inadequate where the requirement is for full-scale multi-user business computers, Sun Microsystems Inc has again turned to ICL to fill the gap, and has agreed to a joint marketing agreement under which Sun will offer its workstations and servers while ICL will offer the Sparc-based DRS 6000 Unix machines, which include symmetric multi-processing extensions that Sun also does not have. In the first instance, the agreement covers sales in the US, but the two say they expect to extend the agreement worldwide later this year - although Sun UK insisted that it had no plans to offer the systems. The two will make joint sales calls and engage in other activities to promote installations that include workstations and servers from Sun and the ICL DRS 6000. International Data Corp expects Sparc-based systems to account for 61% of the RISC market by the end [of the year, with MIPS having 19%. Sun already offers ICL's OfficePower in its software catalogue.

**... AND ADDS SIMPLIFYSQL
FOR DATABASES ON THE SPARC**

Sun Microsystems Inc is persevering with its Open Look graphical user interface for Unix, developed with AT&T Co, and has enhanced it with SimplifySQL, a set of tools that provide users with single consistent look and feel for all three relational databases most widely used on its Sparc family - Ingres, Oracle and Sybase. The window-based tools in SimplifySQL are designed to make it easy to perform such tasks as creating databases, formulating queries and generating reports, replacing the SQL commands that vary according to the database manager with a single set of pull-down menus - and International Data Corp reckons that almost all Fortune 1000 companies use two or more database managers. Sun performed initial product development with Ingres Corp, while Oracle Corp and Sybase Inc also provided technical assistance; support for Informix Software Inc's database is promised as well. The thing consists of four modules: SessionManager offers a visual way to pick the database manager being used and to open and close databases; DataBrowse enables users to create database queries by using the mouse cursor driver on the desired tables and data fields rather than typing in SQL commands; ReportWrite is a graphical report editor that enables users to create customised database reports interactively; and SchemaDesign is a tool that makes possible the graphical creation, viewing and modification of database layouts, including tables, table relationships and data fields. SimplifySQL is \$1,000, will start shipping in 90 days, and needs SunOS 4.0 up.

TEKTRONIX DRIVES AWAY FROM 2D MARKET WITH NEW TOP-END 3D WORKSTATION...

Signs in the US are that Tektronix Inc, Wilsonville, Oregon, is slowly but surely moving away from its low-end 2D CISC-based workstations - which are facing stiff competition from the low-cost offerings from Sun Microsystems and Hewlett-Packard - in favour of the higher-end 3D market. The introduction of its most powerful workstation yet - the XD88/35 - has done nothing to dispel rumours of this drift. Built around a 25MHz version of the Motorola 88000 RISC chip, the XD88/35 is rated by the company at 21 MIPS and 2.5 MFLOPS, and starts at £31,300 - \$32,000 in the US. Upgrades from the XD88/30 cost £6,346. With 8-bit planes and a 16" colour monitor, it comes with Core TekImaging, a 4G graphics accelerator, and supports Tektronix's Digital Video Interface. Tektronix has also signed up for IXI Ltd's X.desktop software on all of its 88000-based systems, following a worldwide agreement signed between the two.

...BUT ENFORCES X STATION LINE...

At the same time Tektronix has also revealed its second generation of X Stations, TekXpress, which incorporate TekColour, a new colour matching system that matches screen colour with hard copy output. Built around Motorola 68030 and Texas Instruments 34020 processors the stations come with from 3Mb to 13Mb memory, and all models include TekColour, X-Windows 11.4, a Motif style interface, and support NFS and Ethernet with TCP/IP and DECnet. The 16-level greyscale XP23 with a 19" monitor starts at £2,900, the colour XP25, XP27 and XP29 models come with 14", 17" and 19" screens respectively, and cost £3,300, £4,250 and £5,000. TekColour is based on the TekHVC - hue, value, chroma - colour model developed by Tektronix Laboratories in the US, and is currently being evaluated by the MIT X Consortium as an extension to the X standard according to the firm.

...WHILST HEWLETT DEBUTS ITS SECOND GENERATION X HARDWARE...

Meanwhile, not to be outdone, Hewlett-Packard Co has revealed its second-generation HP 700/X X-terminals, which will ship from August. Offered with from 1Mb to 9Mb RAM, in 14" to 20" sizes and in four- and eight-plane colour or 256 greyscale versions, they use an 80188 processor running at 16MHz, and the Texas Instruments 34010 clocking at 60MHz. Base systems - without monitor, keyboard or mouse - cost \$2,700, a 19" monochrome monitor is \$3,000, a 14" colour display costs \$3,200, and a 16" colour version is \$5,000.

...AND EUROPE ENTERS X TERMINAL FRAY WITH TANDBERG DATA DISPLAYS

Tandberg Data A/S, Oslo, Norway, this week becomes the first European manufacturer to enter the X-terminal market, introducing 17" monochrome models for Unix and personal computers, aimed at commercial office environments, rather than the scientific marketplace. With a resolution of 1024 by 768 pixels, and a 78Hz refresh rate, the two are built around Texas Instruments' 34010 graphics processor and come configured with from 1.5Mb to 4Mb RAM, X-Windows, Ethernet, TCP/IP, and two, or 16 grey shades, as well as a Faraday screen shield and reduced radiation kit - they are out now. The TDV 6230 for Unix costs £3,000. The TDV 5260 for personal computers running MS-DOS includes a monitor, graphics adaptor board and software and costs around £2,000. Available initially in Europe only, Tandberg is investigating the possibility of striking up distribution deals in the US.

SEQUENT ADDS MID-RANGE S16 AND STANDARDS-CONFORMANT DYNIX

Sequent Computer Systems Inc, Beaverton, Oregon, has added a mid-range Symmetry S16 to its range of on-line transaction processing systems, and has come up with a new version of its Dynix Unixlike operating system which is claimed to support a range of industry standards. The S16, with from two to four Intel 80386 processors is rated at between 10 MIPS to 30 MIPS depending on configuration and can deliver up to 47 transactions per second. Priced at \$50,000 and upwards it is compatible with the rest of the Symmetry line, has from 8Mb to 80Mb memory and from 316Mb to 2.5Gb disk. The Dynix/ptx operating system, which also runs right across the range, is claimed to be X/Open, Posix and AT&T SVID-compliant. It includes a parallel version of Streams for symmetric multi-processing and support for AT&T's Multi-National Language Supplement release 3.2.

BAC HAS RISC, CISC, EISA AND UNIX - ALL IN ONE BOX

Brian Arnold Consultants, Osnabruck, West Germany, is offering a combination of multi-processing RISC, CISC, EISA and Unix - all in one box. Designed at BAC's development centre in Temple, Texas, the BAC 4860-25 can be configured a workstation or file server, and comes with two-to-four 80860s - and two 80486s from the Autumn - a Weitek 4167-25 maths co-processor, and is built around a PC-AT-compatible EISA bus. It supports AT&T, SCO, Interactive and SunOS Unix variants in its workstation guise, or Banyan Vines - and Novell Netware when it arrives for the 486 - as a server. With from 4Mb to 64Mb RAM, 380Mb disk, a floppy drive, six EISA slots, four serial and two parallel ports, it is rated by BAC at 55 MIPS. The workstation variant is aimed at computer-aided design and desktop publishing markets. For dual 80860 processor hardware alone, it costs £10,000 now, in a full six-processor configuration, rated at 240 MIPS, the price is \$60,000 from the end of the year. It is the first in what BAC says will be a family of multi-processors.

NORTHERN TELECOM LICENSES HP-UX FOR USE WITH ITS TELEPHONY PRODUCTS

The Unix takeover of the telecommunications world is proceeding apace, and now Northern Telecom Ltd has taken a worldwide licence to use Hewlett-Packard Co's HP-UX implementation in an agreement projected to generate several hundred million dollars in additional revenues for the two companies during the next few years. HP-UX will be used with Northern Telecom's current DMS SuperNode switching systems, which are understood to be built around Motorola 68000 family chips, and with its emerging S/DMS fibre-optic transmission and S/DMS broadband switching products. But in January, Northern indicated a move to the use of MIPS Computer Systems Inc RISC chips in its products with a version of the DMS-10 rural exchange using the MIPS R-series (UX No 269), and converting HP-UX to run on MIPS processors would be a non-trivial task. Use of HP-UX is intended to provide a tighter integration of general purpose computers and telecommunications systems, enabling telephone companies to connect any Unix workstations and minicomputers. HP-UX will be used in transmission products from the fourth quarter of this year, and on access and switching products next year.

NIPPON STEEL MICROS FOR US?

Nippon Steel Corp, which has relationships with Sun Microsystems and Concurrent Computer Corp, and was an investor in Supertek, which is now part of Cray Research Inc, is very serious indeed about its diversification into computers and has established NS Computer Systems Inc in Santa Ana, California, capitalised at \$600,000, to investigate the prospects for manufacture and marketing of MS-DOS personal computers in the US - perhaps before it enters the Japanese personal computer market. The company denied a report that it planned to start making notebook personal computers for the US market this year.

FIVE MONTHS AFTER RS/6000 LAUNCH, IBM BRIEFS INDUSTRY ON PROGRESS

Maureen O'Gara reports

In a rare mood of glasnost, IBM last week hosted a press conference in New York City to brief reporters on the current state of AIX and the RS/6000. While Big Blue didn't exactly hold the kimono wide open, the "update" - some four months after the Rios debut - did provide a little peek behind the curtain.

Although the assembled executives weren't very forthcoming about exactly how many 600s they're producing, Advanced Workstation Division, AWD, assistant general manager Bill Filip was pleased to report that initial orders came in at the "high range of expectations," which has induced them to "increase production capacity for the year." Filip avoided being precise but suggested that the total would be "substantially more" than 15,000 units. (IBM watchers such as the International Technology Group, ITG, suspect this could mean 25,000 to 30,000 units this year if you throw in Europe and figures they're good for 120,000 to 150,000 next year). This is good news for people who have been chaffing under backlog constraints - or fears of them. The situation has improved, Filip said, in the last 30 days. Bottom line, "everyone who wants one will get one in 1990." Luckily for IBM, half the initial orders specified third quarter delivery anyway, with 17% wanting the stuff right away and another 23% willing to wait until the fourth quarter. Leadtime is January and IBM is shooting for 30/60-day availability by the end of the year. Customer shipments began May 21 in the US, (June 30 in Europe), and IBM has already delivered 2,000 to the buying public. Another 4,500 machines have been installed internally or are out with IBM Business Partners. IBM wanted to quash reports that heavy numbers of machines are going to only a few customers. No one has more than 3%-4% they said.

Direction

IBM also mapped out where it finds its machines going. According to Jeff Mason, director of advanced workstations and AIX systems for IBM US Marketing & Services, 31% of the backlog is earmarked for the industrial sector, 30% for financial applications, 29% for the general and public sector - half of which is universities - and the remaining 10% for the federal government. IBM currently finds its product mix is 57% workstation, 35% multi-user and 8% LAN server. However, it figures with time this breakdown will change to 60%, 25% and 15% respectively. In addition, 49% of the orders are for 2D colour graphics, Mason said, followed by 24% wanting 8-bit 3D colour, 14% wanting greyscale and 13% wanting 24-bit 3D colour.

So IBM has its cap set on taking the market's lead position. To get there will take sales of "well over 100,000 units a year" for the next few years, it estimates. The message it wanted to relay last week was that it's "on track to achieve [its] goal". (Doubtless targeting Sun Microsystems Inc, it preens over the fact that over 50% of its orders are for technical workstation configurations). Never having been a Unix player before, IBM feels the need to reassure the market it's got the stuff it takes. It says it'll have 7,000 applications running by the end of the year, equal to Sun's much desired catalogue. (IBM figures 1,500 of these are key to buying decisions but they are pretty much the same applications that run on everybody else's machines.)

It's training its people in AIX, the 6000 and the competition to be able "to go head to head" with Sun, DEC, Hewlett-Packard, Unisys and NCR selling Unix. In addition, it has lined up 300 resellers, 200 RT folk and 100 new ones mostly with technical workstation experience. Of course none of these ingredients distinguish IBM from the pack of other Unix peddlers. But Blue figures it's got the competition dead to rights on price/performance and was quick to trot out every benchmark that showed it in the lead.

Basically, the results net out to the 6000 being twice as powerful as its CMOS competitors. To hold the high ground - and follow the workstation pattern - IBM says it's committed to improving performance twice a year and doubling it every 12 to 16 months. Young as Rios is, there may be some improvements later this year, according to Nick Donofrio, AWD president. However, that's not too surprising considering the 6000 should have come out last October - which makes it six months older than it seems. ITG claims 1991 versions of the box - like the promised three-chip CPU model - are already with software vendors. With the kind of overhead IBM has to support, it knows it can only cut prices just so far. The competition can rest assured it won't be up against rock-bottom pricing. IBM, however, is planning a "very low-cost" diskless unit that will be a "distributed computer software statement" as well as an under \$10,000 workstation - both in the first half of next year.

"Golden" code

Machines are only as good as the code that runs them and after much mishap IBM figures it's finally got it right. The version, dubbed "golden" as well as release 3.1 - there was never a 3.0, only 3 - was described at the press conference as being "as good as any code shipping today from the IBM Corporation." Historically beset by bugs, AIX and its two million plus lines of code is "golden," they said, "because you don't have to re-compile anymore."

The IBMers remained cryptic about how they are going to "merge and align OSF/1 into AIX", promising a sequel update closer to November when OSF/1 is scheduled to appear. Previously, IBM confirmed it is going to shelve AIX 3 in favor of OSF/1 on all platforms, (UX No 280). Although the trio did not expand on it publicly, their overheads indicated they plan to start licensing AIX source code in the first half of 1991 - presumably to large end-users and developers. B1 security and national language support are due in the same timeframe. They said not to expect the AIX database, (UX No 285), in the next 12 months and indicated that while they've had a few discussions about licensing their proprietary Rios RISC chip, a notion they had last year, they won't be doing anything about it "at this time." IBM said the old RT was still shipping but naturally orders are less than the 6000s. Customers are just filling out installations.

BATTLE COMMENCES WITH THE GENERATION DATABASE MANIFESTO

by Katy Ring

As reported last week, (UX No 290), the big relational database guns have been rolled out, and their sights are firmly trained on the new start-up object-oriented database vendors. The battle plan has been drawn up in an extraordinary document called the "Third Generation Data Base System Manifesto", written by Michael Stonebraker, developer of Ingres. The manifesto has been endorsed by Larry Rowe, Professor of Computer Science at Berkeley University and a fellow Ingres colleague; Bruce Lindsay, architect of IBM's DB2; Jim Gray, author of Tandem's NonStop SQL; Mike Carey (described as an object-oriented aficionado); Michael Brodie, director of database research for GTE; Phil Bernstein, director of DEC's Cambridge, Massachusetts DBMS lab; and David Beech, technical advisor within Oracle.

These senior statesmen of database management systems have decided that as the 1970s was the decade of the first generation, hierarchical database, and the 1980s were the years of relational database dominance, one thing the 1990s are not going to be is the era of the object-oriented database. Rather the third generation database, nameless at present, will be an extension of relational methods.

"Persistent C++"

The third generation database embraces three philosophical tenets. The first of these states that data management, object management and rule or knowledge management must all be addressed in the next generation of databases. In the data management stakes Stonebraker says that databases must be able to manage 100 transactions per second from 1,000 terminals; as for object management they must be able to store non-traditional data elements such as images and arrays; while in terms of rule management they must be able to apply rules about the data for integrity constraints and business processes. The relational heavyweights have decreed that systems that don't address all three requirements will win only small niche markets - this is a reference to object-oriented databases, whose forte is object management, and which Stonebraker & co refer to as "persistent C++", the vendors themselves being described as the "O Companies". The second tenet of the Manifesto decrees that non-procedural access and data independence - both features of current relational databases - must be retained. Stonebraker refutes claims by the object-oriented vendors that computer-aided design users, which comprise the natural constituency for object-oriented databases, do not need query language. He argued that managers of the designers using CAD applications want to run queries. The point here being that if the mighty relationals decree that SQL is necessary, object-oriented databases written in C++, will have to offer SQL, which slows their performance. The third tenet is interoperability: databases must interoperate with distributed database management systems, C programs, Fortran programs, business applications like Lotus 1-2-3, or software engineering tools. Therefore, database systems should not be bound too tightly with any specific language - are you paying attention "persistent C++" vendors?

In addition to these three tenets, the manifesto offers 13 detailed propositions - the first collection of these refines object and rule management where the big relationals are most vulnerable: according to the manifesto, users can look forward to rich type systems moving beyond character string or integer types to x,y co-ordinate type points (so that a database will know, say, the geographical relation between addresses), and floating point number systems capable of dealing with an array as a data type (useful for records of employees whose salaries vary from month to month as the database could then manage an array of integers).

Multiple inheritance, the core of object-oriented databases, will appear in relational systems so that a create statement can be extended to cope with inheriting data from previous fields arranged hierarchically. Functions will be installed on the database, accessed by SQL, enabling code to be shared among applications so that whole records can be taken as an argument, not merely two integers. Rule management or, as the big relationals call it, referential integrity, will be installed on the database and will be universally applied by the database system. According to Stonebraker the successful database companies will be those that meet the propositions laid down in the manifesto and the race to get to the finishing line first is on. As might be expected he is tipping Ingres to win by 1993 or 1994, saying that Oracle and DB2 satisfy none of the manifesto's propositions at the moment, nor do SQL2 or SQL3. He stated categorically that successful vendors will overrun the standards process because it is not aggressive enough. The vendors do have their work cut out, however, since such sweeping changes, implemented via proprietary SQL extensions, mean that they must, for example, rip out the hard-coded type system in the heart of the database and rewrite it from scratch. The changes that these vendors make in their internal execution engine will lock object-oriented databases out from accessing relational third generation technology and will lock users more tightly in to vendor-specific databases and application design methods. "Users", says Stonebraker, "will have a hard time, and consultants will make a lot of money".

StarBase

However, with their sights so firmly trained on companies like Ontologic and Versant Technology, the relational guns have overlooked Interbase Software Corp's database management system marketed by Cognos Inc as StarBase. For Cognos now has an application development environment which already addresses the manifesto's three tenets, and appears to be closer than any other vendor to meeting the 13 propositions in the document. StarBase features triggers to enable business rules to be built into the database, BLOBS (Basic Large Objects) offering the storage of images or other unstructured data, two-phase commit support and a client-server implementation offering data placement anywhere in the network; by year end it will also store functions. Cognos has always maintained that it was ahead of the competition - now its rivals are supplying it with documented evidence to support such claims. Qualms that Cognos has about its featherweight status or the fact that StarBase is not an in-house product should be put aside and it should take up the Third Generation Data Base Manifesto as the best marketing opportunity since Christmas. Please go for it, Cognos!

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New ports for Boulder, Colorado-based Netwise Inc's RPC Tool products include IBM PS/2s running AIX and OS/2 LAN Manager, Hewlett-Packard Co HP 9000 minis running HP-UX and DEC VAXes running TCP/IP on VMS and Ultrix: prices go from \$1,750 for AIX to \$38,650 for VAX/VMS.

According to Computerworld magazine, Computer Associates is planning an entire new range of commercial Unix products over the next couple of years, including an SQL-compatible database and a code generator that are being readied now - the company plans to make a statement of direction over the summer period.

A new 44 MIPS version of Hewlett-Packard Co's Precision Architecture - PA RISC - chip will shipping in volume by March next year tagged at around \$21,000, the same price as the existing 22 MIPS implementation: clock rate is doubled to 36.4MHz, cache grows to a full 1Mb and the chip count has been reduced from seven to three by cutting space between components from 1.5 micron CMOS to 0.8.

Taking its first steps in the lucrative federal procurement market in the US, NeXT Computer Inc has won a \$250,000 contract from the Washington D.C.-based Naval Research Laboratory for 26 of its NeXT workstations.

IBM Deutschland GmbH has established a subsidiary in Dresden: the new IBM Deutschland System & Service Ost GmbH - headed up by Alfred Esslinger - will handle both hardware and software sales and installation, and will operate out of Dresden and seven other East German cities, including Erfurt, Magdeburg, Neubrandenburg and Rostock, serving dealers and managing joint ventures in the East.

System Strategies Ltd's Alex - A Language Extension to X - graphical user interface development tool, which recently won favour with AT&T, (UX No 284), has revealed one of its promised OEM deals, (UX No 288), signing up with UniPress Software Inc, which will distribute the tool throughout the US, as well as in Europe and Japan through its subsidiaries.

Telematics International Ltd, Basingstoke, Hants, has developed a new network monitoring and fault-detection system on Sun's Sparcstation-1 called Graphics Workstation Software - out in the fourth quarter it costs £8,460.

Control Data Corp is to begin offering Lynx Real-Time Systems' LynxOS real-time Unix operating system on its MIPS Computer System RISC-based series 4000 systems.

Bedford-based Facts Software has introduced a new range of accounting modules for Unix, Xenix and AIX: Unifacts 4GL integrates with the popular Unix databases as well as to other C-ISAM-compatible 4GLs, no prices given.

Keith Prowse, the London-based entertainments promoter and ticket agency has installed two Sun Sparcserver 370s running software from Softix Inc, Seal Beach, California, a subsidiary of the Australian Consolidated Press Holdings group: the system supports around 100 users in the West End, with 90 other offices around the UK linked up by Ethernet, and will be extended to Prowse's operations worldwide.

WordTech Systems Inc's Quicksilver/Unix compiler for dBASE - which it markets for developers Quicksilver Software Inc - is coming to the UK via the software division of Willaire Electronics plc, High Wycombe, Buckinghamshire, which has signed a distribution deal with California-based WordTech.

After a considerable amount of "uhming and ahing", the House of Fraser's Knightsbridge-based Harrods department store has opted for a Unix strategy based around three Sequent Symmetry systems: Sequent beat DEC, Pyramid and NCR to the contract - a six-processor S81 running Oracle will replace an existing DEC VAX 8550, an S27 will be used for development and support, whilst an S81 will run financial applications - they will be sited at Harrod's distribution centre in Osterley, Middlesex, the S81 supporting over 100 users.

San Jose, California-based Minx Software Inc's Minxware manufacturing software system is now available on DEC's DECsystem and DECstations running SCO-Unix.

Grafpoint, San Jose, California, claims that its TGRAF-X software can now emulate a Tektronix 4125 graphics terminal, allowing IBM RS/6000, DECwindows, Motif and X-Window users access 4125-compatible host applications - a monochrome version is due in the third quarter: and Grafpoint's Tektronix 4107 terminal emulation software under X-Window is now shipping for VMS and Ultrix.

Hummingbird Communications Ltd, Markham, Canada, has won an order from Ford Motor Co, Dearborn, Michigan, for its HCL-eXceed range of X servers for personal computers - turning them into X terminals - Ford is expected to install between 2,000 and 5,000 copies of the software over the next three years: Ford is now likely to be casting around for an interface that can sit on top of eXceed.

And Control Data Corp, Minneapolis, Minnesota, has signed up for eXceed, which it will sell OEM as Vista eXceed to personal computer users.

In addition to new hardware and operating system software - see front page - Solbourne Computer Corp last week reduced the price of memory on its Series4, Series5 and Series5E systems - 16Mb now costs \$6,000, 32Mb is \$13,000 and 128Mb is \$45,000: and the company has reduced the price of its IPI disk drives to \$14,500 and 1Gb disks to \$11,500.

Santa Barbara, California-based Rockwell International Corp subsidiary CMC's OpenWare software for NCR Tower servers is to be distributed by Sea Change Corp, Toronto, Canada.

Reports from the US suggest that Hewlett-Packard Co will next month begin bundling AT&T's Tuxedo transaction processing monitoring software in with its HP-UX Unix-alike operating system.

Unisys Corp says it will unveil "a new, standards-based processing architecture in October to enhance and be compatible with present Unisys products": the thing is presumably its the promised answer to IBM Systems Application Architecture for enabling applications portability between its disparate machines.

ICL has turned to Burlington, Massachusetts-based Xylogics Inc for a VMEbus communications controller for its DRS 6000 Unix machines: the three-year agreement for Xylogics 780s - one to 24 of which will go into each DRS 6000 machine - is expected to be worth at least \$10m.

As predicted (UX No 287) DEC is not offering Ultrix on its new VAX 4000 replacements for the Microvax 3800 and 3900 ranges, introduced last Monday at DECWorld - but it is likely to continue to offer Ultrix where there is no head to head alternative in its MIPS RISC-based line, such as the forthcoming VAX 9000 top-end systems.

Sun Microsystems Inc says that its SunCD CD-ROM storage device will now be a standard feature on many of its Sparcserver and Sparcstation at no extra cost: the Mountain View company says it is committed to distributing its software exclusively on compact disk by 1991.

Unisys Corp is the latest to adopt Novell Inc's Portable NetWare, initially for its Intel 80386-based U6000 Unix machines: it will go onto the Convergent S/Series later.

Cray Research Inc said it sold a Cray X-MP/216 supercomputer to Thomson-CSF SA for electromagnetism research and other scientific applications: no value was disclosed.

Intelligent Environments Ltd of Richmond, London is to have its OS/2 development tool Applications Manager distributed by IBM Nederland NV and IBM Switzerland.

Microsoft Corp chairman Bill Gates has so much experience with bugs that he is diversifying into engineering a few of the things: he is the largest shareholder, with 10%, in a new Seattle biotechnology company, Icos Corp, which plans to develop biological and pharmaceutical products for rheumatoid arthritis, multiple sclerosis, asthma and other inflammatory diseases; Gates also holds rights to buy another 10% of Icos at market prices during the next 10 years; it has raised \$33m in venture funding altogether.

Rumours from Cambridge (England, not Massachusetts), suggest that IXI Ltd did put in a bid for a part of its now defunct neighbour Torch Technology, (UX No 272), which was eventually split between fellow Cambridge companies Unipalm Ltd and Cube I.T. - but that the bid amounted to little more than an offer for the Torch photocopier!

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STC CONFIRMS FUJITSU TALKS ON ICL BUT FORECAST STORM FAILS TO GATHER

STC Plc last week confirmed that it was in discussions with Fujitsu Ltd about the latter taking a majority stake in ICL, and the UK government is unlikely to intervene if the deal goes ahead; there were some dark imprecations from trades unions but threats early on in the day of a political storm failed to materialise, and the issue was not raised at Question Time in the Commons. The Department of Trade & Industry said that it was "highly unlikely" that ministers were privy to the discussions and that any such arrangement would be regarded as a purely private transaction between the companies. Tory backbench MP Kenneth Warren, who has taken an interest in ICL's future over the years, said he was not surprised at the news and assumes that the Department of Trade & Industry and the Ministry of Defence will be looking into the matter to know Fujitsu's position in relation to any sensitive government and defence contracts that ICL might hold: he thought the idea that the move constituted a national tragedy was absurd, saying ICL must go about its business in the best way it can; "Fujitsu is a quality player in the world market and ICL should get on and do it". Another Tory backbencher, Emma Nicholson, who belongs to the Parliamentary Information Technology Committee, said that she was very, very sad indeed to hear the news - she is particularly sad to know that Britain cannot support computer manufacturing; Ms Nicholson began her career in 1961 as a programmer with ICL.

UNIX INTERNATIONAL TO REVEAL DISTRIBUTED COMPUTING RESPONSE IN THE AUTUMN

Unix International expects to publish its overview of distributed computing come September or October. It's had a 43-member work group, chaired by Locus Computing and Sun Microsystems, working on the issues for a couple of months and UI's project manager Tom Bishop now figures that 20% of the long-term solutions UI recommends will be lifted from Plan 9, the "culturally compatible" successor to Unix that Unix developers over at Bell Labs have been writing for the last two to three years (UX No 291). Plan 9 assumes the future of Unix is networking and so its impact on UI's DCE statement will be no surprise. Plan 9, however, is a lab "animal" - not a commercial development - and its originators are understandably biased towards decentralised peer-to-peer environments rather than the client/server platforms that are selling in the marketplace today. For that reason, Plan 9 will probably form the basis of only 10% of the work group's immediate DCE solutions, Bishop said, looking to it for such items as improved applications support in homogeneous situations. UI's other near-term objectives include Kerberos, X.400, X.500 and an improved RPC mechanism. Unlike the Open Software Foundation, the UI team prefer a modular approach to the RPC issue and is believed to be giving its blessings to the negotiations understood to be going on between AT&T Unix System Labs and Netwise for the acquisition of the latter's Remote Procedure Call technology. A deal between the two which was due to be announced this week has been put back until September, sources say.

COMPAQ ADDS 486 BOARD FOR SYSTEMPRO, AND TWO NEW DESKPROs

Compaq Computer Corp is this week expected to reveal the long-awaited 80486 processor board for its EISA bus-based multiprocessor Systempro PC System server launched back in November, (UX No 257), according to PC Week. The board, with a 33MHz 80486 and 512Kb of cache, is likely to come in around \$6,000, and can either replace the existing 33MHz 80386 or augment it. The Systempro can house up to two processors, and can run a variety of multi-user operating systems such as Unix System V/386. A Deskpro 386/33L and Deskpro 486/33L are also expected. The two machines come with 128Kb cache, 4Mb memory and six or seven EISA slots. There are three models - 120, 320, and 650 - and the last two have ESDI drives with 16-bit ESDI DMA cards, no prices given. All are available this month.

OSF WAVERERS "ARE SECRET UNIX INTERNATIONAL MEMBERS"

News comes this week that AT&T supporters club Unix International has been covertly harbouring two additional members for some time now - the two being founder members of rival organisation the Open Software Foundation. Sources say that one is Hitachi Ltd - which has had a foot in the Unix International camp for sometime - and the other maybe Siemens AG - it has strong links with AT&T via its involvement in the telecommunications business. Such defections would leave the rest of the OSF founders - IBM, DEC, Hewlett-Packard together with the sleeping Dutchman Philips NV - trying to hold back the Unix floodgates, like King Canute's ill-fated attempt to stop the rising tide. Siemens is not only irked enough with OSF's move to Mach for its operating system technology that it's going to substitute AT&T's SVR4 instead of OSF/1 on its new MX boxes, (UX No 290); it's also covering its Distributed Computing Environment bets as well and is understood to have now "aggressively initiated" talks with Netwise Inc, a company it previously had no truck with, for its RPC technology. Apparently the current Siemens strategy allows for offering both OSF's DCE technology, when it comes, as well as the opposing Sun/Netwise solution OSF rejected.

SUN TO BRIDGE GAP BETWEEN SPARCSTATION SLC AND SPARCSTATION 1+

Also this week, on the 25th, Sun Microsystems Inc is launching what is expected to be the next stage of its sustained drive into the low-end, volume Unix workstation market. Pundits have been awaiting an intermediate workstation to bridge the gap between the diskless, non-expandable Sparcstation SLC and the Sparcstation 1+. The new colour workstation is likely to come in at around the 16 MIPS performance mark, and cost somewhere in the region of \$7,000 - the 12.5 MIPS Sparcstation SLC is \$5,000, the 16 MIPS Sparcstation 1+ is \$9,000. It will be housed in a smaller version of Sun's slim "pizza box" design, and like the Sparcstation 1+ will use a 25MHz Sparc part, but it will come with just one Sbus expansion slot - the SLC has none. Sun's traditional market is being aggressively squeezed by the likes of DEC, with its 24 MIPS-rated DECstation 5000 series - DEC also offers substantial discounts on its equipment for Sun users that trade-in their workstations - and Sun has been forced to look for increasingly low-cost, high-performance solutions.

INSTALLED ON THE LAUNCH PAD? THE STARK CHOICES IBM FACES TO GET RS/6000 INTO ORBIT

Two weeks ago, IBM said it has "increased production capacity" on the RS/6000 for this year to "substantially more" than 15,000 units. Here, Tim Palmer discusses just how many that might be. However, we thought we'd ask around to see where IBM was starting from and a kindly 6000 remarketer gave us the number 7500-8000 which is what his IBM liaison person initially told him.

IBM presentations are so stylised and IBMers are so cryptic that what is said - and what is left unsaid - has to be dissected with the same diligence as was once devoted to entrails, and more recently to photographs of Soviet leaders lined up for the May Day parade if one is to have any hope of divining the true situation - or indeed what the company is really saying. A classic example is last week's New York presentation of the state of play with the RS/6000 (UX No 291), and taking everything that was said together, the conclusion has to be that IBM's second attempt at a convincing Unix machine has got off to a very good start as far as the IBM AS/400 and 9370 camps are concerned, an extremely disappointing one from the point of view of the true Unix believers within IBM.

Gung-ho

When an IBMer says that IBM will ship "substantially more than 15,000" RS/6000s by the end of the year, it doesn't mean that IBM will in fact ship 20,000 to 25,000 by the end of the year, as some gung-ho commentators talking their book want us to believe. It can mean either that the speaker is confident of getting 17,600 away by the end of the year if things are going reasonably well, or that he'll bet his life on it being 15,560 so that in round figures it's 16,000. That gives us a pretty fair idea of what IBM expects to do. Then IBM says that initial orders came in at "the high end of expectations". That's bad. For public consumption, IBM always sets its expectations for new products ludicrously low so that it can say that demand has "greatly exceeded our most optimistic expectations". This one hasn't even met what will have been a very modest internal expectation. But the killer comes with Bill Filip saying firmly that "everyone that wants one will get one in 1990". And this is for a machine that was intended to have been announced last October, was announced in February and has had a mass of marketing hype behind it ever since. By contrast the AS/400 wasn't announced until June 24, yet IBM managed to get 30,000 of the things away by the end of that year. It is of course grossly unfair to compare the RS/6000 machine with the AS/400, because there was very substantial pent-up demand for that box from System 38 users desperate for more power. And yet IBM has had six months already to build demand for what was perceived, when it was announced, as very good value for money in raw processing terms, and is still very well regarded conceptually. Yet from what IBM was saying last week, the customers are not exactly battering down the doors to get what was intended to be IBM's hottest low-end and mid-range property this year. What demand there is appears to be coming primarily from the design automation market - but unfortunately, IBM is not able to ship the models most suited to such applications - only the low-end 320, 520 and 530 are shipping now, the high-end 540 and 930 servers will follow shortly, but the model with the hot graphics, the 730, won't be shipping until November.

Hungriily

And already, IBM is beginning to fall behind: the companies that it has to beat, Sun Microsystems, Hewlett-Packard Co and a host of smaller vendors, have added machines that eat hungrily into the price-performance advantage IBM claimed for the RS/6000 in February. IBM is promising to double performance every 12 months, but the first iteration of that process has to happen this month or IBM will be falling behind the competition and its ability to match rhetoric with performance will come into question again.

Such promises from IBM are anyway of little value - when it launched the AS/400, it promised to double performance every two years, and to keep that promise it needs to ship an AS/400 50% faster than the Model 70 next month. Any sign of it? But that is just the hardware story: things look much worse when software comes under the microscope. IBM has committed to moving from AIX 3.1 to OSF/1 on the RS/6000 at some time in the future, but it is unable to say when, which renews suspicions that the Open Software Foundation will be unable to ship anything like a solid operating system in November - if it were only a question of waiting until November, it's difficult to believe that Siemens AG would now be planning to go to Unix System V.4 on its forthcoming Intel iAPX-86 family machines. Nor can IBM mix it in the gutter with the really competitive diskless workstations from the likes of Sun: "You need to be able to path in order to swap data across the network," Nick Donofrio declared at the New York meet last week. These functions "are not in AIX 3. Supposed to be there, we would have liked to have them there... They'll be coming". And on low-cost machines in general, "This is probably stuff we're going to be delivering in the first part of 1991". If the guys in the lab can get the software right. But unless and until IBM drops its commitment to OSF/1, all this is academic anyway: what serious software vendor or large end user is going to devote substantial resources to developing major applications for AIX 3.1 when the threat that the applications will have to be converted to run under OSF/1 is looming. Far better wait until OSF/1 is here before making a commitment. All of that implies a two-year hiatus while the developers that matter sit back and wait to see what happens. And all IBM's recent history insists that that is the one thing that IBM cannot allow to happen. If the RS/6000 takes two years to get off the ground, it will never happen.

Failure

Because IBM has never succeeded in rescuing a new hardware product that was perceived as a failure after its first 18 months: the list of failures is an embarrassingly long one - Series/1, the 5100, the 8100, System 23, the RT, the 9370, the Portable Personal Computer and all subsequent portables, even the excellent System 38, which needed to be transformed into the AS/400 to assume the aura of success. And the winners over the same period? System 34, which turned into System 36 for no good reason, the 4300, and the Personal Computer and desktop successors. And when it comes to entry into a market completely new to IBM, only the Personal Computer rates as a success - much too big a success for many IBMers. And how did the Personal Computer differ from all the other machines? The operating system was bought in and owed nothing to IBM's vast but fatally flawed software development effort. There is still time to save the RS/6000, but less than IBM and fans of its Unix effort would like to believe. And the signs now are that triumphant success demands nothing less than that IBM swallow its pride, dump AIX, forget OSF/1, and buy a licence to Unix System V.4. Otherwise, the AS/400 camp at IBM will be able to sleep easy in its bed for three or four years yet. But then isn't that the scenario, in its heart of hearts, that Armonk really wants to see anyway?

NEW UNIX SHOW IS DEVOTED TO IBM'S AIX

Brace yourselves for yet another Unix show in the offing. This one is called AIX World, scheduled for September 17-20th at the Crown Plaza in Crystal City near Washington D.C. Its sponsors are the International Technology Group (ITG), the consulting operation from Los Altos, California, and show organisers Case Expo. IBM isn't a sponsor but is going to be there with bells on! Keynotes are being given by Gerald Ebker from IBM's Federal Sector Division, Nick Donofrio of the Advanced Workstation Division and Terry Lautenbach, general manager of IBM US. ITG managing director Brian Jeffery reckons the seminars and exhibit will draw the federal government crowd, RT users, software houses interested in porting to AIX, system houses, S/3X migrators as well as that ubiquitous animal, the IBM end-user. The conferences seem more user-oriented than most with the topics including an introduction to AIX and to the 6000, CASE, X-terminals, graphics, advanced image processing, networking and systems administration, distributed computing, interoperability, migration and end-user case studies. There will also be a session fetchingly entitled "Ask IBM" complete with an IBM panel. They've been organising AIX World for the last three months, and Jeffery says that they ran out of exhibit space a month ago. They'll try to expand it, and have also begun mailing to a database of some 80,000 potential attendees.

UNISYS TO OFFER MAPPER, ALLY FOR SUN SPARC WORKSTATIONS, SERVERS

Unisys Corp has decided to forego the benefits of confining its Mapper applications generator and Ally language and tools to its own hardware, and is to offer them to users of Sun Microsystems Inc's Sparc-based workstations and servers from September. It will market them to Sun users via Foundation Computer Systems Inc, a wholly-owned Unisys subsidiary. Unisys claims that Mapper is up on over 5,000 of its mainframes and Unix systems. Ally is a database-independent language and set of tools which can access Oracle, Informix, C-ISAM, Sun's NetIsam and Mapper within the same application, and provides windowing capabilities on asynchronous terminals. Unisys is planning a Unix-based open software architecture for all its products.

NETWORK COMPUTING DEVICES SETS NEW LOW IN X-TERMINAL TAGS

Network Computing Devices Inc has the dedicated X-Window System terminal market to itself for a desperately short time, but the company is doing all it can to hold onto its lead, and this week claimed price leadership in the 19" X-terminal market with the \$2,300 NCD19b, which uses a new gate array to replace some 40 parts around the 16MHz 68000 processor to cut the cost, and uses a lower resolution screen, 1,024 by 800 pixels rather than the 1,280 by 1,024 of the NCD19. Over the next year, the firm plans to add further models of the entry-level family. The Mountain View, California company reckons that its new model is cheap enough to start replacing ASCII and 3270 terminals for transaction processing and general purpose office automation applications where windowing is desirable but ultra-high resolution is not essential. It can simultaneously access Unix and DEC VMS kit from different windows, and supports two-dimensional graphics as well as text and windows. It comes with 2Mb expandable to 5Mb and is "up to three times faster than DEC's VT1000".

SUN OFFERS NEW INDUCEMENTS TO WIN OPEN LOOK APPLICATIONS

Faced with many defections among Unix System V.4 backers to the OSF/Motif user interface, Sun Microsystems Inc is waging a sustained campaign on behalf of its Open Look to ensure that while Motif may have the edge on hearts and minds, Open Look wins hands down on applications. Last week the company teamed up with Xerox Corp's Ventura Software Inc to announce a version of Ventura Publisher for workgroup computing with the Open Look graphical user interface, while retaining all the current features - but that won't be ready until the second half of next year. In the meantime, Sun announced its Catalyst CDware programme for marketing and distributing applications for Open Look, initially in the US. Catalyst CDware is designed to enable Sun users to browse through an interactive catalogue of applications - such as Lotus 1-2-3 for Sun, FrameMaker, on a CD-ROM, and the firm reckons it's a great new way for third-party software developers to market products directly to Sun users. Each quarter, Sun will distribute Catalyst CDware free to its customers: it will include samples of programs, short demonstrations, all under Open Look. Sun is now bundling SunCD drives with all its Sparcservers and high-end Sparcstations, and those with only low end Sparcstations can load the disk on their compact disk player and listen to talk about the programs. And if one of the programs appeals, the user simply has to contact the developer of the program, who provides an electronic key to unlock the application on the disk. The company is also bundling a Welcome Kit set of discount coupons for applications and add-ons with every desktop Sparcstation that it ships, initially in the US, Canada and Italy.

ARDENT FOUNDERS SUE KUBOTA: "OUT TO STEAL OUR TECHNOLOGY"

Allen Michels and Matthew Sanders, co-founders of Ardent Computer Corp and co-chairmen of successor company Stardent Computer Inc have blown the fragile network of co-existence agreements between large Japanese corporate investors and their target US start-ups wide open by launching a \$50m lawsuit against Ardent's backer and manufacturing partner, now a 22% shareholder in Stardent, accusing the Japanese farm machinery company of trying to take control of Stardent's graphics minisupercomputer technology in order to compete against the company in the future. The pair do not have the backing of Stardent chief executive, William Poduska, who told the New York Times that Kubota had in no way tried to steal technology, and had done everything possible to support the company. But the statement two weeks ago from Kubota that it planned to build a Baby Titan in Sunnyvale, which made no mention at all of Stardent (UX No 290) raised several eyebrows. The suit alleges that Kubota threatened to withhold agreed financial commitments to Ardent in order to force the merger with Stellar, and subsequently conspired to shift control of the merged company's technology and key engineers into a wholly owned Kubota subsidiary in the US - presumably referring to the new Kubota Computer Co in Sunnyvale. The lawsuit alleges that the Japanese company secretly planned to develop products that would compete with Stardent products worldwide, despite the agreements restricting Kubota to distributing the products to the Far East. Kubota Corp alleges that Allen Michels and Matthew Sanders demanded \$7m not to bring their Ardent suite.

WHY SUN-4 USERS CAN EXPECT PERFORMANCE PROBLEMS RUNNING LARGE APPLICATIONS

"It's a sorry tale to go out and buy lots of memory to stop a system thrashing, install it, turn the machine on, and find the system still thrashes, but thanks to the large disk cache you have just installed it is now able to do so at previously unheard of rates!"

Cranking up the performance of Sun Microsystems workstations and servers is all the rage at the moment - see below - co-processor and sub-system manufacturers are cashing in on the fact that some Sun system users running large applications are coming up against performance problems because of bottlenecks in Sun's virtual memory performance. Users add additional memory to their systems so that large applications can run at a reasonable speed, but on Sun-4 systems performance is still likely degrading says Gordon Irlam at Adelaide University, who has been examining the Sun's memory management unit technology.

"poorly designed"

He finds that throughput on a Sparcstation drops substantially once the amount of active virtual memory exceeds 16Mb, and by the time it reaches 25Mb the machine runs up to 10 times slower than normal. The limit involves the amount of active virtual memory used - additional virtual memory may be consumed by processes that remain idle without incurring any penalty. (Irlam adds that SunOS usually steals pages from idle processes, so strictly speaking such memory is not normally considered to be part of the virtual memory consumed). Dynamically linked libraries, shared text segments, and copy on write forking means that the amount of physical memory used could conceivably be as little as half this value. The problem says Irlam, is the result of poorly designed memory management unit hardware, and the failure of the operating system to attempt to minimize the effects of the design. Sun systems have a fixed amount of memory that can be used for storing page tables, and on Sparcstations in particular he says, this memory area is far too small.

The results of running a simplistic, forking test program on a Sparcstation 1 bear this out, and are presented in his paper "A Guide to Sun-4 Virtual Memory Performance". Degrading after 16Mb is the result of the system suddenly finding that it has to handle an incredible number of page faults. In a real system he says, the observed performance will be heavily dependent on process sizes, memory access patterns and context switching patterns - but nevertheless there will still be a performance drop-off. "Virtual memory performance will not normally be a serious problem on a Sparcstation with less than 16Mb of physical memory, with between 16Mb and 32Mb it could be a problem depending on the job mix, but it will almost certainly be a serious problem on any Sparcstation with 32Mb or more. If it isn't a problem on a machine with 32Mb or more, you have almost certainly wasted your money buying the extra memory as you do not appear to be using it." A giveaway indication that the virtual memory system is a problem is the presence of swapping - with a free list of perhaps a megabyte or more in size - which does not involve real disk traffic, simply pages being moved back and forth on to the free list.

"no justification"

Most systems says Irlam, use high-speed static RAM to cache individual page table entries and hence speed up address translations. This is not done on Sun-4s. Instead all page tables are permanently stored in high-speed static RAM. This results in address translation hardware that is both simple and fast. The downside however is that the number of page tables that can be stored is limited by the amount of static RAM available.

Furthermore, under SunOS, page tables are never shared between processes. Processes steal page tables from each other, building up stacks of translation faults, and, when this leads to zero set sizes, SunOS actually compounds the problem by swapping out processes into the free list. "the CPU load associated with doing this appears to be substantial, and there is no obvious justification for doing it", he says. Indeed other Sparc-based systems, such as Solbourne's Series 5 workstations, which have also been tested, do not have this problem in their MMUs.

Irlam proposes a number of ways to to diminish the effect of Sun-4 MMU problems. Avoid large numerical applications, certain LISP programs and large database applications. Alternatively he reckons modifying SunOS with an additional 50 to 100 lines of source code would probably do the job, but until this is available he has devised a number of small programs which may significantly improve performance.

Sun "aware of the problem"

In the UK, Sun Microsystems UK Ltd's Andrew Russell admits the company is aware of the problem, which is related to an algorithm in the MMU software, and that the company has been receiving around two calls per month from large European users experiencing performance difficulties. He says the problem should be "substantially eliminated" by the end of the year when a new release of SunOS will appear. This is version 4.1.1, which "is not quite Unix V.4 compatible", according to Russell, suggesting that true V.4-compatibility for Sun users is still some way off.

OMNI HAS NEW CO-PROCESSOR, FILE SYSTEM FOR SPARCSERVERS

Omni Solutions, Mountain View, California, is the latest addition to the bandwagon of companies offering hardware and software performance-boosting solutions for Sun Microsystems computers. Omni has introduced a network co-processor - claimed to double the speed of Sparcservers - along with the Omni File System, for Network File System environments. The Omni 400 co-processor is aimed at sites which make heavy use of NFS, CASE, multi-user applications and X-terminal networks. It handles less essential administrative functions, freeing-up the CPU to concentrate on user tasks. Up to eight co-processors can be installed in the Sparcserver 490, six in the 470 - both of which Sun rates at 22.6 MIPS. The Omni 400 costs \$13,000, multiple copies work out at about \$8,000 each. The Omni File System is designed for moving large files around in NFS on Sparcservers, and is claimed to cut transfer time to a fraction of what it would ordinarily be. Applications such as computer-aided design, geophysical, mapping and imaging can benefit enormously the company claims. OFS, designed for use with files in excess of 96Kb, and in conjunction with the co-processor, connects to standard interfaces in SunOS, is compatible with NFS and is reckoned to be transparent to the client workstation. OFS is \$9,950. The Omni announcement comes just days after Sun announced that it would be selling Legato Systems Inc's Prestoserve hardware and software accelerator for servers running NFS, (UX 291). Sun's sales force will be selling Prestoserve - which Omni will be directly competing against - for around \$6,000 each. Omni president is Ronald Cornell, formerly vice president of deskside and server engineering at Sun. Cornell estimates that Sun commands around 40% of the Unix server marketplace - down from 50% when he was at the company - with DEC being the nearest competitor.

CAP GEMINI'S £199m OFFER LANDS CONTROL OF HOSKYNS

Cap Gemini Sogeti SA duly walked off with the prize yesterday, agreeing to pay 330 pence a share, about £199m, in a deal that values Hoskyns at £286m. The news supercharged the Hoskyns share price, which leaped 63 pence to 358 pence, making it highly unlikely that there will be many acceptances for the 330 pence on offer to all the outside shareholders. Cap Gemini intends to acquire the company outright in 1993, paying a minimum of 469 pence a share and a maximum of 660 pence. In the meantime, the listing will be maintained, Hoskyns management will remain in place but three Cap Gemini nominees will join the board. Two key attractions for the French computer services giant are that the acquisition takes it into facilities management with skills that can be extended geographically, and brings it into the UK in a major way for the first time.

PHILIPS ADDS MEGADOC FOR MS-DOS

Philips NV has brought out a personal computer-based version of its Megadoc optical storage and retrieval system. The Megadoc 10 can be networked but will be offered mainly as a stand-alone system. Unlike the Megadoc 100, the Megadoc 10 runs under MS-DOS, and conforms to Unix System V.4 and Posix, enabling users to integrate existing software and add other applications more easily. Networking capabilities have also been improved. The original Megadoc is made up of customised workstations, or personal computers, directly connected to a central server or mainframe, whereas the Megadoc 10s can be connected to file servers via a network. A stand-alone Megadoc 10 starts at \$25,000. Philips says it has got 200 Megadocs away so far.

UK START-UP SOFTWARE ONE WINS INGRES, OTHERS FOR SOFTWARE TOOL

UK start-up Software One Ltd of Bourne End, Buckinghamshire is hailing a worldwide distribution deal with Ingres Corp for the latter to distribute Software One's Exchange product as the first of several in the pipeline. The product integrates front end computer-aided software engineering tools with systems development tools such as Pansophic's code generator Telon and the Ingres relational database via ISO IRDS and CDIF standards. Six further deals with eminent hardware and software companies are in negotiation, and sales and marketing director Andrew Mercer could not discount the possibility of doing a deal with ICL.

BOSTON BUSINESS GIVES VMS LOOK-AND-FEEL TO RS/6000

Boston Business Computing Ltd, the Andover, Massachusetts company best known for extending the look and feel of the DEC VAX/VMS user interface to alien environments, has now pulled the trick for IBM's RS/6000 Unix machines, offering its VCL and EDT-plus command language and editor for the RISC machine. The new version is \$1,000 to \$4,000 depending on the size of the RS/6000 and the company looks for them to generate \$2m of business over the next two years, Computer Systems News reports. There are already versions for DEC's own Ultrix machines, for MS-DOS micros, and for Hewlett-Packard and Sun Microsystems Inc Unix.

RACAL MAY BE EYEING ACQUISITION OF STRUGGLING DAISY SYSTEMS

Daisy Systems Corp has been given more time by the US bankruptcy court in Denver to prepare its reasons why a motion from bondholders for summary winding up of the ravaged computer-aided engineering software company should not be granted. The petition has been brought because the bondholders fear that if Daisy is permitted to pursue its attempts to put together a recovery plan, they will lose everything. Daisy defaulted at the end of last year on convertible debentures issued as part of its \$200m acquisition of Cadnetix Corp. According to Electronic News, talks with potential buyers of the company have continued despite the problems and the loss of its line of credit from Heller Financial needed to buy Sun Microsystems workstations to pursue its business in the US. The paper quotes the company as saying that "a large international corporation in the electronics business", which sounds very much like Racal Electronics Plc, and an independent investors group, are both negotiating possible acquisition. Racal already bought part of Cadnetix from Daisy after the acquisition, and might well reckon that the whole business might be worth having at the right price to bolster its ambitious Racal-Redac subsidiary. Daisy presently buys in workstations and bundles them with its software for resale, but says that the loss of the line of credit will hasten its plans to turn from a systems house into a pure software house. It has been taking Sun along on its sales trips and trying to persuade customers to split their orders and buy the hardware direct from Sun, software from Daisy. It had been planning to switch to a pure software operation with the release of the next generation of its software: at present its products use a hardware route engine that is networked to the workstations: the new software will eliminate this.

BSI LAUNCHES C COMPILER VALIDATION SERVICE

The British Standards Institute is now launching its C compiler validation service, (UX No 262). Accredited by NAMAS - the UK National Accreditation body for test laboratories - the service is available worldwide. Neil Martin, manager of the ANSI X3.159-1989 - currently ISO/IEC DIS 9899 - C standard validation programme at BSI said the new service "will ensure that users no longer have to accept unsubstantiated claims of conformance - the most outrageous of which must be the vendor who claimed compliance four years before a standard existed!" BSI will use the Plum Hall validation suite for C, which has been harmonised across Europe through co-operative development with IMQ - Istituto Del Marchio Di Qualita, in Italy - and AFNOR - Association Francaise de Normalisation in France - under the aegis of a European Commission contract. All compilers successfully tested before September 1 will be included in a simultaneous "first validation" announcement BSI plans for later in the year.

OBJECT-ORIENTATED RASCAL FOR UNIX

Rascal Systems, Norcross, Georgia, has launched an object-orientated applications development tool called Rascal, for Unix, Xenix, AIX, MS-DOS and VMS. Rascal represents application components like menus, data entry forms, reports and database cross-references as object classes, and stores in an object database, from where they are retrieved at run-time. Higher-level objects can be created by combining lower-level objects. Rascal costs \$2,000 for a Unix development version supporting up to eight users, plus a \$400 run-time fee for one CPU - the fee falls as more CPUs are added. A system for nine users or more is \$3,000 with a run-time fee starting at \$700.

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As a sign that Unix has "arrived," one of the established California high-tech PR firms, Smith & Shows in Menlo Park, which flaks for the likes of Uniforum among others, has decided to specialise and make its fortune working only for Unix companies.

ICL gets \$1.2m of a "multi-million dollar" contract won by Sun Microsystems Inc to provide office automation systems for New Zealand's Inland Revenue Department, which will use Officepower on Sparc kit.

- 0 -

Solbourne Inc reseller Southern CAD/CAM of Knoxville, Tennessee has snared a \$4.96M mid-range workstation/server contract from Martin Marieta Energy Systems for several hundred of Solbourne's Sparc clones to be delivered over the next 18-24 months.

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It seems the invitation to join the rechristened Unix System Labs hasn't gone out to all those developers et al at Bell Labs and AT&T like it was allegedly supposed to be the first week in July (UX No 289). Apparently AT&T want to be more secure about the shape of the company its consigning its workers to and is waiting to firm up its private placement plans first. A USL spokesman, however, said last week that the prospectus ("offering memorandum") still hasn't gone out yet. USL has also postponed announcing a bunch of strategic alliances, such as its multiprocessing picks (UX No 286), expected now, until perhaps September.

- 0 -

The Open Software Foundation says the reason why its chairman John Doyle no longer has a vote on the board is because he's preparing to retire from Hewlett-Packard soon, wanted to resign from OSF completely and is continuing in this interim only because OSF insisted. HP on the other hand, says the real reason is because a company only gets one vote and it wanted Bill Kay, the guy with line responsibility for its Unix efforts, to have it. Take your pick.

- 0 -

Unix International's program to induce software developers to port to Unix (UX No 284 & 285) has generated over 600 requests for information from US companies so far: 70% of them ISVs, 30% consultants or integrators. Under its aegis, over 30 companies are already porting to Unix. UI is still tabulating the European and PacRim response, believed to be quite strong. It was concerned that Microsoft's Windows announcement would create a "wait and see" attitude but says its initial fears were unjustified.

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Pyramid Technology Corp is reportedly salivating with anticipation that AT&T, its OEM, will win the big TMac contract from the US Treasury.

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Unix Systems Laboratories Europe - formerly the Unix Software Operation - says that Unix System V/386 Release 4 has now been stamped as XPG3-compliant by X/Open, claiming it to be the only source code product that has received such a brand. System V/386 is the reference port of V.4 for computers built around the Intel 80386 and 80486 microprocessors. Other USL software getting the brand for the Intel platforms are XWIN - USL's implementation of the MIT X-Windows system - the company's C programming language tools, System V Release 4 commands and utilities, internationalised system calls, terminal interface and interprocess communication routines.

- 0 -

DEC Europe has announced its first 486-based PC - the DS425 sourced from Olivetti - as well as a 25MHz 386-based DS325: both run either SCO Unix System V/386 (with Open Desktop optional), MS-DOS or OS/2, and fill in the gap between DEC's VT 1000 X terminal and its low-end RISCstations with prices starting at £3,400 for the 25MHz 325 with 2Mb RAM and 100Mb hard disk, and £9,450 with 4Mb memory and 100Mb disk. DEC hopes the multi-user PCs will get it new customers in the small businesses sector. DEC US gets its PCs from Tandy, and has already launched 386 systems over there.

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The European X Window System User Group has its first three day residential conference and exhibition from the 24th to 26th September at Surrey University in Guildford: those wishing to attend or participate should contact the EXUG Secretary in Cambridge on 0954 211862.

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There is some doubt as to whether the colour board for Steve Jobs' NeXT machine will announced this autumn after all - but rumours are already starting about the next NeXT machine, which according to one version will not be cube shaped, but will revert to a "pizza-box" design like the Sun SPARCstation: the 50 MHz 68040-based machine - codenamed Warp 9 - may also use a 2.8 Mb floppy disk from Sony Corp in favour of the current optical disk, and will come with a 200Mb hard disk and 8Mb RAM.

Corvus Systems Inc has at last been discharged from Chapter 11 bankruptcy protection, following the acceptance by the bankruptcy court of a reorganisation plan from sole secured creditor Carl E Berg. Corvus' own plans failed to win the support of creditors and the bankruptcy court. Berg (UX No 35) was a director and shareholder of Unix pioneers Onyx+IMI Inc, which merged with Corvus way back in 1985 (UX No 37).

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The Unix Solutions Division of Misys Plc has signed a £17m three-year reseller agreement with Altos Computer Systems with the new System 5000 80486-based multiprocessor. Misys' Team Systems is already an Altos reseller, but Mentor Systems Plc will also participate in the new agreement, making Misys Altos' biggest UK systems house.

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Sequoia Systems Inc, Marlborough, Massachusetts has signed Samsung Electronics Co as exclusive distributor for South Korea of its fault-tolerant Unix machines: the Seoul company will also market Sequoia machines in other Asian countries.

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Gupta Technologies of Menlo Park, California, says it is currently working with Sun Microsystems to build server software for Unix System V.3.

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Unisys Corp has gone back to Sun Microsystems Federal for another \$10m of Sparc-based workstations and servers for resale and for internal development: under the reseller part of the agreement, Unisys will bundle Sun systems with its own applications for sale to the US Federal government and under the internal-use provision Unisys will buy Sun equipment and use it with third-party software for technical publishing, computer-aided software engineering, mechanical and electronic computer-aided design in the development of new products at numerous Unisys corporate sites.

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Microsoft Corp and Sybase Inc have joined the SQL Access Group as producer members to further its work on database interoperability.

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THREE-WAY HEWLETT-SEQUOIA-SAMSUNG TIE-UP ON RISC

There is rather more to that agreement between Sequoia Systems Inc, Marlborough, Massachusetts and Samsung Electronics Co, Seoul, South Korea than was revealed in the original announcement, and the pact marks the creation of a three-way axis between the two companies and with Hewlett-Packard Co, which already has ties with each. As well as getting exclusive rights to market Sequoia's fault-tolerant Unix machines in Korea, and non-exclusive rights in other Asian markets (UX No 290), Samsung, Electronic News reveals, will underwrite development of a new low-end machine based on the 68040, which is due to be ready to go in the first quarter of 1992, while Sequoia devotes its financial resources to developing full-sized 68040 machines. And Sequoia is also scheduled to start work on developing a new generation of fault-tolerant Unix machines built around Hewlett-Packard's for as little as \$5,000, around the chips (UX No 244). Under Precision Architecture RISC chip sets. But what the US trade weekly missed is that Samsung is already in bed with Hewlett-Packard - a major customer of and significant investor in, Sequoia: last August, Samsung and Hewlett signed an agreement under which the Korean is to fabricate low-end versions of the RISC and to build "Spectrumtosh" low-end workstations to sell for as little as \$5,000, around the chips (UX No 244). Under the deal with Sequoia, Samsung will get primary manufacturing rights to the low-end 68040 machine, building it OEM for Sequoia and marketing it in the territories it has been granted. Sequoia will retain the right to make the thing itself as well. Samsung will pay Sequoia royalties on the entry-level machine, which will be limited to four processors and sell for from under \$100,000. The mainstream Sequoia line can have up to 64 processors.

SYSTEM V CONFORMANCE CONTRACT AWARDED TO UNISOFT CORP - TEST SUITES "READY BY YEAR-END"

Unix International has awarded the contract for the development of its ABI-compliance test suite to Unisoft Corp, and expects to have them ready by the end of the year, according to president Peter Cunningham. Unisoft is to work on generic versions of the test suite and then work with the major chip manufacturers on architecture specific versions, but will be providing the tools, not carrying out the actual testing. According to a "heads of agreement" letter circulated by Unisoft, it will cost a company \$150,000 to put its first architecture through its SVR4 paces, \$50,000 for each additional chip, with \$60,000 maintenance for at least two years. For chip makers to pass along the suite to OEMS will cost the OEM \$20,000 in X/Open-Unisoft-written VSX3 source fees. Despite complaints in some quarters about the hefty cost (which comes on top of UI membership and other source code fees), UI VP Joanne Miller says the pricing is in keeping with the other bids received. Unisoft is not receiving any payment from UI to create the test suite. There were up to seven bidders for the contract, including 88Open/Pencom and Mindcraft Inc: UI is paying 88Open \$30,000 to cover its costs for providing some 4,000 assertions, which will be used, where needed, for the criteria on which test suites are based. Both UI and Unisoft are concerned about time to market, with the project specification process set to be completed by August 10th. Unisoft chief Jeremy Thomas claimed 60% of the product is already completed, much of it based on the already completed X/Open XPG3 VSX test suite. Most of the work is being done by Unisoft's London headquarters, despite the fact that the chip manufacturers in question - ports for Intel, Motorola, Sparc, Mips and AT&T 3B processors are underway - are almost to a man US-based.

GRAPHICAL USER INTERFACE WARS COULD SOON BE OVER - IEEE CHOOSES XVT AS BASIS OF COMMON API

It looks like the graphical user interface war could soon be over, thanks to a strategic decision by reached by the IEEE's P1201.1 working group on windowing, meeting recently in San Jose, California, (UX No 289). The group - led by Sunil Metha of Unisys - has chosen Denver, Colorado-based X-Ray Vector Tango's XVT toolkit to form the basis of an application programming interface for Unix graphical user interfaces that will support both Open Look and Motif from the rival Unix organisations. The group's proposal has to go to a full ballot of IEEE members, and it is hoped that the recommendation will be adopted within a year. The move could now pave the way for X/Open to make a firm decision on its GUI strategy - the Unix standards body has been sitting on the fence for more than a year now, but recent indications have suggested the group has been awaiting just such a decision from IEEE before showing its hand.

OSF TO PUBLISH SYSTEMS

MANAGEMENT RFT THIS TUESDAY
The Open Software Foundation will publish its next Request for Technology tomorrow - July 31st. As expected (UX No 283, 290), the RFT will ask for technology submissions for OSF's proposed Distributed Management Environment, and will be the first RFT to be run out of Europe.

PYRAMID CLAIMS TPS LEAD WITH NEW T SERIES SERVERS

Pyramid Technology Inc has replaced its Corporate MIServer range with the new T-Series line of top-end database servers, claiming the lead in transactions per second performance over rivals such as Sequent Computer, IBM and DEC. The MIServer Turbo Series uses the same proprietary 14 MIPS CMOS RISC processor as the earlier models, but increases throughput by up to 40% by using a new memory management system providing 1Mb cache for each processor, and a dual caching system for data and instructions. Pyramid has also increased main memory capacity to 512Mb, and added 128Mb memory arrays using 4Mb DRAMS to further offload input-output from the CPU. It claims a 12 processor system was benchmarked at 250 transactions per second using the Oracle Banking Benchmark, comparing to 124 TPS on a Sequent, 50 TPS on an IBM 3090 and 49 TPS on a DEC VAX. And Pyramid has added an enhanced self-diagnostics system to improve reliability - it is increasingly emphasising "high availability" features in its boxes. There are four packages available: the two processor MIS 12T/50 has 64Mb memory and 10Gb storage and is £431,250 in the UK; then comes a four processor 12T/100, six processor 12T/150 and a 10 processor 12T/200 with a 512Mb memory and 30Gb disk space for £1,700,000 - the numbers relate to the TPS ratings. US prices start at \$625,000 to \$2 million. Available immediately.

SANTA CRUZ OFFERS FASTER UNIX SYSTEM V/386

Santa Cruz Operation Inc has begun customer shipments of SCO Unix System V/386 Release 3.2 Version 2.0 for AT bus iAPX-86 family personal computers, and claims that it offers improved speed and "new, value-added features" for 80386- and 80486-based machines. It adds in put-output performance improvements, simplified management of C2-level trusted systems, job control under the Korn shell, support for additional peripherals, and for extended memory. It costs \$600 for a two-user, \$900 for an unlimited user licence and upgrades from the System V/386 3.2 version are \$150.

SPARCSTATION IPC - "It ain't a PC"

As expected, (UX No 292), Sun Microsystems Inc last week weighed in with a 16" colour workstation - cryptically dubbed the Sparcstation IPC - to bridge the gap between the Sparcstation SLC at the very low-end and the Sparcstation 1+, touting it as a competitor to personal computers. Although no-one at Sun in the UK was able to tell Unigram.X what IPC stands for, we can reveal that the description "It ain't a PC" reveals the story of the moniker, according to Wayne Rosing, vice president of desktop systems and graphics in the US.

Rosing said the design of the IPC - it weighs 12lbs, and measures 9.5" by 10.5" by 4" - which resembles a "lunchbox" rather than the Sparcstation 1's "pizza box", took one and a half years to develop, and contains "fewer components than most PCs". It only takes 65 watts of power to run - less audio noise - and Sun is thought to be working on attaching a 1 million pixel flat screen. Sun expects to ship 7,500 IPCs by the end of September, and president Scott McNealy claims that 100,000 Sparc machines - not including clones - have now been installed, with a further 250,000 expected to ship over the next twelve months. Citing market analyst Alex Brown, he said that Sparc now has around 74% of the RISC marketplace, up from 61% in 1989, with Mips Computer Systems at 16%, down from 22%, Hewlett-Packard with 3%, down from 6%, IBM with 2%, down from 4%, and others 4%, down from 6%.

Sparcstation 2

The workstation, rated at 15.8 MIPS, 1.7 MFLOPS and a Specmark of 10.0, comes with two SBus slots, from 8Mb to 24Mb memory, 207Mb disk, a 3.5" floppy drive and costs #8,000, or \$10,000. Despite the price advantages that they bring, all Sun's recent workstation releases have been variations on a theme, namely the Sparcstation 1, which is now well over a year old, (UX No 227). Sunwatchers are awaiting a new workstation series which can make up some of the performance ground that the company has lost to its competitors over the last 12 months or so. Indeed the US trade paper Electronic News went so far as to predict the arrival of the next-generation Sparcstation 2 series last week, and although it got the timing wrong, it is likely that Sun will come out with the boxes before the summer is out. The paper looks for models delivering up to 25 MIPS, with base prices between \$9,000 and \$12,000 for workstations with from 8Mb to 60Mb memory, up to 300Mb disk and mono and colour monitors, which would then spoil IBM's price-performance claims for the RS/6000, which starts at \$13,000.

UNIX V.4-COMPATIBLE SunOS - "NEXT YEAR"

Sun accompanied the IPC launch with a new release of OpenWindows featuring a three-dimensional version of the Open Look user interface. At the press conference in London's Science Museum, Sun disclosed that a fully V.4-compatible version of SunOS will definitely not be available until late next year. Results of Sun's 89/90 financial year which ended in June are expected soon - analysts are expecting revenues of around \$2.4 billion, against \$1.77 billion for 88/89. It says Sparc systems accounted for 94% of sales this time round.

XEROX TO RESELL IPCs AS PART OF NEW DOCUMENT PROCESSING SYSTEMS...

At the launch Sun also announced a \$200m reseller pact with Xerox Corp, which will resell Sun systems as the basis of a new family of document processing systems. Xerox officials were on hand at the IPC launch, and vice-president Joe McGrath indicated that the workstation was in fact co-developed by Sun and Xerox - part of the technical alliance the two struck way back in October 1987, (UX No 152) - though Xerox's input was essentially specifying what was needed for a commercial product. It was Xerox's idea for example to pre-load the 100Mb of software, have a small footprint for the box and work with low power requirements. In terms of pure technology research, McGrath said the two collaborated on chip-level and interface development. The technical alliance between the two expires in October, suggesting that Xerox will have a product out before then. The company also disclosed that the Ventura desktop publishing software that its subsidiary is porting to the Sun Sparc line, (UX No 292), will not be available until "late next year". It will be followed by other Unix ports. The majority of boxes that Xerox buy under the \$200m deal will be IPCs, but other Sparcstations will also be included - Xerox sees them as the glue that binds together its intelligent peripherals business - lasers printers and scanners - into a solution to sell.

...AS SUN GOES RETAIL IN US...

Sun has announced distribution agreements with three US retailers; Intelligent Electronics Inc of Exton, Pennsylvania - which controls 20% of all computer dealerships in the US via its subsidiaries and franchises - MicroAge Inc of Tempe, Arizona, and Nynex Business Information Systems Co, White Plains, New York. Sun sees 200 outlets of the three firms selling its gear within a year, but Joe Roebuck, vice president of Sun's field operations warned that "we are not to understand these dealer chains as going after the high street walk-in traffic". According to Microage chairman Alan Held, initial sales will be primarily to the technical engineering crowd. Other corporate users that have chosen Sun's Sparc systems include Merrill Lynch, which will use the new Sparcstation IPC as a trader's workstation, Dunkin Donuts, which will rely on Suns for managing its central database functions, while Carnival Cruise Lines is automating several of its cruise operations with Sparcstations. In addition the Portland Trailblazers will use Sun systems for a new ticketing and information system.

...AND SPARC INTERNATIONAL HANDS OUT FIRST SCD BRANDS

Meanwhile Sparc International has announced the first group of systems to pass the tests for Sparc Compliance Definition 1.0, they are the Sparcstation 1, the Sparcstation IPC and Solbourne Computer's 500/810 The SCD 2.0, to be published in the third quarter of this year, will be based on Unix V.4 and the Sparc Application Binary Interface.

COMPAQ LAUNCHES 486 SYSTEMPRO, DESKPRO LINES

Company Computer Corp duly launched three 486-based models of its Systempro network server and multi-user systems last week, along with a 486/33 system processor board option for SystemPro multi-processing or upgrading, and 33MHz 386 and 486 models in the Deskpro PC line (UX No 292). The new Systempros include a new 512Kbyte Server-Cache system to boost performance in networking applications, and extend the EISA-based Systempro line to a range of from 8 to 40 MIPS. The line runs Novell, LAN Manager, Banyan Vines or Unix operating environments specifically SCO Unix with MPX multi-processing extensions for top-end machines (UX No 288). UK prices start at £14,400 for the Model 486-240 with 8MB RAM (expandable to 256MB) and 240MB disk, up to £20,800 for the 486-840 with 840MB disk. The 486/33 processor board costs £4,400. The three EISA-based 486/33L Deskpro machines, said by Compaq to be "the world's most powerful PCs", have 4MB enhanced page RAM (expandable to 100MB), 3.5" diskette, two serial and one parallel interface, integrated video graphics and security. Prices in the UK start at £9,700 for the 33L Model 120 with 120Mb fixed disk, rising to £13,500 for the Model 650 with 650Mb disk. 386-based models start from £7,000.

\$1M NEW FUNDING BOOSTS TERAPLEX MISC DEVELOPMENT

Teraplex Inc - the Champaign, Illinois-based company working on the implementation of its Minimum Instruction Set Computer architecture (UX No 290) - has received an additional \$500,000 worth of funding from the State of Illinois, along with the required matching \$500,000 from the company's existing private investors. The funds, according to managing director Philip McKinney, will allow Teraplex to begin prototype production of its MISC processor by the end of the year. Teraplex received an initial \$250,000 from the State of Illinois when it was founded in June 1988: it hopes to have a commercial version available during the second quarter of next year.

UK TAKES ON UNIX, PS/2 RESPONSIBILITY ACROSS EUROPE

IBM UK gets Europe-wide responsibility for AIX Unix, the PS/2 personal computer family and software marketing in a new parcelling out of responsibilities by IBM Europe that delegates key areas of activity to country managers - Tony Cleaver in the case of the UK - from the centre in Paris. Mainframes become the responsibility of IBM Deutschland, IBM France chief Pierre Barazer gets to rule over professional and technical services, reflecting French strength in systems integration, as well as communications systems, and cross-application hardware. IBM Italia, which builds the AS/400, gets mid-range systems. The reorganisation is to be complete in time for the Single Market in 1992, with the aim of making "us work better, work faster and work more efficiently in Europe," the company declared.

FUJITSU UNVEILS 17 MIPS TRON CHIP

Fujitsu Ltd has introduced in Japan its high-speed 32-bit chip in the G-Micro family of parts with an architecture optimised for the Tron operating system. The G-Micro F32/300 - MB92301, is accompanied by the MB92461 clock pulse generator, and has an on-chip real-time operating, RealOS/F32, which is based on the I-Tron industrial variant of the operating system. Fujitsu suggests that the part be used as a target embedded processor with applications development for it being done either under Unix System V.3.1 or B-Tron. Fujitsu rates the part at 17 MIPS in the 25MHz version, 14 MIPS at 20MHz; it has 113 instruction, a 2Kb on-board instruction cache, a 2Kb operand cache, a six-level instruction queue. The part is implemented in 1 micron CMOS, and tools available for the G-micro F32/300 are C compilers, assembler, simulated debugger for Fujitsu's FMR personal computer family under OS/2; for SunOS 3.5 and 4.0 on the Sun-3; and VMS 4.5 on the DEC VAX. No prices or delivery dates were given.

DEC GOES TO SECTOR 7 FOR ULTRIX VAR PUSH

DEC has signed a \$100,000 deal with UK software house Sector 7 Ltd that will allow one of its largest US value added resellers to move PDP-11 applications up to Ultrix-based DECstations. Bedford-based Sector 7, which specialises in BASIC to C translators, is supplying the source code of its B-Tran/B+ translation product to DEC's Software Services and Engineering, which is acting on behalf of Cooperative Computing Inc of Austin in Texas. CCI supplies warehousing and distribution software to the international automotive parts market. The product converts PDP BASIC Plus and BASIC Plus 2 into C code, with B-Tran libraries linking the new source code to produce final executables to all Unix variants, including Ultrix, System V and Xenix. The process aims at 100% translation without the need to change code, but Sector 7 provides back-up and services as part of the deal. Resulting applications are said to be several times faster than the BASIC originals. Five year old Sector 7 has US offices in Newbury Massachusetts, Hartford Wisconsin and Austin Texas: it hopes the new deal will be the first of many from DEC, as it encourages its VARs to enter the workstation market.

...PLANS "TO FUND OBJECT DATABASE FIRM OBJECTIVITY"...

In a move that could do a lot to enhance the credibility of the emerging breed of object-oriented database vendors, DEC is reportedly considering making an investment in one of their number. According to Computer Systems News, DEC is weighing an investment in Objectivity Inc, the Menlo Park, California company that announced its first product, the Objectivity/DB database management system, at the end of April. Objectivity/DB is designed to run under Unix and is aimed primarily at the engineering market. Neither company was prepared to comment, but Objectivity did say that it was seeking investment and outside marketing help. A VMS version of the database is in the works; word is that DEC is looking at a 10% to 15% stake. It has also had talks with rival Versant Object Technology Corp, also Menlo Park: Versant says that there was not "compatible agreement".

...AS WANG GOES TO NIAKWA FOR ITS BASIC-2 CONVERTER

Meanwhile, Wang Laboratories Inc, now committed to Unix for its future business, has struck an agreement with Niakwa Management Services of America Inc to distribute Niakwa's BASIC-2C development and runtime software packages. Wang reckons the software will allow it to expand its current SCO Xenix and Unix software portfolio by up to 1,000 packages that previously ran on its 2200 series systems, of which there are over 70,000 installed. Wang will offer both users and value added resellers the software, providing an upgrade path to its Dynamix Unix server, PC and PC LAN systems. Niakwa has its headquarters at Mundelein, Illinois.

KONTRON ELEKTRONIK OFFERS IP LITE EISA BUS 80386, 80486 UNIX FAMILY

Munich, West Germany-based Kontron Elektronik GmbH has added a portable 32-bit EISA bus-based Unix machine to its workstation range, reports Computerwoche. The IP Lite includes a number of features designed to improve reliability, such as automatic detection of power variances, protection against electro magnetic disturbances, cooling for the five EISA- or AT-compatible expansion cards and automatic shut-down. Running Unix System V, IP Lite can also support MS-DOS applications concurrently, while the VGA-compatible 16-greyscale liquid crystal display interface uses the Open Software Foundation Motif interface in conjunction with the Looking Glass Desktop Manager from Interactive Systems. The range includes 80386SX, 80386 and 80486 models, with additional performance available by using an Intel 80860 RISC as a co-processor; no prices were given for the new line.

SCOOP EUROPE WOOS COMMERCIAL USERS TO OBJECT-ORIENTATED TECHNOLOGY

The recent three-day SCOOP Europe - Seminars and Conference in Object-Orientated Programming - session at Imperial College, London, drew enthusiastic delegates from all over Europe, many from commercial organisations which are beginning to realise there really could be concrete benefits to be gained from using object-orientated technology. Most were looking for answers to questions like why? Why use object-orientated techniques, what benefits can they bring? And how do you go about doing it? Although the seminars weighed on the technical and programming side, the best-attended sessions heard speakers argue that traditional software development techniques can be profitably replaced by object-orientated alternatives. In the first of two articles William Fellows reports from SCOOP on the claims of the object-orientated community.

Jeff McKenna of the McKenna Consulting Group reviewed the use of object-orientated techniques - the object-orientated community call them OOTs - from a management point of view. He began with a US government study of commercial and federal projects which claims that as much as 60% of all software produced by traditional methods is never used. The main thing to remember he says is that benefits from using OOTs accrue over time. When the object of the exercise is to produce re-usable software, it will take two or three projects using OOTs to build up the experience and a library of sufficient size to draw upon for other projects, by which time McKenna claims that 80%-90% of a project's code should be re-used from others, and little more than 10% newly written. One major advantage of this is that the more often a particular piece of code is used and tested, the more reliable it becomes.

Whilst there have been previous attempts to re-use code - notably in the early 1980s - they were unsuccessful according to McKenna because the code was tied to particular functions in programs, at a time when the concepts, construction and notation of function-building in programming languages were forever changing. On the other hand, objects don't change - a car is a car, a ledger is always a ledger - and that remains true both for the programmer and the user. Furthermore OOTs allow the two to talk to each other in the same language, using the same vocabulary. In McKenna's own experience and his consultancy's study of OOTs-based development projects, he claims - assuming it is a second or third project, in a favourable environment - the following time/cost benefits of using OOTs according to the classic software development lifecycle model:

Lifecycle	Time/cost	Saving using OOTs
Analysis	18%	25%
Coding	21%	90%
Testing	16%	50%
Integration	13%	80%
Maintenance	22%	80%
Documentation	11%	20%

McKenna says this amounts to something like a 60% total saving in time and money on software development using OOTs, meaning a shorter time to market, a well defined corporate knowledge base, and - using prototyping techniques favoured by object-orientated approaches - improved customer feedback. He emphasised however that because OOTs are still in their infancy, it is hard to get an accurate picture of how these savings will translate to a market in which the use of OOTs is more widespread, and indeed how the development of the software industry as a whole will influence the uptake of OOTs. The Object Management Group was set up with the aim of tracking and managing developments in object-orientated technology - it has made a start on vocabulary and language standardisation - and whilst McKenna says their efforts are generally being well-received within the object-orientated community, he expects it will take at least three years before a standard way of doing object-orientated software projects emerges. Although he believes that OOTs represent "a fundamentally different way of doing software", he estimates that as many as 80% of C++ programmers - the core language of object-orientated technology - "aren't doing objects". He suggests that developers interested in using OOTs for the first time should begin with a small project using a handful of designers, because there is a steep learning curve associated with OOTs.

MAJOR BRITISH USERS BEGIN

INVESTIGATION OF OBJECT ORIENTATION

On the object-orientation front in the UK, vendors that are committing to this technology have cause to feel warm and cosy if a document circulating in the UK is anything to go by. An information technology users organisation comprising such household names as British Aerospace, British Airways, BP Research, British Telecom, Barclays, Ford Motor Co, Lloyds, NatWest, TSB, ICI, HM Treasury (representing UK government users) and the Department of Trade & Industry, is asking selected vendors to help them assess "the credibility of object orientation as the mainstream development approach of the 90s". Key vendors are being asked to help these users to gain an understanding of the approach; agree the benefits and costs; provide facilities to communicate and demonstrate the concepts; research hard ware technology and the maturity of methodologies and tools for all phases of the life cycle; research the necessary management, cultural and organisational changes; provide guidance on when and where to start; and, finally, (are you paying attention third generation database vendors?), influence the market for object-oriented products and services by demonstrating demand and providing direction. Among the users, four teams have been formed to investigate the analysis, implementation, environment and management areas of object-oriented technology. These teams will report back in about six months. All of which is most puzzling when you consider that certain software vendors would have us all believe that common or garden users are not yet interested in object-oriented technology.

OMG CALLS FOR REQUEST BROKER

The standards body The Object Management Group, based in Framingham, Massachusetts, is asking for information concerning technologies that will assist in defining what it terms the Object Request Broker. This will provide the mechanism by which objects transparently make and receive requests and responses. It is intended that a common Object Request Broker will provide interoperability between applications on different machines in heterogenous distributed environments, seamlessly interconnecting multiple object systems. The Broker will be the key element in the Group's Object Management Architecture - any offers, Microsoft?

ONTOS TO GET FRONT-END DESIGN TOOL FROM ADT

Burlington, Massachusetts-based Ontologic Inc's object-orientated Ontos database is to get a front-end design and code-generation tool courtesy of a five-year deal it has struck with Associated Design Technology, Westborough, Massachusetts. Ontologic has made what it calls a "significant" financial commitment to ADT for its Ptech software, which runs on Silicon Graphics workstations and generates C++ version 2.0 application code when running in conjunction with Ontos. Ptech users do not need to know C++ or SQL, as database objects are represented by icons, and users build relationships among the icons to build applications. A joint Ptech/Ontos product will be out in December, the same time that a Ptech port for Sun-3 and Sun-4 workstations is scheduled for introduction. The Ptech/Ontos software will cost from \$32,500 to \$50,000 for Sun and Silicon Graphics workstations, with a DEC version following next year.

LSI LOGIC ADDS CHIP SET TO BUILD MIPS PORTABLES

Sparc fabricator LSI Logic Corp, Milpitas, California is hedging its bets in the RISC wars and has come out with what it claims is the first off-the-shelf chip set for use in designing a complete computer system around the MIPS Computer Systems Inc R3000 RISC, which it also fabricates. The five-chip Mipset is claimed to replace 40 or more standard logic circuits and is pitched at Unix-based portable computers, X-Window terminals, laser printers and other peripherals. The Mipset was developed in Japan by LSI Logic KK, and it is designed for use with LSI's LR3000 CPU, which has on-chip memory management and cache control, and the LR3010 floating-point accelerator. The new set comes in 20MHz and 25MHz versions, comprises LR3201 reset/interrupt controller, LR3202 bus controller, LR3203 DRAM controller, LR3204 DRAM data controller and LR3205 block transfer buffer. The bus controller provides a direct interface with the LR3000 cache bus; separate DRAM, input-output and boot ROM interfaces; DRAM interface timer; and logic and stall-cycle generation to coordinate data transfer and memory access in multiprocessor applications. The LR3204 DRAM data buffer functions as an 8-bit device, so four are needed in the system. The LR3205 block transfer buffer has four independent direct memory access channels with an 8-word by 32-bit bidirectional First-In First-Out buffer, and byte or word assembly/disassembly for each channel. It can be cascaded to provide up to 64 channels of direct memory access. Optional interfaces are available for the Am7990 Lance or NCR 5390 SCSI bus interface chips. Samples of the set are available now, volume is set for the fourth quarter and the set, including LR3000 CPU and LR3010 maths chip to make 10 chips in total, is \$704 at 20MHz, \$1,097 for 25MHz when you order 1,000 or more of the sets.

STRUCTURE OF SIEMENS-NIXDORF BEGINS TO TAKE SHAPE

Siemens-Nixdorf Informationsysteme AG is beginning to take shape already: the new company, conceived out of the acquisition by Siemens AG of Nixdorf Computer AG and set to come into the world this October, will operate through 10 main divisions supported in different markets by 20 regional operations. Computerwoche reports that "Workgroup 2" - one of seven groups set up by Siemens and Nixdorf to bring the new organisation to life - has been working for several months on a structure designed to co-ordinate the varied activities of the two German companies, and has now published its recommendations in the Nixdorf in-house newsletter "Inline aktuell". The report calls for a structure largely designed to focus different divisions on specific customer groups: accordingly each of the 10 divisions will separately target accounts in industry and the service sector; business and commercial systems; the retail sector; finance and insurance; major accounts in the public sector - including transport, defence and NATO; smaller public sector accounts; resellers; special products and Nixdorf telecommunications systems; consultancy and training; support and service. These 10 divisions will be supported by 20 national or regional operations, of which six will cover Germany. Each operation will be accountable to the 10 divisions in terms of a business strategy and performance to be agreed according to region. National markets to which a regional operation has not been ascribed will be handled centrally through an export department. The aim of the new structure, according to Workgroup 1, is to "spread out the strengths of the existing operations: the strong market-orientation and quick realisation of ideas at Nixdorf, and Siemens' sound experience of large project management" - however, the report fell short of naming which specific Nixdorf activities had a part to play in the new organisation. In the meantime, the other six work groups are preparing their reports. Tension is now mounting in anticipation of the findings of Workgroup 1, which is charged with deciding exactly what products will survive at Siemens-Nixdorf Informationsysteme: its report is expected any day.

MITSUBISHI ACQUISITION OF APRICOT BAD NEWS FOR US ARM

In the wake of Mitsubishi Electric Corp's acquisition of Apricot Computers, its US subsidiary Mitsubishi Electric America Inc, is closing the Torrance, California personal computer assembly plant and merging operations with Mitsubishi Electronic Sales America, its sales and marketing arm in Cypress. Electronic News says that Taci Kiuchi, president of Mitsubishi Electronic Sales America, acknowledges his disappointment with the company's attempts to gain a foothold in the US personal computer market under the Mitsubishi name. One of main problems the company faces is not having a brand name in the personal computer world, but it insists that it will remain in the market since personal computers are integral to its business. However, Mitsubishi has still to clarify whether it will continue to manufacture personal computers in the US, although it does anticipate the need for an additional 15,000 square feet of space at Cypress by next year. The US situation is complicated further by Apricot Computers: Apricot has a research and development centre in Torrance, where it is considering building 80486-based Micro Channel machines. Mitsubishi Electric says that as part of its reorganisation plans, it is merging the reshaped Mitsubishi Electronic Sales America with its semiconductor sales operation in Sunnyvale, although there are no plans to vacate the Sunnyvale location. The combined division will trade under the name of Mitsubishi Electronics America Inc.

NOW E&S SIGNS FOR STARDENT'S AVS

Following its deals with DEC, (UX No 275), and most recently Convex Computer Corp, (UX No 281), Stardent Computer Inc has now signed up Evans & Sutherland, Salt Lake City, Utah, for its Application Visualisation System software, AVS. E&S will sell AVS directly to customers using its high-end, three-dimensional graphics workstations, primarily in molecular modelling and computer-aided design applications. The AVS software originated from the Stellar side of the company, (UX No 227), is becoming a popular programming interface environment for distributed network environments on workstations through to supercomputers. And E&S also says that its industrial design package - Conceptual Design and Rendering System - is now available on its ESV series of high-end graphics workstations, (UX No 275). Chrysler Motors Corp has already signed up for \$1m of the CDRS/ESV systems. The 20 MIPS, six-model Mips Computer R3000-based EVS series starts at \$30,000, CDRS costs from \$45,000.

SONY PICKS UP EIFFEL OBJECT ENVIRONMENT FOR ITS NEWS LINE

The company's progress so far with its News Unix workstations may have been spotty and unconvincing so far, but anyone betting against Sony Corp becoming a substantial player in the world workstation market is woefully ignorant of the determination and tenacity of Japanese companies - and Sony will be prepared to take losses on the business for years longer than would its US siblings. In a further effort to make the line stand out from the crowd, Sony Microsystems Co has adopted the Eiffel object-oriented language, method and software engineering environment of Santa Barbara-based Interactive Software Engineering Inc. Eiffel systems are made up of autonomous modules representing sets of objects with the same structure and the same behaviour and the package includes a complete set of libraries built of reusable components covering fundamental data structures, X-Window Systems-based graphics and multiple windowing software, parsing, lexical analysis, non-graphical windowing and other applications. Target customers are professional software developers seeking to cut down on production and maintenance costs. Interactive will provide Eiffel directly to Sony's end users and its resellers.

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Unix International Inc's programme to induce software developers to convert to Unix has generated over 600 requests for information from US companies so far, 70% of them independent software vendors, 30% consultants or integrators and under its aegis, over 30 companies are already converting applications for Unix: Unix International is still tabulating the European and Pacific Rim response, which is believed to be quite strong; it was concerned that Microsoft Windows 3 announcement would create a "wait and see" attitude but says its initial fears were justified.

The parallel supercomputer business is one of the toughest in the business for small companies, and San Diego-based Supercomputing Solutions Inc, developer of the 32-node, 64-bit CAPPs-9064 parallel supercomputer is running out of cash: the company sold its first machine - to TRW Inc - last quarter, but it must now reduce staff by 50% and take other cost-cutting measures.

AEG AG's heavy investment in its Fort Lauderdale-based ModComp, Modular Computer Systems Inc is beginning to pay off, and the company has won two big orders for its real-time Unix systems. The Jet Propulsion Laboratory wants 57 Tri-Dimensional Model 9735 68030-based REAL/IX machines for NASA's Deep Space Network tracking facility, and Venezuela steel company Siderurgica del Orinoco CA will be paying \$3m for 11 Tri-Ds with the Pace/32 process control software for the Puerto Ordaz steel plant.

Novadyne Computer Systems Inc, the Santa Ana, California buy-out of the McDonnell Douglas company that distributed McDonnell Douglas Information Systems, has cut prices 30% on the Series 18 Pick Reality systems, and on the Pick-under-Unix LX/2100 machine which is based on the Sun Microsystems Sparc 1+ line.

Sun Microsystems Inc has agreed to a settlement of its lawsuit against Hellonetics Inc and its Definicon International subsidiary, alleging infringement of Sun's copyrights and misappropriation of Sun's trade secrets: Definicon acknowledged the enforceability of Sun's copyrights and not to infringe them or disclose Sun's trade secrets, and dismissed its counterclaims against Sun; it also bought licences from Sun granting Definicon the right to use Sun's copyrighted software, so that it can continue to develop its Sparc RISC-based product lines.

P&P Distribution, Rossendale, Lancashire, has set up an open systems division to begin distributing Informix Software's office automation and database applications.

Hewlett-Packard Co has released HP Software Integration Sockets for its HP 9000 Unix computers, describing the product as the first in a series of software-integration tools for integration of software applications for industrial automation: the product is part of HP OpenCIM strategic-manufacturing initiative, one of the three model environments in the NewWave Computing strategy; Sockets is designed to enable applications from various vendors to exchange information from other vendors without requiring the alteration of either the data structures or logic of the specific application, using adaptive data reformatting and process control; the application program interface is accessible in Pascal, Fortran or C languages; the integrator for up to four applications costs \$7,500; for 16, \$25,000; for 48, \$50,000; and 96 costs \$75,000.

Unisys UK Ltd has been awarded a monster contract by the Post Office for 6,300 custom 80386SX-based machines running "a multi-tasking, multi-user" operating system for use as counter terminals at 650 main post offices throughout the UK: the value was not disclosed.

The rift between William Poduska, founder of Stellar Computer Corp and now chief executive of Stardent Computer Inc, and Allen Michels, founder of rival Ardent, which merged with Stellar to form Stardent, has become unbridgeable, and following the lawsuit brought by Michels and Mathew Sanders against Stardent's sugar-daddy Kubota Corp, the two have been fired from their positions as co-chairmen of Stardent: Kubota is to pump \$50m into Stardent over two years.

Banyan Systems Inc, Westborough, Massachusetts has introduced a Vines for 486 Platforms version of its networked server software: it costs \$7,490 and is shipping now.

Hughes Aircraft Co's Hughes LAN Systems says that its 9100 Network Management Center now operates on Sun 4/Sparcstation Unix systems: it previously ran on Sun 3 stations and uses the Simple Network Management Protocol to assist in management and control of standards-based local area networking products.

In the US, American Airline has signed an agreement with ParcPlace Systems to expand its use of Objectworks for Smalltalk-80 in its Sabre computer services division - ParcPlace will provide 80 run-time licenses and training courses. American Airlines is using object-orientated technology to build navigation tools around its huge decision databases.

LPR Office Supplies Ltd, Stevenage, and JPR Office Equipment Ltd, Luton - part of the Systems Reliability Group plc - have signed with ICL systems house Barron McCann Ltd, Letchworth, Hertfordshire, to begin supplying the DRS workstation range.

FedUnix '90 takes place in Washington DC between December 10-12, it is dedicated to the Federal Unix marketplace in the US.

The peripherals divisions of Trinitec plc and Rapid Recall - both owned by the Metrologie International group - are to be combined in a new division called Trinitec Winners, based at Trinitec's North-West London offices.

And London-based Amarante - the Unix distribution division of Trinitec plc - is to begin selling Network Computing Devices' recently introduced low-cost NCD19b X-terminal in the UK, (UX No 292): price is £1,960.

The UK Charities Commission has chosen Sybase and 4GL Fastbuild as its long-term database strategy, and has signed an initial £225,000 deal for software.

Intelligent input/output Unix board manufacturer Anvil Designs Pty, Brisbane, Australia, has changed its name to Stallion Technologies.

Silicon Graphics has won an order worth \$1.7m from the National Research Council of Canada for its Iris 3D workstations.

Correction: the telephone number for the European X-Window System User Group, (UX No 292), whose conference and exhibition takes place at Sussex University between September 24-26, is 0954 51727.

Ingres Corp says that the latest version of its Ingres relational database management system, including the new Knowledge and Object Manager extensions, is now available on the Sun SPARCstation range of workstations: Object Manager allows access to non-standard data structures through SQL, while Knowledge Manager allows predetermined rules to be associated with particular data types.

MicroWare Systems Ltd is now offering its range of OS-9 real-time operating system tools for the Sun 4 range: these include the Sun 4 Cross C compiler, Unibridge Unix real-time connection and Portpak porting kit for 68000-based real-time applications.

Uninet Peripherals of Santa Ana, California, introduced an SCSI Local Area Technology expansion product at Sun Expo last week aimed at the non-expandable SLC workstation: using the machine's SCSI port, the SLAT-1 comes in three versions, offering one parallel port, four serial and one parallel, or eight serial and one parallel port, and supports baud rates of up to 150 Kilobaud, dial-in and dial-out modem capabilities and hardware flow control. Versions are also available for DEC, Solbourne and Data General workstations.

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SIEMENS ADOPTS UNIX SYSTEM V.4, "WILL DISCUSS OSF/1"

Siemens AG, founder member and sponsor of the Open Software Foundation, has finally succumbed to mounting pressure to select an operating system for its new MX range - and has plumped for the AT&T flagship Unix System V.4 system of the rival Unix International camp. For some time now, Siemens insiders have made it plain that the Munchener was simply not in a position to wait for the OSF/1 offering promised for November (UX No 290), and last week's announcement confirms suspicions of a move away from the Foundation that started with Siemens' decision to replace the National Semiconductor NS32323 chip with the Intel 80486, (UX No 288). In a complete U-turn, Siemens now uses glowing terms to describe the flagship AT&T operating system: Unix System V.4 "brings together the most important and widespread Unix systems, and is ideally placed to offer co-existence with, and migration from older systems"; what's more, it has "progressive functionality and good performance at a high quality" and will make available to its users a "comprehensive and consistent range of system and application software". Commenting on the decision, a Siemens spokesman confirmed curtly that it was based on the lack of availability of OSF/1, and said that when OSF/1 was on the market, there will be a "new discussion" - but users that switch to System V.4 certainly aren't going to want to switch again within a year or so's time.

ICL SALE TO FUJITSU

BRINGS CURTAIN DOWN ON UK HARDWARE INDUSTRY

After months of industry speculation, it was confirmed last week that, subject to regulatory approvals, Fujitsu Ltd is to acquire an 80% stake in ICL from STC Plc for around £700m. Adding the ICL stable to its ranks makes the Japanese firm the second largest computer company in the world, leapfrogging DEC into the number two spot behind IBM. ICL is to buy ICL Inc from STC for an additional £42.8m, and Fujitsu will seek a full listing for ICL on the London Stock Exchange sometime in the next two to five years. Arthur Walsh, chairman and chief executive of the currently beleaguered STC Plc, denied that ICL was undersold, although the £742.8m price is well short of the £1,000m that was talked of in the City. The sale brings to a close the final chapter of serious British-owned involvement in computer hardware - the Transputer is now Franco-Italian, Acorn Computers plc is owned by Olivetti, Apricot Computers has gone to Mitsubishi Electric after its former parent killed the hardware side at ITL, Ferranti Computer has withdrawn to the role of systems integrator, GEC Computers has vanished, and it is left to the likes of Amstrad Plc, Research Machines, HM Systems and Integrated Micro Products to keep the dimly flickering torch alive. The ICL deal turns Fujitsu overnight into a major player in the European computer market and has come to fruition remarkably quickly on Japanese time-scales - only nine years after Robb Wilmott signed his technology exchange agreement with Fujitsu that gave ICL privileged access to the Japanese company's chip technology - but you can be sure that Fujitsu saw eventual control of ICL as the final outcome of that arrangement. Takuma Yamamoto, chairman of Fujitsu, and ICL's chairman and managing director, Peter Bonfield, insist that the two companies will both compete and co-operate in the European marketplace, and say that there will be expansion of research activities both in the UK continental Europe. Bonfield maintains that ICL's collaborative projects on government and defence work will proceed as before, although some contracts will require approval from the European Commission. Yamamoto acknowledges however that while Fujitsu Espana SA, the very successful joint venture with Telefonica de Espana SA, won't be integrated with ICL Espana immediately, it will almost certainly happen in the future. In the US, Yamamoto says that he wants to expand at workstation level, and he does not see ICL's relationship with Sun as a problem or obstacle. ICL has been collaborating with Sun Microsystems on the Unix-based DRS 6000 family, and both Sun and Fujitsu will sell the box OEM. STC intends to concentrate on telecommunications, and it has retained the telecommunications systems division of US-based Computer Consoles - computer-based directory inquiry systems and intelligent network systems, while ICL has kept the office systems arm.

MARINER SPARCS

ARRIVE FROM MARS

Mars Microsystems, an unknown Pennsylvania start-up backed by Tatung Co of Taiwan, fancies it'll be the first concern to deliver on the promised wave of low-cost, low-end Sparc clones made in the Far East and exported to the US and Europe. The venture, which got started less than a year ago and has yet to trumpet its existence, is planning to start supplying its Sparcstation-compatibles, now in beta test, next month. There will be three models built around 25MHz Sparc parts from Cypress, with an optional plug-in Intel 80386 board. They are rated at 16.8 MIPS, with a SPECmark of 11.3. The Mars-Tatung co-development effort and its resulting Mariner 4i product line is separate and distinct from the ERSO-derived VMEbus-based Sparcstation 1-compatible project undertaken by Tatung of America, (UX No 286). The Tatung/America project, whose first fruits were displayed with no fanfare and little notice last November at Comdex (UX No 258), has apparently hit some bumps, though the the ValueStation series as it is known, has come to light again following an OEM deal Tatung recently signed with GraphOn Corp. Tatung will be offering GraphOn's X-terminals for use with the new workstations when they eventually appear, and Tatung has committed itself to a more serious relationship, having taken an undisclosed stake in the San Jose, California-based firm, for which it will also be doing manufacturing. The ValueStation has yet to ship or even be officially announced, though production had been scheduled for the second quarter. A formal introduction, set for Comdex/Spring in June, was reportedly scrubbed and rescheduled for fall. The Taiwanese, who lack any track-record in workstations, have apparently had more luck with the Mars venture, one of four scalable Sparc projects they have committed to. More details on page 6.

OSF LAUNCHES DME RFT

As expected the Open Software Foundation duly pulished its fourth Request for Technology last week, calling for technologies to provide a Distributed Management Environment (DME) conceptual framework and a set of systems management applications that prove its viability, (UX No 293). Technical evaluation of the RFT will be done outside the US for the first time by OSF's European development office in Munich. The idea is to give OSF/1 some of the systems management tools and facilities that have been an essential part of mainframe and proprietary operating systems for years. Details on page 4.

AT&T, INTEL ARE LATEST TO BE SPECmarked AS MEMBERSHIP SWELLS TO 22

SPEC - the Systems Performance Evaluation Cooperative - has released its latest batch of benchmarks for Unix workstations and servers, which include first results from AT&T's new 80486-based server and Intel's 80860 box. Also revealed are SPECthruput results from Stardent's MIPS Computer Systems-based multi-processors and updated figures on new models from other manufacturers. SPEC membership is now up to 22 with the recent additions of Compaq Computer Corp, NCR, Prime Computer and Siemens AG to its ranks. Third Quarter 1990 SPECmark results:

Machine	SPECmark
MIPS RC6280, 60MHz Beta	42.6
Control Data 4680, 60MHz Beta	42.6
Stardent Computer 3010	29.4
Alacron AL860 Accelerator	24.3
Intel STAR860	20.6
Silicon Graphics 4D/320S	19.5
MIPS RC3260	18.3
Control Data 4360	18.3
MIPS RC3230 Server Magnum 3000	17.9
Control Data 4320 Colour	17.9
MIPS Magnum 3000 Workstation	16.7
MIPS RC3240	16.6
Control Data 4340	16.6
AT&T StarServer E	11.6
DEC VAXvector 600 Model 410	10.2
DEC VAX 4000 Model 300	7.9

Third Quarter 1990 SPECthruput Results:

Machine	SPECthruput
Stardent 3020	2@26.4
Stardent 3040	4@22.9

AIM ADDS MORE SUPPORT FOR CEEMORE

AIM Communications Services Ltd, St.Albans, Hertfordshire, is releasing version 3.0 of its Unix communications software Ceemore, which controls electronic mail, fax, telex, file transfer and access to external databases and communications services. It integrates with office automation products such as Uniplex, WordPerfect, OfficePower, OfficeManager and Q-Office, can access X.25 networks via its support of the Symicron X.25 card, and has X.400 gateways. It comes with its own interface, runs on any Unix-compatible network and allows the transfer of written material and graphics. Ceemore costs £495 on a Unix-based personal computer. AIM bought the business, products and employees of Circulas Research International - including Ceemore - from Asset Technology back in May, and reckons there are around 5,000 users of the software, most in the UK. AIM has plans for an X-Windows version of the software in the future, and will add foreign language support.

DATAPRO AND INFORUM

SPONSOR ANOTHER UNIX SHOW...

Just when it appeared our dance cards were full for the upcoming show season this autumn, yet another Unix expo gets put on the agenda. This one's a regional shin dig called Networkin/Unix '90 set for September 24-25 in Atlanta, Georgia, the rebuilt hub of the New South. Its sponsors are Datapro, the old-line market researchers, and Inforum, one of those new-fangled techno-shopping malls where companies like AT&T and IBM set up boutiques. The pair have set up very appropriate user-directed programs and exhibitors include firms like SCO, Andersen Consulting, AT&T, BellSouth, Compaq, Data General, IBM, Sun Microsystems, Informix and Ingres. They're not expecting huge crowds but then they intend to repeat the experience in April of 1991, shooting for bigger things. A by-product could be that it draws traffic away from Unix Solutions and Unix Expo, both scheduled for October, the first in California, the second in New York. Inforum, which aims to get big in the seminar/market research business, also has an angle the other conventional shows don't. Housed in a magnificent example of modern architecture designed by John Portman, it aims to be a partner in the distribution scheme. Part of its service is helping major companies write their requirements for business and then trotting the appropriate technology providers by them.

...AS JAPAN GETS THE HOTS FOR UNIX WITH COMMERCIALY-ORIENTED SYMPOSIUM...

Last month was Unix month in Japan, with a number of events focusing on the operating system. The 15th Japan Unix Society's Symposium was held on July 9 and 10 and from small but enthusiastic beginnings several years ago, this technically-oriented symposium has become more commercial as the market acceptance of Unix in Japan has increased. This time several international guests gave keynote speeches and participated in panel discussions, including John Mashey, vice-president of Systems Technology at MIPS Computer Systems Inc, who predictably spoke on the theme "CPU Technology and Trends: More MIPS, cheaper MIPS; never too many", and Evan Schaffer and Mike Wolf from Robinson Schaffer Wright, who spoke on use of the Unix shell as an applications generation language. There were attendees from South Korea, China and Taiwan who participated in a panel discussion on internationalisation. Other speakers from Japanese vendor companies spoke on a wide range of topics including Sony Corp on database construction using an object-oriented language; NEC Corp on a high-performance file system for supercomputers; and Ricoh Co and Sony again discussed communications interfaces between Unix and devices such as facsimile machines and ISDN-based local area networks.

...AND AT&T SYSTEM SOFTWARE TECHNOLOGY SEMINAR FILLS IN THE ROAD MAP

At the end of the month, AT&T Co sponsored its 1990 Unix System Software Technology Seminar on the theme "Building on the Standard Base", in an effort to provide information on plans for distributed computing, multiprocessing and transaction processing in Unix System V.4, the base technologies as indicated in Unix System V Roadmap. The two days presented such notables from AT&T Bell Laboratories as Dr Peter Weinberger, the chief scientist of Unix System Laboratories, who gave a key note speech on the future of System V; Dr William Leighton, deputy head of security systems engineering at AT&T Bell Laboratories who spoke on the theme of "implementation of a trusted kernel, auditing and security features in System V, while at the same time maintaining the compatibility, performance and friendliness of System V". Ms Youbong Weon-Yoon indicated the need for a global directory for networking applications, described the X500 directory standard and its use as a common multi-vendor directory service.

PEGASUS SELLS MOST OF SPHINX TO VISTEC FOR ABOUT £700,000

Pegasus Group Plc has recognised the error of its ways and sold the product distribution division of loss-making Sphinx Ltd for approximately half the £2.3m it paid Pamela Gray in April 1989 (UX No 224). The buyer is bustling Vistec Group Plc which has been making a number of acquisitions over the past year including OI Computers, National Computer Supplies, and Level V Distribution Ltd. The Belper, Derbyshire-based computer supplier announced last month that it had negotiated a £2.5m loan with the National Westminster Bank specifically to fund further acquisitions, and Sphinx is costing £500,000 in goodwill, plus around £200,000 for fixed assets and outstanding support contracts, £167,000 of which has been paid. It says that Sphinx will complement the activities of Level V which specialises in the distribution of Unix-based systems and networks. Sphinx made a loss of £277,000 on turnover of just £811,000 for the six months to January 31 1990, and turnover for the 11 months to June 31 was around £4.5m. Pegasus Group has retained the company's training, maintenance and software divisions, but they will go under Pegasus' name because Vistec has bought the rights to the Sphinx name.

DAISY SYSTEMS IN CHAPTER 11 BANKRUPTCY PROTECTION

Labouring under the mountain of debt it assumed with its rash acquisition of Cadnetix Inc, Daisy Systems Corp has responded to the involuntary bankruptcy petition brought against it by some of its bondholders on May 31, (UX No 284), by filing for Chapter 11 bankruptcy protection. It also requested the appointment of an operating trustee and discloses that it has \$40m in secured debt and \$73m in debentures out, and these sums are far in excess of its assets. The international operations are not directly affected by the filing, and the company plans a big reduction in its US sales, marketing, customer service and engineering workforce. It hopes to sell the Daisy/Cadnetix computer aided engineering software and systems subsidiary - essentially the whole company - as a going concern. Ahead of the filing, which is supported by the company's principal secured creditor, Heller Financial Daisy shut down all US operations for two weeks on July 18. Daisy has about 800 employees worldwide, about 500 of them in the US. Racal Electronics Plc's Racal-Redac unit is thought to be one of two contenders interested in buying the company, the other being an investment group.

VISIONWARE READIES VERSION 6 OF PC-CONNECT

UK user interface specialist, Visionware Ltd of Leeds, is preparing to launch Version 6 of its PC-Connect product, which uses Microsoft Windows running on a PC as the user interface for the host Unix system. Visionware is well pleased with the increased viability that Microsoft Windows 3.0 has given to its product line - the new memory management unit supporting up to 16Mb memory both improves performance and allows applications to be kept open and accessible. The new version includes increased connectivity options for non-Unix hosts, simpler configuration, more terminal emulation options and a new communications mechanism. Unix Executive and Notepad applications will also be bundled in with the release. Using the SoftBridge control language and Dynamic Data Exchange facilities, users will be able to access both Windows and non-Windows applications such as Lotus and WordPerfect. Visionware has already signed up ICL, Apricot and Reseach Machines to bundle the product, and in June sold the source code of PC-Connect and PC XVision to NCR Corp. Also in September, Visionware is unbundling the PC end of the PC-Connect product from the host software, selling it as a low-cost PC Connect Junior product, which acts as a terminal emulator for PCs rather than a full-blown graphical representation.

WYSE LAUNCHES MULTI-PROCESSOR 486 BOX

The announcement of Wyse's multi-processor 80386 systems at the beginning of the year sounded a bit flat, coming as it did midst a bunch of 80486 announcements from other manufacturers, (UX No 267). However Wyse is now ready to take on the mid-range Unix marketplace with a multi-processor 80486 box for up to 256 users. The series 9000i Model 940 can run from one to eight 25MHz Intel processors, and is priced at \$38,000, rising to \$215,000 for a top-end system. Adding an additional processor board costs \$14,000. System memory currently goes from 8Mb to 64 Mb, but with 4 Mbit DRAM parts, that will climb to 256 Mb, and 200Mb, 300Mb and 600Mb disks are offered. The Wyse multi-processor architecture has been co-developed with Sequent. All processors 386s and i486s can be mixed, and the system executes a single shared copy of the AT&T Unix 3.2-based operating system - the run list is maintained on a separate Motorola 68000 processor resulting in a true, symmetric, tightly-coupled architecture that dynamically balances the workload and responds linearly when additional processors are plugged in. Wyse V.4 will be shipping late in 1990 with streams-based TCP/IP, 8 bit and X-Window support together with POSIX, GOSIP and C-2 security compliance - OSF/Motif will be offered in future software releases. A UK launch is promised for the end of August, and a low-end symmetrical multi-processing system is expected later in the Autumn.

ICL FORMS DOCUMENT IMAGE PROCESSING SYSTEMS...

Whoever owns ICL this week, business must go on at the company, and its latest move is to create a 15-person Document Image Processing System unit to address what is the next white hope for rapid growth in the computer industry. The new unit will initially seek large-scale contracts with government departments and agencies, and will use its Unix machines at the heart of the systems it integrates. It is planning to buy scanners, storage systems and printers on the OEM market and the new unit will write standardised software to manage image systems, and says it is talking to potential collaborators that could supply it with the hardware.

...AND PICKS UP \$3.5m OF MAINFRAME, UNIX FROM JAMAICA'S NATIONAL COMMERCIAL BANK

ICL is something of a force in the Jamaican computer market, and the UK company is celebrating \$3.5m of new business from the National Commercial Bank of Jamaica, which is voting the ICL Open Systems ticket by going for two DRS 6000 Level 50 Unix servers along side its new Series 39 Level 35 DXP main frame. The bank is replacing two ICL ME29s with the new mainframe, and software development will be done on a network of Sun Microsystems workstations around the servers, using the Ingres relational database and software engineering tools. ICL's Quickbuild will run on the mainframe, interfacing to Ingres. The order also involves several DRS 400 Level 70s, and the Officepower software.

OSF LAUNCHES DISTRIBUTED MANAGEMENT RFT - PORTABILITY "NOT RESTRICTED TO UNIXALIKE OPERATING SYSTEMS"

Large users of IBM, ICL and DEC systems expect operating systems support - what used to be called central administration - for tasks such as backup, software installation and distribution, security, licensing, restore and archiving, print spooling, accounting user management and security, all of which should be addressed by the RFT. If successful, the Distributed Management Environment OSF constructs would be the first time a consistent uniform approach to such issues would be available across multiple platforms.

As previously suggested (UX No 283, 290, 293), the RFT's technical evaluation will be done outside the US for the first time by OSF's European development office in Munich. OSF's reason for conducting it in Europe has been the advanced state of the software there. Arno Schmidt, OSF director of European Development, said last week Bull, Siemens and Nixdorf, all OSF founders, were particularly active in the area. In an effort to locate all the available software, OSF last week began a direct mail campaign to some 7000 firms: 2000 in Europe, 5000 in the US. A separate mailing will be done in the Far East. The decision to do a DME RFT was dictated by the membership last fall which made a multivendor distributed DME solution a top priority. It constitutes the third and last leg of OSF interoperability scheme which includes DCE and communication service for which it will not be doing an RFT. OSF is looking for technologies that are standards-conformant, heterodox, scalable, modular, secure, Motif-compliant and architected to fit its DCE model - if not already DCE-ready - as well as capable of running on stand-alone systems. It is not restricting the DME's portability to "Unix-alike" operating systems, it said. It will run on SVR4, leaving competitors to wonder whether by de-emphasizing OSF/1 and focusing attention on adjacent issues such as DCE and DME, OSF hopes to pick off a number of Unix International adherents. Companies interested in applying must be prepared to license their source code to OSF. Responses are due September 21, completed submissions by December 15. The technologies must be ready for commercial shipment during the first half of 1991. OSF is holding an initial technology review meeting for DME submitters in Boston during the first week of November. The selected technologies will be announced in the first half, with products available by the end of the year, it said. OSF in Munich can be contacted on +49 89930 92199 or fax +49 89930 92104.

FOUNDATION FAILS TO DELIVER DISTRIBUTED COMPUTING ENVIRONMENT PRICES...

The Open Software Foundation failed last week to set pricing on the Distributed Computing Environment technologies it selected over 10 weeks ago. The consortium, which has taken some flak over previous pricing decisions, now says the announcement will be made September 21. In an effort "to get it right the first time," it said, it had a marketing study done by a consulting firm it declined to identify comparing the prices and licensing terms of similar or related technologies - source, binary and modules - and making recommendations for OSF's own price list. OSF, which has also reportedly sought input from its membership on the terms they need, expects to finalise its prices internally this week. It will then run the schedule past its members and the companies providing the DCE technologies. What OSF was able to trot out last week was its first DCE snapshot: some 3000 pages of shrink-wrapped documentation and specifications for program planning plus a tape of at least some of the source code of all the various pieces of the DCE pie. OSF officials estimated that perhaps 10% to 20% of the integration needed to bring the product to market has been done. A team of over 100 people has been brought together to work on it. It was unclear from OSF's answer to the question, "Does it compile?", whether it does or not. A second snapshot is due in October. A developer's kit will become available in December. A spokeswoman also indicated that DCE will probably continue to be called simply that. OSF had wanted to dub it Ensemble but apparently the name is already taken.

...BUT SIEMENS AND HITACHI ADD SUPPORT...

In the wake of the news that OSF founders Hitachi and Siemens might be getting nervous about OSF's product viability and are secretly mending fences with rival consortium Unix International (UX No 292), it was almost providential to find unsung pledges from both of them promising to adopt OSF's Distributed Computing Environment tucked in our DME press kits last week. Or at least as far as Siemens goes - part of the technology will be used, specifically the parts that are XPG-compliant. Oracle and VXI Technologies added their endorsements too.

...WHILST FOURTH SNAPSHOT OF OSF/1 IS SHIPPED

Meeting its previously set schedule, OSF has functionally frozen OSF/1 and shipped its fourth snapshot of the operating systems to early access recipients. It says all the technology promised for OSF/1's initial release is included. Between now and November when the software is due for launch, resources will be concentrated on QA, conformance testing and documentation review. The fourth snapshot includes increased performance in multiprocessing environments, integration of basic security support and Posix functionality.

ELAN RELEASES NEW PUBLISHING SYSTEM UNDER OPEN LOOK AND X

Elan Computer Group Inc, of Mountain View, California, has released a new electronic publishing system, Avalon Publisher, which uses the X-Windows system and Sun Microsystems' Open Look as its user interface. Aimed at the office publishing and technical documentation, Elan points to Avalon's object oriented features and context sensitive menus as distinguishing the software from competitive products. Words, graphic elements or paragraphs are all considered as objects, and can be cut, copied or pasted through the same set of simple operations. The menus supply only operations appropriate for the objects selected on screen, so that menus are never more than two layers deep. Other features include ready made templates, tables charts and forms facilities, spelling checker and thesaurus, and an illustration palette. The company offers a floating license for the package, allowing users to share the software on a network of workstations and terminals, paying only for concurrent use on the network rather than per CPU. Implemented with Elan's License Manager, the result is a per-user cost of \$995. It is available on Sun 4s and SPARCstations, with HP 9000 and DECstation versions planned for the end of the year.

AT&T, PYRAMID TAKE UP SYSTEMS MANAGEMENT SOFTWARE FROM BKS...

Systems management facilities that bring Unix up towards the functionality of proprietary operating systems are becoming fashionable, now that Unix machines are at last starting to offer comparable performance and reliability at better price/performance levels for demanding commercial applications. Aside from the Open Software Foundation's moves to establish some standards in this area - see opposite - New Zealand based Best Knowledge Systems Pty Ltd, (part of the Lionel Singer Organisation), is starting to up its profile outside of its home territory, and has signed a deal with UK software distributors Open Systems Marketing Limited, of Windsor in Berkshire. The Ease Suite of systems management packages has already been taken up by hardware manufacturers such as AT&T and Pyramid Technology, and offers the soft of facilities that users of ICL's VME and DEC's VMS operating systems are surprised not to find already as part of Unix. With four years of development including its own implementation of the ISAM file system, cpio utilities and 650,000 lines of C code behind it, the BKS suite now consists of six modules, which include menu security, an administrative front-end, a customisation language for OEMs, sophisticated print spooler, archive organisation utility and a batch/job scheduler. X-Window versions are on the way. Open Systems Marketing says it is ready to sign up major OEMs and systems houses for the modular tool set package.

...AS AT&T CUTS 650 COMPUTER JOBS, 150 AT BELL LABS

Now that AT&T Co is phasing out its proprietary 3B Unix machines - and only making a part of its personal computer requirement - with everything new bought in, the company has a lot of surplus computer development staff. Accordingly, it is reassigning 100 to 150 people working on computer development at Bell Laboratories to other work there. It is also merging the sales, service and technical support operations in its computer division at a cost of 500 jobs, reducing staffing to 8,500 from 9,000. Some jobs will be shed by attrition and reassignment, but lay-offs are expected to complete the reduction by the end of September. AT&T already made similar cuts earlier this year.

MIPS GROUP TO SEEK NEW TECHNOLOGIES IN CORPORATE SHAKE-UP

Sunnyvale, California-based MIPS Computer Systems Inc has formed a new "strategic development group": the MIPS Technology Development Group has been created to identify and develop relationships with emerging technology companies whose products complement MIPS' business or who are potential users of MIPS' technology. Relationships may include technology licensing arrangements, marketing agreements, equity investments or other financing relationships. The company also said that Charles Boesenberg was appointed president of the company, moving up from executive vice-president of marketing to take on responsibility for worldwide sales, marketing, manufacturing and service. Robert Miller remains chairman and chief executive. Jake Vigil, senior-vice president, engineering and manufacturing, is leaving MIPS to pursue other personal and business interests at year-end after he's completed key projects.

DATAQUEST, JSB TALKS TO TERMINAL MANUFACTURERS ON LOW-END WINDOWING STANDARDS

Macclesfield UK-based JSB Computer Systems has made its mark providing windowing facilities for dumb terminals rather than the graphics workstations, PCs and X Terminals that habitually provide the platforms for graphical user interfaces. Now, the developers of JSB Multiview have been making moves to improve the lot of dumb terminals, and in June the company got together with Dataquest and a number of leading terminal manufacturers to begin work on a standard approach to windowing terminals. Cyfer and other manufacturers have developed windowing terminals in the past, but none have caught on due to the lack of a standard interface for software developers. The meeting, which involved terminal manufacturers such as Wyse, Televideo, Qume, Hewlett-Packard and IBM, took the first steps towards agreeing on a standard approach for facilities such as windowing and mouse support on character-based terminals - an avenue that would open up the market for improved user interfaces on very low-cost display units, while users are still baulking at the cost of X-Window terminals and PCs on every desk. JSB's managing director Steve Jones identifies the main benefit of graphical user interfaces as window concurrency. "It lets the terminal match the way you work, flipping between various tools. We are all interrupt-driven". Although Jones says it is early days yet, he is optimistic that agreements will be reached. Jones claimed that the X/Open Group is also interested in the developments.

IBM PLANS SEPARATE DATABASES FOR AIX 3, AIX/370

IBM is working on not one but two relational databases for Unix, Computer Systems News suggests. The paper hears that as well as the one being developed for AIX 3 on the RS/6000, IBM has a parallel effort going on a database for the 370-type mainframe version of AIX Unix - and has transferred two DB2 architects to the project. Although AIX does not come under the SAA umbrella, the forthcoming Unix databases are expected to be part of IBM's distributed database schema.

DG SPEEDS UP PERFORMANCE, STANDARDS COMPLIANCE WITH LATEST DG/UX RELEASE

Data General Corp has improved the performance of its DG/UX Unix implementation, claiming that the latest version - DG/UX 4.30 - performs up to 370% faster than the previous release. Tests were carried out using the Neal Nelson Business Benchmark set. DG/UX has designed in features such as symmetric multi-processing, "commercial grade" filing system and bundled in Looking Glass desktop manager from Visix Software. The new release includes 880pen binary compatibility standard certification and FIPS 151-1 Posix compliance - the US Government's equivalent to the IEEE Posix standard. On the networking side, Streams-based TCP/IP has improved network throughput by up to 90%, according to DG. Other additions include a new kernel debugger and support for Novell's Portable Netware. Along with Looking Glass, DG is also bundling the Framemaker 1.3 desktop publishing system for a limited time.

APPEALS BOARD CANCELS SEARS CONTRACT

The General Services Administration's Board of Contract Appeals has ordered the Treasury Department to cancel its \$228m Departmental Microcomputer Acquisition Contract - DMAC II - with Sears Business Systems Centres awarded back in May. According to the board, Sears' proposal did not meet the requirements because it included an 80286-based Unix operating system to run on an 80386 machine, as well as a laptop computer that exceeded the specified weight requirement; protests came from Sysorex Information Systems, SMS Data Products Group and Falcon Microsystems Inc.

MARINER SPARCS TO DEBUT AT SIGGRAPH THIS WEEK

By Maureen O'Gara

Mars resists the sobriette cloner with its implications of an exact but cheaper knockoff. It wants to be known for adding value and being the first company to deliver a box that is - at one and the same time - both a Sparc and a PC. The Mariner 4i, which was shown privately at a suite at Sun Expo two weeks ago and will be unveiled at Siggraph this week, will come in three models, built around a 25MHz Cypress-built Sparc chip and an optional Intel 386 processor that plugs into the mother board. Mars says fully configured machines will run both SunOS and DOS along with all their associated application packages at full power.

The very first attempt to bridge the gulf between Sparc and DOS was Sun's own 386i box, a product line built around only one microprocessor, the Intel chip. It ran SunOS but its DOS mode was purely a software emulation. Performance was not its strong suit - perhaps the equal of an XT running Windows - and although it has earned Sun around \$150M, it's now being phased out in favour of a Sparc-only line. The price/performance claimed for Mariner compares favourably against Sun's most recent entries, the Sparcstation 1+ and the IPC. An entry-level diskless workstation with a 16-inch monochrome screen will be priced at \$5995. A hard-disk version with a 19-inch colour screen and 207MB will go for \$8995. The DOS option, which includes its own memory and cache, will cost \$2000. A spokesman said Mariner is rated at 16.8 MIPS (versus Sun at 15.8) and Specmarks at 11.3 (versus Sun at 10.0). All Mariner's models use an AT bus, as opposed to Sun's Sbus, giving them immediate access to PC peripherals. Mariner's screen is a 1152 X 900 Sun-compatible. In 386 mode, it's a 640 X 400 pixel-for-pixel VGA via a proprietary hardware emulation.

Trading up

The company said the boxes are aimed at the power PC user interested in trading up to a workstation. Mars' price points and power, if delivered as promised, would appear to make the buying decision anxiety-free. Mars, named appropriately enough for a nearby town, was co-founded by Brian Rosen and Kevin Gonar. It is Rosen's third start-up, preceded by the now defunct Three Rivers Computer and the still ongoing Megascan. Rosen cut his teeth at Xerox PARC in the late 70s working on one of the first workstation projects, code named Dolphin, a predecessor of the famed Star. He tied up with Gonar, who while at Xylogics landed the Sun account for tape and disc controllers, at Megascan. Mars currently employs 20 people. Engineers were sent over from Tatung to aid in hardware and software development. While Tatung is providing the bulk of Mars' undisclosed funding, shares in Mariner's intellectual property rights and holds exclusive rights to manufacture and market outside the US, it has no points in the company. Gonar says Mars would like to do a joint venture with Tatung because Mars has four more Sparc designs it wants to bring to market in the next 24 months. It is discussing the idea with the \$2 billion-a-year concern but Gonar indicated the Taiwanese government makes it very hard for local firms to invest offshore. As a result, Mars may have to go elsewhere for future funding and is chatting with companies such as Goldstar and Samsung. Mars will be handling the market itself in the US and expects to start selling direct and OEM immediately. Gonar claims that 75 OEM companies are interested in beta testing the machine. High-quality distributors and retail channels will follow in the first quarter.

TRIGEM AND TWINHEAD TO FOLLOW MARS...

Low-cost clones can also be expected out of Trigem, the Korean firm, and Twinhead, another Taiwanese company, probably by the end of the year. Both have licensed SunOS from Interactive Systems, the only source for the software other than Sun itself. Also expected to jump into the fray in the next few months is a Fremont, California start-up called Solatrix, a division of Able Technologies. While still aiming at the low-end of the market, it is believed to be toying with some higher performance specs and a more expensive price point, aiming to assert itself apart with its disk handling, networking and graphics capabilities including its own version of GX. Solatrix has just stuck its toe in the Sun arena with a \$395 add-in board that gives a single-slot Sbus card a Centronics parallel port. All three firms are apparently aiming at the Sparcstation 1 marketplace. For its part Interactive figures that except for a few "aberrations" such as Mars, FPS and Goldstar which went direct to Sun for their code, it's been getting the bulk of the inquiries for the last 6 months. It says so far it's had 80 projects from almost as many companies come its way - 50% from offshore. Some of course will die along the way but it still figures the majority of them are viable - though will probably be niche products. Interactive's own forecast projects 30,000 compatibles shipped in the next 12 months. The technology of course is easy to get. Distribution is another story.

...WHILST TOSHIBA ADDS TO SPARC LAPTOP SERIES

Also on the Unix front, Toshiba Corp has been sponsoring a Toshiba Sparc laptop fair. The company announced a new model of its Sparc-LT laptop, the AS1000/E10, whose main feature is a electroluminescent screen with a 2mS screen switching response time, which is approximately 20 times faster than the monochrome liquid-crystal diode display released in May this year, although the new laptop is in other respects identical. Shipments will start in September, for a price of just over \$13,000, and Toshiba hopes to sell 2,900 of the machines in the first two years. Since the monochrome Sparc-LT L10's release two months ago, it has taken orders for 1,000.

MOTOROLA COMPLETES 68030 REDESIGN

Motorola Inc has completed redesign of the 68030 microprocessor to eliminate use of the technology on which Hitachi Ltd claims a patent, and hopes to use the fact to rush the Japanese company into a settlement of their patent infringement disputes. Motorola says that it is sending samples of the new part to key customers, although getting it qualified as an exact replacement for the original 68030 could take up to a year, Electronic News believes. Motorola does not intend ever to fabricate the new version in volume unless it has to, hoping instead to use it as a lever to get Hitachi to agree to a settlement. Motorola said the redesign was essentially a matter of one engineer removing a couple of transistors.

INFERENCE ADDS UNIX VERSION OF AUTOMATED REASONING TOOL

Inference Corp, El Segundo, California has come out with a Unix version of its Automated Reasoning Tool for Information Management. ART-IM/Unix is claimed to be the only major expert system tool to support the Motif windowing graphic user interface and will be out for IBM's RS/6000, Sun Microsystems' Sun-3 and Sparcstations, Hewlett-Packard's Series 9000, 300 and 800, Apollo 2500, 3500, 4500 and 10,000 systems and Data General's AViiON workstations this month. The product is designed for information-intensive applications such as diagnostics, scheduling, computer-aided engineering, computer integrated manufacturing and computer-aided drafting and applications developed using it can be distributed across other operating environments without recoding. It is already available on all DEC VMS and Ultrix operating systems under DECwindows; there are also versions for MS-DOS, OS/2 and IBM MVS with IMS and CICS. The Unix version costs \$12,500. Inference also added Version 3.0 of ART-IM for MS-DOS and IBM mainframes, which includes new Inference Knowledge Builder and Inference System Builder to make the C-based expert system tool easy to use for any level user. At each step in the menu-driven windowed interface, the user is guided to write only valid rules. And System Builder provides an open object-oriented architecture to enable users to integrate knowledge-based applications into traditional software environments. The new features are included in the Unix version; the MS-DOS version is \$8,000, this quarter, the IBM mainframe version is \$160,000 and follows next quarter.

UNIPLEX LOOKS FOR RUSH FROM MS-DOS SOFTWARE RESELLERS FOR ITS SHRINK-WRAPPED UNIX LINE

Uniplex Ltd, the developer of office automation products, has entered the shrink-wrapped Unix software market under a new label - Uniplex Micro Products. Users and resellers moving up from MS-DOS will receive a single shrink-wrapped package containing software, licence, end user documentation, systems administration documentation and an installation guide. The newly packaged products will initially be available under Santa Cruz Operation Inc's SCO Xenix/386 2.3.2, SCO Unix V/386 3.2.0, Interactive Systems Corp's Unix System V/386 3.2.2 and IBM AIX 2.2.1 for the PS/2. Five packages are on offer: Uniplex II Plus, Uniplex Advanced Office System, Uniplex Advanced Graphics System, Uniplex Windows OSF/Motif version, and a new product, Uniplex Datalink, which acts as a front-end for third party databases including Informix, Oracle and Ingres. Initially Datalink will be available only for 80386- and 80486-based machines standardised versions of Unix or Xenix, but Uniplex will do versions for other machines over time provided at least three of the major databases are supported. The Uniplex Micro Products will be generally available during the second week in August and the Datalink product during September. The basic Uniplex II Plus package costs £1,000 for up to four users and the Datalink product is £300 for the same number of users. Uniplex is looking for this announcement to increase greatly the number of its registered software resellers, currently 175, because traditional resellers of packaged MS-DOS software will not need any additional education to sell the new line to the end-user.

SANDERSON TO TAKE COMPUTER FACTORS

In an ingeniously structured deal, Sanders on Electronics Plc has paid £55,000 for a 55% stake in Ferrari Holdings Plc's UCL Computer Factors with an option on the other 45% at a price of £500,000 plus attributable asset value, up to the end of next year. Ferrari only really wanted UCL for its £6m-a-year maintenance business, and vertical market Pick-popper Computer Factors is too small to survive on its own. Because of its size and the synergies it can bring, Sanderson is about the only company in the world that could make a go of the business and turn a drain into an asset. Computer Factors lost £520,000 in the year to December 31 on sales of £5.1m, but management accounts suggest that after restructuring it is moving towards break-even now. The £55,000, representing pro rata asset value, is essentially option money as far as Sanderson is concerned - its exposure is limited even if it can't turn the company around, and the structure of the agreement seems to put Computer Factors under notice to perform or be closed.

NEW 49.3% HOLDER OF FPS MARKS COUPON "X" FOR NO PUBLICITY

Floating Point Systems Inc, which now trades as FPS Computing, has completed the transaction under which it receives \$14.5m in return for a line of convertible preference shares representing a 49.3% stake in the company if fully converted - but the investor remains unidentified, (UX No 287). FPS Computing told **United Press International** that the investor does not want to be identified and he declined to confirm or deny reports that it is State Farm Mutual Insurance Co, which has a large minority share in Lattice Semiconductor Corp: both companies are based in Beaverton, Oregon and both were co-founded by Norman Winningstad, who is now chairman of each. Of the \$14.5m, \$1.4m has gone to reducing the company's debt, and most of the rest is earmarked for product development and marketing of the forthcoming Sparc RISC-based minisupercomputers. FPS Computing has not reported a profit since 1987 and it has shrunk to about 400 employees from the 1,600 at its peak in 1986.

CIRRUS ADDS UART CO-PROCESSOR

Cirrus Logic claims its new CL-CD1400 intelligent input/output co-processor is the first UART - Universal Asynchronous Receiver/Transmitter - to incorporate Unix character processing capabilities. Designed for Unix workstation applications, with four ports, it has a proprietary RISC processor embedded in its architecture dedicated to communications processing. It goes into volume production in October, priced at \$19 apiece for 1,000-up.

GRAPHON FOLLOWS TATUNG DEAL WITH NEW X-TERMINALS

Fresh from its deal with Tatung - see front page - GraphOn Corp, San Jose, California, which released a low-cost OptimaX X-terminal last year, (UX No 221), has unveiled a new 21" offering, the GraphOn 21, with a resolution of 1280 by 1024 and 70MHz refresh rate. GraphOn differs from other X-terminal players by making the host system, not the terminal, run X server software, and the terminal uses the host's RAM. The GraphOn 21 is priced at \$2,000, X server software is \$400. A smaller brother of the new terminal has also been introduced - the GraphOn 14 - which comes in at \$1,000.

LPC HAS NCR TOWER-COMPATIBLE MOTOROLA SYSTEMS

Logic Process Company plc, Bristol, is introducing a range of range of Motorola-based multi-user systems, object-code compatible with the NCR Tower 32 line. The three-model 1A-3000 Series runs 16MHz, 32MHz or 48MHz 68030 parts with an AT&T Unix-derived operating system - LPC System V. Supporting up to seven users, they come with 4Mb to 32Mb RAM, 100Mb to 1.2Gb disk and a floppy drive. The high-end XL-3000 Series has the same specifications as the 1A-3000s, but can support up to 40 users - no prices given.

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Cadence Design Systems of San Jose, California, is to port its electronic design automation software onto the IBM RS/6000: the products to be ported will be built around the company's next generation framework architecture, Design Framework II, such as the Opus IC design automation tools, and the Amadaeus system design tools for ASIC and PCB design - available fourth quarter this year.

Some 34 companies have enrolled as corporate-level members of the US-based UniForum Association this year, including 22 hardware manufacturers, 11 software vendors and one magazine - Unix World.

Siemens Data Systems has won a £1.1m order for a Sequent-based Siemens MX500 system from one of the oldest members of the London stock exchange - Charterhouse Tilney: initially supporting 150 users running Tarot stockbroking software from Synergo Technology Ltd, the system is due for "considerable expansion" in the future.

Meiko Scientific has delivered its most powerful supercomputer to numerical analysis specialists N.A. Software Limited, on behalf of the Royal Signals and Radar Establishment of Britain's Ministry of Defence: the Computing Surface currently consists of 32 Intel i860 processors, 124 Inmos Transputers, 250Mb fast memory and 5Gb storage, but there are plans to double its size in later stages of the project, which involves the processing of data from the RSRE airborne synthetic radar.

Maspar Computer Corp has sold a MasPar-MP-1 massively parallel system to the NASA Goddard Space Flight Center: the MP-1 Model 1202 has 2,048 processors and is rated at 3,200 MIPS: one of the applications is a global ocean circulation model, currently running on a Cyber 205.

Six UK law firms have got together to assist software developers Thompson Moore with the specifications of a new software suite based on the Progress fourth generation language, and aimed at solicitor management: TMA-SIMS will be an enhanced re-write of the company's Solacs and TMA-Comptroller packages, and the law firms involved will receive a one-off licence to run the system, plus the inclusion of their own requirements for their trouble.

IBM UK is holding a solutions showcase for the RS/6000 at its South Bank marketing centre between September 6th and 7th: 50 or so technical and commercial business partners will be there.

Meanwhile, the School of Mathematical Sciences at the University of Bath has become one of the first in the UK to try out the new RS/6000: the department, under Professor James Davenport, has had a system on loan, evaluating the performance and connecting it up to the University local area network.

Welsh Water has chosen Ingres as its strategic support tool for its ten-year IT development strategy, but has yet to decide on hardware platforms: the Brecon-based company, which employs 3,750 people, currently uses an ICL VME mainframes, Data General mini-computers and IBM compatible PCs, but more recently has been using Sun workstations for software development.

Borland International Inc chief Philippe Kahn seldom passes up the opportunity to grace a platform and he was at it again at the Database Trade Show in Santa Clara, Microbytes reports: he reckons that no single operating system will succeed MS-DOS and take more than 40% of the market - by 1995, "Windows will be a client, OS/2's initial success will probably be as a server, and OS/2 and Unix will be competitors;" plugging Borland's Turbo C++ compiler, Kahn predicted that the object-oriented tongue will be the "language of the future in terms of application development" - at Borland it had led to the company having "more reliable code" and "software development projects that are on time;" by 1995, laptops will be as powerful as today's workstations - "we'll have more than 80486 power with 8Mb of RAM, and probably a 100Mb disk lasting six hours on batteries - if that's not a workstation, what is a workstation?"

Spider Systems Ltd has chosen Hewlett-Packard's HP OpenView network management server as the basis of its network management system: the Unix-based object-oriented server will be able to manage all Spider elements - such as bridges, routers, terminal servers and monitors - and Spider is currently writing applications conforming to OpenView that can be integrated with other vendors' equipment transparently.

Wang Laboratories Inc accompanied last week's figures showing a loss for the year to June 30 of \$716m with news that it plans to lay off another 1,000 employees in the current quarter to bring its workforce down to 19,500, against 31,000 18 months ago: Wang does not expect any more restructuring charges and looks for profits this fiscal year.

And Groupe Bull SA also reported first half losses of \$331m - over three times greater than last time - and announced that the restructuring programme that saw 2,000 jobs go in 1989 would account for another 3,000 worldwide in 1990: the company is to eliminate duplication of research and development between its own operations and those of its Bull HN affiliate.

Oracle Corp has been reorganising into separate product and distribution divisions, leading to the appointment of Geoff Squire as president of worldwide distribution operations; he retains his position as chief executive officer of Oracle Europe, but Ian Thacker takes over as managing director of Oracle UK: meanwhile a new subsidiary, Oracle USA is headed up by Gary Kennedy, whilst Peter Tierney takes charge of Oracle International.

Fujitsu Ltd's ambitions have really been whetted by winning agreement for its acquisition of 80% of ICL, and chairman Takuma Yamamoto was indiscreet enough to tell the Wall Street Journal after the meeting in London last Monday that he would like to get closer to Siemens AG and perhaps invest in the company or in Siemens-Nixdorf Informationssysteme GmbH: Fujitsu already quietly supplies top-end models in Siemens' 7.500 series mainframe line as well as having the German market its VP supercomputers in Europe, and its strategy will be to wait until the inevitable dwindling of Siemens' mainframe base and of Nixdorf's 8870 base starts to hurt the combined company beyond endurance, and step in with a rescue investment.

Yokogawa Hewlett-Packard Co has set up two new subsidiaries in Tokyo and Osaka to develop the market for Unix-based software on Hewlett-Packard hardware: the Tokyo company is called U-X Systems, while the Osaka company is called Hub Systems and both have joint venture partners; Yokohama Hewlett has a 29% stake in U-X, 20% in Hub, and outside investors include the likes of Mechatronics Japan.

The Object Management Group has opened an office in Mickleover, Derbyshire, which will serve as its European headquarters, and has appointed Peter Shaw - who comes from Hewlett-Packard - as vice president of European operations.

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SUN LAUNCHES INTEL i860-BASED VISUALISATION ACCELERATORS FOR SPARCSTATIONS...

Sun Microsystems Inc has launched new VX and MVX visualisation accelerators for its desktop workstations to create Sparcstation VX and MVX models. The new Sparcstation VX contains a single-board VX accelerator which has one i860 Risc processor. Rated at 40 MIPS - 60 peak MFLOPS in double precision - and with 4Mb memory, it is claimed to deliver twice the performance and twice the memory - 4Mb - of Sun's CISC-based TAAC-1 accelerator, but cheaper. A multi-processor MVX board with four i860s can be added to VX models to increase performance to 160 MIPS and 240 peak MFLOPS. SunVision visualisation software, which will be shipped this month, and XGL, Sun's two- and three-dimensional graphics software library, are bundled with the VX. As well as the i860, the VX includes program memory and two accelerated frame buffers, a 16Mb 32-bit frame buffer for image display and an 8-bit GX frame buffer for display of Sun's OpenWindows environment, all on a single board. The VX integrates output of the two frame buffers for display on a single 1,280 by 1,024 pixel 21" monitor. Each processor on the MVX transfers data over a block transfer bus at 320 Mbytes-per-second. The Sparcstation 330VX is \$55,900 - £46,400 in the UK - the Sparcstation 470VX \$86,900, or £72,100, and the VX will also be available as a board for desktop Sparcstations and high-end Sparcserver at \$24,000. The MVX can be added to a VX workstation for \$30,000; ships start March 1991.

...AS INTEL COMPLETES UNIX V.4 PORT FOR i860, WORKSTATION ANNOUNCEMENTS EXPECTED

Industry watchers in the US are expecting workstation manufacturers to begin announcing products based around Intel's i860 Risc processor over the next few months as Intel is reported to have completed a port of Unix V.4 on to the chip and is to begin shipping it to beta test sites. One is expected to come out with a machine that will best similar Risc offerings from the likes of IBM, Sun and Mips Computer Systems. Intel spun out most i860 system development back in November to California-based Aquest Inc, founded by former members of the i860 development team - a company in which Intel has taken a stake in, (UX No 259). SPECmarks of 20.6 - at 33MHz - and 24.3 - at 40MHz - are the highest so far awarded by the SPEC benchmarking group for a single-processor CMOS system, (UX No 294), and Intel already counts workstation manufacturers Hewlett-Packard, Tektronix, IBM and now Sun Microsystems - see above - as i860 users, where they are employed as graphics workhorses in co-processor or add-in boards.

X INGRES CLAIMS TO HAVE AUTOMATIC TWO-PHASE COMMIT IN INGRES/STAR

Ingres Corp, Alameda, California claims to be the first company to offer a heterogeneous distributed database management system that automatically ensures information at multiple sites remains consistent after being updated by any type of transaction - automatic two-phase commit in other words. The company says the feature is built into the latest release of Ingres/Star and enables programmers to create more flexible distributed database applications. Under Ingres/Star, any transaction can update information stored at any site, and without modification, can update information stored at a single site or at multiple sites. It also performs automatic recovery management to ensure related information stays consistent in the event of database, network or computer failure. The company says that where automatic two-phase commit is built directly into Ingres/Star, other implementations currently on the market require programmers to anticipate all transaction requests users may submit to the system in advance, and manually recover databases when they fail during or after transactions commit. The feature is contained in Release 6.3 of Ingres/Star. No prices given.

OSF SETS DATE FOR SHRINK-WRAPPED

TECHNOLOGY CHOICE

The Open Software Foundation has set October 1st as the date it will test the viability of the four prototypes currently being designed as solutions to its ambitious Architecture Neutral Distribution Format (ANDF) scheme. OSF says it expects to pick one, or perhaps a combination, of the technologies offered as its answer to the vexing question of how to create shrink-wrapped software that will run on all the various Unix hardware platforms. The 24 original proposals were whittled down to four groups last February, and these were asked to prepare prototypes. Those selected include: England's Royal Signal and Radar Establishment; Peritas, a small language development and compiler house from Cupertino, California; Siemens, in combination with National Semiconductor; and Hewlett-Packard in combination with the University of Virginia (UX No 283). The prototype demand, which distinguishes the ANDF RFT from the others OSF has issued, was necessitated by the novelty and untested nature of the enterprise, according to OSF's ANDF technical manager Pat Riemitis. The prototypes are required to be both ANSI C and POSIX compliant, and must be shown on both a CISC and RISC hardware platform - one of these must be a high performance system based on either a 386, 68000 or Mips chip. Riemitis said that one of the prototypers might demonstrate its ANDF software on a SPARC box, but that the decision was still up in the air. The hardware will apparently run various flavours of Unix. All four are said to be approaching the problem in much the same way, building the software in two parts: a producer piece and an installer piece, allowing the compiling to be done piecemeal too. Among the list of requirements the prototypes must meet are: successfully negotiating the Plum Hall test suite; behaving consistently on a hardware platform; demonstrating architecture neutrality as well as mastery of the specific architectures; and performing to within 5% of a native compile without degradation. OSF was not prepared to reveal the applications packages it would use to test performance. However, the consortium expects to make its selection by December and its announcement by the beginning of February.

TEXAS INSTRUMENTS "WANTS DAISY SYSTEMS"

Texas Instruments Inc is one of two companies negotiating to buy bankrupt Daisy Systems Corp, the other being an unidentified Japanese company, Electronic News believes. It is expected that the company will be sold in its entirety as a going concern. The foreign operations were not included in the bankruptcy filing and all the 130 or so people laid off since the filing came from the US operations, leaving Daisy with 270 US staff and 400 overseas.

NEWS ROUNDUP

Siemens AG says that it will shortly sign an agreement with the Computer Elektronik Dresden GmbH arm of VEB Kombinat Robotron for the development and manufacture of hardware by the East German firm.

Oracle Corp's move into applications looks like paying off in very short order, and the company is to do implementations of the Personnel, Payroll and Financials suites on the DRS 6000 Sparc-based machines from ICL, which run under Unix System V.4: they are due to be available worldwide on the ICL machines by the end of the year - by when multiprocessor models are due.

West London-based Parsys Ltd - spun out from Thorn EMI back in February - has released a Posix-compliant version of Idris, the Unix-like operating system for transputer systems: release 4.0 enable applications to be ported from other systems to its SuperNode 1000 series of transputer systems, and includes X-Windows support.

Following Star, TriGem, Twinhead and Solarix, (UX No 294), Thousand Oaks, California-based KFW is beating a path to Interactive Systems' door, signing up for its SunOS offering, which it will use in the development of SP-2, Sparc-based co-processor boards for MS-DOS-based personal computers.

X-terminal pioneer Visual Technology, Westborough, Massachusetts, has added a new X-Windows display station to its line: the 15" monochrome X-15 Turbo terminal runs a 20MHz Motorola 68020 part and comes with 2Mb memory - with X server software it costs \$3,375.

Struggling Prime Computer looks to have been thrown a lifeline by the US army, which has awarded a \$700m small systems contract calling for up to 20,000 computers to Electronic Data Systems Corp: Prime Computer will supply its Intel 80386-based Model EXL 320s running Unix, Wyse will provide terminals and Uniplex the office software.

Round-cell battery manufacturer Rayovac Vidor, Newton Aycliffe, has installed an Altos 2000 system to handle its accounting and manufacturing operations in a deal with Microtex, worth £250,000.

Microway Europe Ltd, Kingston-upon-Thames, Surrey, has launched what it calls the Number Smashers, two plug-in boards based on 33MHz and 40MHz versions of Intel's i860 Risc processor for AT-compatible 286, 386 or 486 personal computers: designed by engineers at the University of Bath, the boards come with from 8Mb to 32Mb RAM, NDP-i860C, Fortran, Pascal or C++ compiler, run under Unix, Xenix or MS-DOS and start at £4,000.

Ray-tracing software from Mental Images GmbH & Co KG, Berlin, is now available on Alliant Computer's FX/2800 parallel Risc machine.

London-based text information management company Information Dimensions has released Techlibplus, a new library automation and management system for Unix, DEC and IBM environments.

The Wollongong Group Inc, Palo Alto, California, has signed a distribution agreement with Philips Information Systems, Apledoorn, Netherlands: Philips will bundle Wollongong's Unix-based TCP/IP and streams networking software with its P9000 range.

Financial services group Tyndall has signed up for London-based Kindle Software's Bankmaster application which it will run on ICL DRS/6000 Unix machines - 40 servers and 50 workstations - in its UK, Geneva and Hong Kong offices, the whole deal is worth around £1m.

System C, Maidstone, Kent, has a new version of its Xenix-based Sycero C program generator, allowing all development to take place under DOS - porting to Xenix takes place when the application is fully tested and debugged: Sycero C Xenix is £1,865.

The UK's Lynwood Scientific, Alton, Hants, has signed up for Quadratron Systems' Q-Office software which it will sell on its own Open 30 Unix workstations, and on Sun and Data General servers.

A new report from London-based Ovum Ltd looks at the demand for OSI support by large organisations - it reckons that 57% already have, or are considering OSI strategies, and that by 1995, 20% of US and European companies will demand OSI-compliance of their computer procurements.

Amherst, Massachusetts-based Top Level Inc's parallel Common Lisp compiler is now available on Data General's AViiON workstation line: Top CL is \$4,500 on a two-processor AViiOn.

Emulex Corp, Costa Mesa, California, has introduced a printer server that allows up to four parallel or serial to be shared on an Ethernet network: the P3000-TL is compatible with DEC LAT and TCP/IP protocols, it costs \$2,600.

Applix Inc, Westboro, Massachusetts, has expanded its distribution agreement with mbp Software and Systems GmbH - mbp will begin distributing Applix's Alis office automation package through Hawke Systems plc in the UK, Informi A/S in Denmark and Tietojuvaoy in Finland: Applix has also signed up Far East Computers PTE Ltd, Singapore to distribute Alis throughout the Far East.

Sun Microsystems Inc has introduced a new version of Sun Common Lisp - 4.0 includes a new Lisp View windowing interface - together with a Lisp programming environment - SPE 1.2: Common Lisp is £3,300, SPE is £2,900.

Siemens Data Systems has announced Transit 3270, a new SNA gateway facility for connecting its WX200 Unix workstations to IBM networks.

Following the successful Unix debut of its spreadsheet on Sun Microsystems workstations, Lotus Development Corp is planning further Unix ports: the work will be carried out in Dublin, Ireland.

KnowledgeSet Corp, Mountain View, California, has introduced a version of its DOS and Macintosh-based Graphic Knowledge Retrieval System for Sun Microsystems Inc's SparcStations; running under Sun Open Windows 2.0 GKRS can retrieve data stored on CD-ROM or magnetic disk and is available from the fourth quarter, priced \$112: GKRS has already been licensed to IBM, which has an AIX version called InfoExplorer in use as its document retrieval engine on the RS/6000.

AT&T's Unix Software Laboratories is adding some "building blocks" to C++ later this month in the form of a library extension which it says will ease the building of applications: it will be offered in source code form for AT&T's 3B2 minicomputers with Unix V.3 or later for \$5,000, and at \$2,500 for each additional CPU.

Real Time Systems Ltd, Douglas, Isle of Man, has a new version of its C Executive real-time embedded systems kernel for the Intel i860 Risc processor - development copies start at £600; C Executive is written in C and assembler, and has an optional MS-DOS-compatible file system which costs £300: versions for the Intel i960 and Motorola 88000 will soon be available the company says.

Sun Microsystems Ltd, Camberley, Surrey, has won an order from the Scottish Courts Administration worth £2.8m to automate the administration of criminal cases in the Sheriff's courts: 21 Sparcstation 330s and 75 Sparcserver 465s will be installed throughout the Scottish mainland and islands as part of the SCA's Criminal Operations Project.

Pretender to Margaret Thatcher's Conservative Party crown, the Rt Hon Michael Heseltine MP, has been lined up as the keynote speaker at an Open Systems conference to be held in Brentford, London, on 31st October - presumably he'll be telling delegates how the Party is running one too many proprietary installations and could use an infusion of open systems: sponsored by The Daily Telegraph and Data General, other luminaries present will include Ian Rennie, Information Manager at DHL and Chris Stone, president of the Object Management Group.

CRAY EXPANDS NETWORKING OPTIONS WITH NEW SOFTWARE AND SUBSYSTEM

Cray Research Inc, Minneapolis, Minnesota, is joining in the general industry push towards supporting interconnecting systems and has expanded its networking offerings with new file server software, a disk subsystem and networking software. The Unicos Storage System is a network storage management system providing access to large numbers of files that could be located on a variety of storage devices. Built in to Cray's Unix V.3-based Unicos operating system, it can run on all Cray supercomputers and is claimed to transfer data up to four times faster than other servers. Multi-processing features, ANSI/IBM tape support, resource control and job scheduling have been added to Unicos, says Cray. With a system bandwidth that goes from 400Mb per second up to 3.2Gb per second, sustained disk and tape transfer rates are pegged respectively at 9.6Mb per second and 4.5Mb per second. The DS-41 Disk Subsystem can handle up to 19.6Gb of data, is scheduled for third quarter availability, and can be "daisy chained" along with other storage devices into a single channel on a Cray machine. Cray has also announced OSI 1.0 support on all its systems - the US government is making OSI protocols mandatory for all its computer system procurements from September. Also announced is HIPPI, a high-performance parallel interface for connecting its systems to peripheral devices at a rate of 100Mb per second which is similar to Cray's own high-speed external communication channel - HSX - but is a standard channel conforming to the proposed HIPPI revision 7.0 US national standard; Fibre Distributed Data Interface - FDDI - support; and Network Monitor - an X-Windows application for network management and control.

TRANSARC WINS US DEFENSE FUNDING FOR WIDE AREA FILE SYSTEM PROJECT

The US Defense Advanced Research Projects Agency - DARPA - is providing Transarc Corp, Pittsburgh, Pennsylvania, with \$1.1m over two years to examine the possibility of developing a distributed Wide Area File System which could be used to give users access to information across high-speed networks spanning thousands of miles - as if it were on a machine in front of them. Transarc's Andrew File System - AFS 3.0 - will be installed in forty sites. AFS 4.0 was recently selected by the Open Software Foundation as part of its Distributed Computing Environment, (UX No 280).

SONY KEEPS UNIX OPTIONS OPEN - COMMITS TO SYSTEM V.4 AND OSF/1 COMPLIANCE...

Although most Japanese companies are using AT&T Co's Unix System V.4 as the starting point for their next-generation Unix implementations, and have set Unix International as their primary alignment, they are frantically hedging their bets on the outcome of the Unix Wars. Sony Corp is ready with Version 4 of its NEWS OS operating system for its NEWS workstation family, and will offer OSF/Motif instead of the current user interface which was built into the current POP OS implementation of Berkeley Unix. The new NEWS OS will also have a shared memory function for giving common memory space to two different instructions, and the company is committed to adding the functionality of both Unix System V.4 and the rival OSF/1 from the Open Software Foundation in the future. Sony is a member of both organisations and aims to stay neutral despite the cost of belonging to both.

...AS SHARP DECIDES TO JOIN BOTH UNIX INTERNATIONAL AND FOUNDATION

Sharp Corp is taking the same tack as Sony now that it has mapped out its Unix strategy and has announced that it plans to join both Unix International and the Open Software Foundation preparatory to building its next series of office computers around Unix. It already has some Unix systems, including an automatic translation system, but it plans to make small business machines and point-of-sale systems its central Unix strategy.

OSF/MOTIF AND OPEN LOOK - THE STORY BEHIND THE CATALOGUES

Open Look may not have as many subscribers as its OSF/Motif rival, but right now it looks to have the edge in the number of commercial software packages it's accumulated. Sun's tally of applications currently shipping is up to 50 programs in such categories as office automation and electronic publishing, productivity tools, financial services, visualisation, data analysis and database management systems, imaging, manufacturing, networking, mapping and software engineering. The company's recent publication of "A Guide to Open Look Applications", however, is somewhat misleading, with over half the 122 entries still not delivered, though not clearly marked "vapourware". OSF/Motif's current position seems a whole lot more nebulous, with the Motif software catalogue (published back in April) turning up very little in the way of down-to-earth commercial software. Most of the 124 entries are programming tools, and of those 58 were then still under development. OSF, which readily admits to being "grossly behind in [its] canvassing", doesn't have a list of available software at the ready. Motif technology manager Kathryn Birkbeck, however, claims that "there are approximately 500 additional applications currently available and that this figure will pass 1,000 in the next six months". She cannot say what they are or if they are commercial products. The raw data, she says, derives from polling DEC, IBM, HP, Hitachi, SCO, Unisys and Intergraph, whose estimates in turn represent work being done both internally and at third party houses. The current issue of the US publication Personal Workstation magazine, which tracks the applications race on a month to month basis, gives Motif a mere 16, putting it well below Open Look and even NextStep and Presentation Manager. Birkbeck's tidal wave could still appear. She says OSF/Motif has 25,000 binary licensees on which it is collecting fees of around \$40. In addition there are 700 source licensees, and the consortium's projections forecast a total of 1,300 by the end of the year.

HEADLAND GROUP SINKS AS CALIDUS PICKS UP THE PIECES

Since UK software house The Headland Group Plc issued a warning of first half losses back in June, its demise has been remarkably swift. A fortnight ago KPMG Peat Marwick McClintock were appointed as receivers, and by last week all of the group's assets had been disposed of. The intellectual property rights of software products belonging to Mega Systems have been sold to five year old DEC software house Calidus Systems Ltd which operates in both London and Boston, Massachusetts. Generous Calidus has even bought the rights to Miracle, the accountancy package that was the undoing of Headland as it poured money into developing a version for DEC VAXes. Originally launched on Data General's minicomputers back in November, the VAX version of Miracle was still under development six months later, and took a heavy toll on the revenues of Headland, the company established by Geoff Bristow and Rob Wilmot. The Data General portion of the business will be run by a new company, Miracle Software, formed by a management buyout, which promises a Unix version of the financial software. A rescue plan that collapsed Comsoft, Mega and Multisoft into one company trading under the Multisoft name with the loss of 90 jobs came too late to save the group. Alton-based Multisoft is the subject of another management buyout for an undisclosed sum, and consultants Wooton Jeffreys Plc is to be bought by Sherwood Computer Services Plc. Meanwhile Comsoft Plc, the ravaged database company now based in Alton, Hampshire, that formed the shell of Headland, and had seen better days with its Delta 5 product, has been sold to a new company formed by private investors.

IN THE SOFTWARE REVOLUTION, OBJECT-ORIENTATION "WILL MAKE COMMON SENSE APPLY"

Whilst most of the speakers at the recent SCOOP Europe - Seminars and Conference in Object-Orientated Programming, (UX No 293) - had a stab at positioning object-orientated technology within the software arena of the future, Brad Cox, co-founder and chief technical officer of The Stepstone Corp, went so far as to argue that object-orientated technology will be the catalyst of a revolution in the software industry. He takes his philosophical inspiration from Thomas Kuhn's theory of technological progress laid out in the "Structure of Scientific Revolution". In the second of two reports from SCOOP, William Fellows looks at the claims of one of the object-orientated community's self-appointed prophets.

The industrial revolution of the last century was accompanied by massive technological changes; Cox argues the software industry is on the brink of a similar paradigm shift. The difference in the case of software he claims, is that mankind has never before - with the possible exception of religion - created a market around a product that is completely intangible and invisible. Thus real power in software matters resides with the developers and producers, since only they have the necessary abstract reasoning skills required to comprehend an intangible product, leaving consumers for the most part powerless. A quick shift around today's computer industry bears at least some of these claims out. Proprietary, even so-called "open" operating systems tie users to a particular environment, and for the most part software lets users do what it's producers want them to do, rather than what users would like to do.

Vision

"The possibility of a software industrial revolution, in which programmers stop coding everything from scratch and begin assembling applications from well-stocked catalogues of reusable software components, is an enduring dream that continues to elude our grasp. Although object-orientated programming systems, languages, and architectures have brought the software industrial revolution a step closer, common-sense organisational principles like reusability and interchangeability are still the exception rather than the rule." The vision, he maintains, is that object-orientated technology will "enable people to use and produce software by allowing them to reason about software via the skills that are used to understand tangible objects in the concrete domain of everyday experience." In other words a developer could sit down at the table with a customer, they could work together on a solution to the problem, before going down to the local software supermarket and picking up the relevant components.

Cox argues that software development, currently a technical discourse between a solitary programmer and a computer in which the design processes, the producer and the programming tools are supreme, will be transformed into a commercial matter between software producers and the consumer, in which the product, the consumer and components are emphasised. In short, a social activity where the customer's wishes are fully - and not unreasonably - represented. Cox believes the forces which have been instrumental in maintaining other technological revolutions - such as the division of labour - will be just as instrumental for software. The days of programming as a cut-and-fit craft - like a cottage or feudal industry - are numbered, and, spearheaded by object-orientated technology, this revolution will transform software production into an organisational enterprise, like manufacturing is today. "The goal of the software industrial revolution as the war, and object-orientated technologies as the weapons, is to make common sense apply to software".

But what is object-orientated technology? There are object-orientated environments, object-orientated applications, object-orientated databases, object-orientated architectures, object-orientated telephone switching systems, object-orientated user interfaces, object-orientated specification, analysis and design methods - not to mention a host of object-orientated programming languages. Will the real object-orientated technology stand up! ~~The confusion~~ is not surprising according to Cox, "when the denizens of the software domain, from the tiniest expression to the largest application, are as intangible as any ghost, "... and terms like "computer science" and "software engineering" are oxymorons: at best content-free twaddle spawned of wishful thinking, and at worst a cruel and selfish fraud on the consumers who pay our salaries".

Struggle

In the broadest sense, he says, object-orientated refers to the war and not the weapons, the ends and not the means - an objective," but when more specifically set against the rapid advances that take place in the hardware industry, a paradigm shift in software is likely to take a long time he says - "but we have the technology". It is a struggle in which all programming languages should be employed he says, from the low-level, modular languages like Ada, Fortran and Cobol on the conservative right, through C, C++ and Stepstone's own Objective-C somewhere in the middle, to the high-level SmallTalk on the radical left. In addition there are other ultra-high-level, non-textual iconic technologies like Fabrik, (a data-flow programming language developed in SmallTalk by Apple Computer Inc engineers), Metaphor, and National Instruments's LabView - together with specification and testing languages that are still missing. Indeed at the low-level Stepstone is putting money where its mouth is and developing an Objective-Cobol language.

NOW OBJECT DESIGN HAS OBJECT DATABASE FOR UNIX

Following hard on the heels of a string of other players, (UX Nos 293, 292, 291), two-year old Object Design Inc, Burlington, Massachusetts, has come out with an object-orientated database for Unix workstations. ObjectStore supports C++ development - and has a migration path for applications developed in C - and is currently being evaluated by Mentor Graphics Corp, NCR, Eastman-Kodak and ViewLogic Systems Inc for use in object-orientated development. AT&T's Unix Software Laboratories has already licensed Object Design's implementation of the "parameterised types" feature of C++, which it will use in a future version of the language. ObjectStore, which goes from \$2,000 to \$9,000 depending on the number of users, is initially available for Sun Microsystems workstations, however the firm says the database will be ported to all major Unix, OS/2 and MS-DOS/Windows 3.0 platforms by early next year.

ORACLE OBJECTS TO PYRAMID'S T SERIES PERFORMANCE CLAIMS

James Sha, vice president of Oracle Corp's Unix division, has raised objections to Pyramid's performance claims for the Oracle Banking Benchmark running on its recently announced top-end T-series database servers, (UX No 293). Sha says Pyramid derived its figures from running an unscaled benchmark methodology that results in a very small account table - 10Mb - that can be completely contained in memory. This size, he says, does not exercise the disk subsystem and is "unrepresentative of actual user applications." A scaled benchmark would require an account table of at least 2Gb, ensuring that data must be retrieved from disk. He says that other performance comparisons Pyramid made - with Sequent, IBM and DEC systems - were based upon results from the announcement of Oracle 6.0, over two years ago, and are "extremely misleading". Furthermore Sha says Pyramid's cost per TPS calculation did not conform to the industry practice which should include enough disk to contain a scaled database - 2Gb or more - 90 days of transaction history - 25Gb or more, and hardware and software maintenance costs for five years. Pyramid, he claims, based their costs only on the hardware cost of the system that ran the Oracle benchmark. Ian Couper, Pyramid UK's marketing manager has responded by saying that although the performance results used at the launch were two years old, in all cases - except for Sequent figures which are from this year - they are the last results that are publically available. He says an independent benchmark of the T series is now being carried out by Codd & Date, which will also include other relational database suppliers. Whilst Oracle looks to have been pushed into raising objections by irate manufacturers which use its database software, both Pyramid and Oracle maintain that they are still best of friends behind the scenes.

OPUS REVEALS SUMMER SIGNINGS

Cupertino, California-based Opus Systems' has signed up a bevy of US distributors for its range of Motorola 88000-based Personal Mainframe workstations and subsystems. Tech Power division Technix, Fountain Valley, California, is to integrate Opus' PC/AT-compatible Risc subsystem with its 80386 and 80486 multi-user systems and sell them to the aerospace industry. Opus is targeting the low-end of the market via a deal with personal computer reseller Microware, Beaverton, Oregon, and has signed with Pioneer Technologies, Gaithersburg, Maryland, which will sell its systems in the southern states.

CCTA AWARDS STARS FOR SSADM TOOLS...

The UK's government advisory body on information technology strategies, the Central Computer and Telecommunications Agency - CCTA - has announced some initial results from its testing of commercial tools which support SSADM, Structured System And Design Methodology, recommended by the CCTA for UK government sites. Asset, from Aims Systems and the National Computing Centre; Excelerator UK Ltd's Excelerator/SSADM; the University of Bradford's Graphiti; and Manager Products from Manager Software Ltd, have all been awarded a two star rating. Systematica Ltd's SSADM-SF gets top marks with three stars.

...WHILST CO-INVENTOR LBMS MOVES INTO UNIX

London-based Learmonth & Burchett Management Systems plc - which originally developed SSADM in conjunction with the CCTA - is moving into Unix with a new computer-aided software engineering tool for Unix systems based on Ipsys Software Plc's Tool-Builder Kit, which will be out in October. The two are developing a version that supports SSADM release 3 - expected to attain a three star rating from the CCTA - a version for SSADM release 4 will appear in the first quarter of next year, as will a version supporting the Jackson System Development - JSD - method.

HEWLETT'S GLANCEPLUS/UX MEASURES UNIX PERFORMANCE

Performance measurement facilities are among the vital things that mainframe users expect and Unix users are going to start demanding, and Hewlett-Packard Co's Unix customers will shortly be able to get the feel of their machines thanks to a new product from the company, GlancePlus/UX, a package that measures system performance of the company's multi-user minicomputers and workstations when running the company's HP-UX Unix. The new product is designed to be used by system administrators to monitor system performance in multi-user, client-server and networked workstation environments and to provide concise information that can be used to isolate and resolve potential system performance bottlenecks. The company points out that while the generality of network management applications isolate faults, checking whether systems on a network are actually working, Glance Plus/UX measures how well the systems are working, providing a hierarchy of performance data from a quick summary to diagnostic detail, and graphically displays information on CPU, disk, memory and swap-space usage. The metrics used are based on the company's Measurement Interface, a source of HP-UX kernel information for characterisation of system performance. It joins LaserRX/UX, which measures performance from an historical perspective, and RXForecast, for capacity forecasting in Hewlett-Packard's armoury, and there is also a GlancePlus/XL version for the proprietary MPE/XL operating system on HP 3000s. GlancePlus/UX is expected to be available in December for all HP 9000 computers running HP-UX 7.0 up, and will cost from \$500 to \$10,000.

JAPAN ACTS TO PICK BONES OF "FAILED" SIGMA PROJECT

Japan's Sigma Project, which reached the end of its five-year term earlier this year and was duly wound up, is widely regarded as having been a failure because it did not live up to its promise to come up with software solutions to the problem of programmer productivity, but a substantial amount of technology for creating an integrated, networked development environments was produced, and a company, Sigma Systems, has been formed to take over the remnants of the project. Its first move has been to inspire the formation of a Sigma Society, which will tackle the problems left unresolved by the project - interoperability, portability, CASE tools and distribution - through a committee system. Sigma did get some firms such as Omron Corp into the Unix workstation market.

SKY USES 80860, 80960 IN LATEST BOARD

Sky Computer Inc, Lowell, Massachusetts has added a Warrior III model to its line of board-level array processors that adds Intel Corp's 80860 RISC for floating point, integer and graphics, and 80960 to handle input-output, memory and diagnostics. Rated at 80 MFLOPS and 40 MIPS, three times the performance of any of Sky's previous add-in processors, the VMEbus board is designed for use with Unix machines and sells for \$8,225 in OEM quantities.

NON-EXPANDABLE WORKSTATIONS GET CONNECTIVITY OPTIONS FROM UNINET

Custom Product Design Inc subsidiary Uninet Peripherals, Santa Ana, California, has announced Slat-1 - SCSI Local Area Network Technology - for connecting non-expandable workstation like Sun Microsystem Inc's SLC to peripheral devices such as printers, terminals and modems via the workstation's SCSI port. It is available for Sun, DEC, Solbourne and Data General workstations and comes in three configurations - one parallel port, one parallel and four serial ports, or one parallel and eight serial ports. Prices are \$575, \$900 and \$1,595 respectively - site licenses are \$100 per processor type and cabling costs \$85 per device. Communications company Morning Star Technologies, Columbus, Ohio, has already signed up to resell a synchronous, wide area network version of the Slat-1 - it costs around \$4,000.

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Bipolar Integrated Technology Inc and Oki Electric Industry Co have signed a foundry agreement that enables the Beaverton, Oregon company to ramp up production of its ECL chips. According to Electronic News Bipolar and Oki will collaborate on the design and manufacture of telecommunications circuits based on Bipolar's ECL processes, and both companies are to have worldwide marketing rights. In exchange, Oki will act as a Japanese foundry and pay an undisclosed sum for rights to the ECL process. Bipolar has been struggling to meet its commitments to MIPS Computer Systems and DEC, and both companies have cited this as the reason for shortfalls in the delivery of their equipment. However, Oki won't have the Japanese operation up and running for perhaps a year, and the deal won't have an immediate effect on delayed shipments of MIPS' R6000 Risc microprocessor.

OBS → RasterOps Corp, Santa Clara, California has signed an OEM agreement under which it will develop a high-resolution colour display capability combining 24-bit colour graphics with on-screen television and video for DEC: the Maynard minimaker wants the display for use with its MIPS Risc-based Unix workstations and is to receive the first displays in the first quarter of next year.

A Los Altos, California company with a curious name, Dux Corp, Developers and Distributors of Unix software - its logo is precisely that implied: a duck - has introduced Quintet, a set of five application development tools running under the Open Look graphical user interface on Sun Microsystems workstations - the package comprising a database, word processor, spreadsheet, graphics and communication modules costs \$900, with delivery set for October.

Nine companies have confirmed their entry into the 1990 European 4GL Grand Prix: they are to build a sports equipment hire system that enables customers to hire various types of equipment and gear from different departments; the system is to test all features of an on-line business system, including the ability to conform to IBM's Common User Access screen handling; entrants to date are Ingres Ltd, Aspect Computing, System Building, Progress Software Ltd, Sea-Change Ltd, McDonnell Douglas, Apscore International, Systemator Ltd, and Unify Corp; the final and award ceremony is set for September 11.

MicroWare Systems Ltd is now offering its range of OS-9 real-time operating system tools for the Sun Microsystems Sun-4 range: these include the Sun-4 Cross C compiler, Unibridge Unix real-time connection, and Portpak porting kit for 68000-based real-time applications.

Frame Technology Corp of San Jose, California has released the UniFilt for Spreadsheets software program that is claimed to provide seamless integration of Lotus 1-2-3 data with FrameMaker 2.1 publishing software: uniFilt runs on several machines including the Sun-3, Sun 386i, and Sparcstation workstations, the DECStation 5000, and IBM RS/6000 Series; Frame Technology says that it has been difficult to import spreadsheet data directly into formatted documents while maintaining the integrity of the data and the document's consistent design, but UniFilt reads Lotus 1-2-3 worksheet files from any machine, in a networked environment; it then integrates the data as ASCII files to be formatted in FrameMaker; Lotus 1-2-3 files can be opened as stand-alone documents, or loaded into the middle of an active document, and UniFilt maintains the integrity of the spreadsheet data as well as consistent alignment; a single node uniFilt licence costs \$380, and FrameMaker 2.1 is \$2,500 and \$1,000, depending on hardware.

Siemens Data Systems has won a £1.1m order for a Sequent Computer Systems Inc-based Siemens MX500 system from one of the oldest members of the London stock exchange - Charterhouse Tilney: initially supporting 150 users running Tarot stockbroking software from Synergo Technology Ltd, the system is due for expansion later.

The Santa Cruz Operation Inc, which now manages Microsoft Corp's Unix interests, says it is shipping Microsoft Word 5.0 for AT&T 3B2/400, 3B2/500 and 3B2/600 under 3B2 Unix, and 6386 running System V/386 3.2. Prices range from \$1,100 to \$2,400.

OBS → A well-placed consultant in Silicon Valley claims he is starting to see a pattern forming among small unannounced Unix software start-ups: the Japanese money that's funding them.

OSF's reaction to Siemens' defection to Unix System V Release 4, (UX No 294), is to remind us that Siemens still has an OSF/1 team working in its portability lab: it also claims it expects Siemens to go on underwriting its share of OSF founders' dues.

Acorn Computers Plc is moving to hold onto its strong position in the education market and has set up a promotional offer with Barclays Bank and NUS Services Ltd, the commercial arm of the National Union of Students: called the Learning Curve, the scheme enables Initial Teacher Training students to have a BBC A3000 micro for up to four years and pay for the equipment when they enter employment; the package also includes a word processor, paint, draw and music software, as well as personal computer emulator software for MS-DOS programs; with a colour monitor, the Learning Curve package costs £978, a reduction of £318; Acorn is also discounting the Archimedes 420/1 Desk Top Publishing bundle to £1,683 from £2,262; it's a RISC-based machine with a 20Mb hard disk, and 2Mb of random access memory that is expandable to 4Mb.

Following the re-writing of its payroll and personnel software to enable it to run under Unix, C E Heath plc-owned Peterborough Software has secured a value added reseller contract with ICL: the company sells in the local and central government markets and says they will now go "wherever ICL hardware takes us"; the contract covers all of ICL's product range except VME.

The Handshake product from Emerald Technology that connects Unix and Xenix computers to IBM System 34, System 36 and AS/400, is now distributed in the UK by Connect Solutions Ltd of Southampton; Emerald says Micro Channel and PS/2 AIX versions will be out soon; the line was previously handled by Exycon Ltd, Luton.

Acquisition of Rixon Business Machines and Fujitsu Ltd's US Pick business has not made life any easier for Alpha Microsystems Inc, and the company is cutting its workforce by another 9% in the latest of several rounds of restructuring: it is combining domestic marketing and sales of all product lines, and moving Pick research and development from San Jose to its headquarters in Santa Ana, California.

Logica Plc and British Airways Plc have established a jointly-owned company to provide software services to the air transport industry worldwide: called Speedwing Logica Ltd - British Airways owns 51% and Logica has 49% - the company will operate as a division of the Speedwing information technology division of British Airways, and will develop systems for revenue accounting, air mail, personnel, treasury, roster, technical and crew planning, baggage tracking, slot allocation, and stand scheduling.

Steve Jobs' NeXT Inc, which has now thought better of its plan to offer only an erasable optical disk drive and no magnetic disk with its NeXT Computer System, has turned to Hewlett-Packard Co for its Winchester requirements: NeXT has given Hewlett-Packard a "multimillion-dollar" OEM contract for the 795Mb 5.25" HP 97548S disk drive with small computer systems interface - it formats down to 660Mb on the NeXT machine.

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DEC CANCELS ECL MIPS WORKSTATION PROJECT

DEC's Unix workstation programme has been thrown into some disarray by the failure of sole source Bipolar Integrated Technology Inc to produce the R6000 ECL implementation of the MIPS Computer Systems Inc RISC in the quantities DEC - and other customers - require, (UX No 295). Last week DEC confirmed that it had killed the planned R6000-based models in its DECstation Ultrix family saying it will "concentrate on CMOS chips", and added that it would come out with enhanced versions of the current R3000 machines very soon, likely to include multi-processing systems, following up with models based on the CMOS R4000 part, which is rated between 40 and 50 MIPS, against the planned 67 MIPS of the R6000, now scaled back to 60 MIPS. DEC killed the R6000 project after deciding that the delay meant that the product line would have too short a life for the investment to be recouped as faster CMOS versions come along - "it didn't make business sense" said Chris Sarfas, DEC's Ultrix product manager for the UK. DEC is likely to have been hit particularly hard by the yield problems at Bipolar because it needs a custom version of the chip with the byte ordering reversed to match that of the VAX. MIPS itself, Control Data Corp and Bull SA are persisting with the R6000, and DEC is expected to adopt subsequent faster implementations of the ECL RISC in due course. According to Mips, the R4000 chip set development cycle is nearing completion, though it will be next year before parts begin to ship. In the UK, Mips' European general manager Dave Black has left the firm following a recent corporate re-organisation, (UX No 294) - the company is now looking for a replacement.

NEW SPARC LAPTOP WILL RUN UNIX, MAC AND DOS

Research Development Innovations (RDI), a tiny employee-owned 11-man start-up in San Diego, California, has come up with an 8.5-lb battery-run Sparc laptop that will reportedly run Unix, Macintosh and DOS applications. The breakthrough product, named Brite Lite, also incorporates a proprietary screen technology that will offer - for the first time on a laptop - the same high-resolution 1152 x 900 pixel count currently found on a Sun desktop. RDI modified a Japanese-developed video technology for the 11.25-inch diagonal LCD. Company founder Rick Schrameck described it as a cross between thin-film and supertwist, cautioning that it's not double supertwist because "that's too slow". Schrameck declined to identify his Japanese partner, other than to say it's a company that has never been involved in computers before. Its yield rate is not yet sufficient to supply millions of screens and the cost of producing colour is still prohibitive. So when RDI announces Brite Lite at Comdex/Fall in November it will be a monochrome unit. The SBus laptop will be based on a LSI Logic 20MHz Sparc mother board that gives 12.5 MIPS and 1.6 MFLOPS. There are two co-processors: a 386 and 68030, but DOS and Mac programs will be run as software emulations. Schrameck claims that Mac applications will run 20% better on his machine than on the Apple itself. Brite Light will be configured with a standard 8Mb, expandable to 16Mb, static RAM and a standard 1.44Mb floppy. It will be available either without hard drive or with 100 or 200Mb drives, and will cost from \$6,000 entry-level, up to \$9,000 fully configured. A four hour battery pack will bring the weight up to 10.8 lbs, or 12.8 lbs with a six hour pack. RDI expects to OEM the laptop to any of the dozens of companies now known to be working on Sparc clones. Sun is known to be interested in coming out with a laptop version of its new Sparcstation IPC (UX No 293), and if RDI were to provide it with a solution to the crucial flat-screen issue, Sun could very well wind up simply OEMing it. Schrameck is optimistic that demand could run as high as \$100m to \$150m in the first year, or roughly 14,000 to 21,000 units. The machine will be produced by Tri-Gem, which has its own separate Sparc development (see page 3) that RDI is reportedly aiding. The manufacturing site could well be Hawaii, which currently has no computer production.

NEW VERSION OF OSF/MOTIF WILL MEAN RE-COMPILATION

The Open Software Foundation last week released version 1.1 of its graphical user interface Motif. It complies with Massachusetts Institute of Technology's latest X11 Release 4 of the Intrinsics X-Windows development set and includes increased international language support. Good news for personal computer users running X-Windows is that Motif 1.1 allows the Intrinsics library to be shared across platforms, cutting down on the amount of memory used by each X server, and speeding application performance. Although much of the code has been cleaned up and there is more international character set support, Motif is still some way from offering full Asian language copies. On the down side, Motif 1.1 is incompatible with version 1.0, which means that in most cases applications developed under the older release will have to be recompiled, however commentators stress that this is likely to take no more than an hour.

"RISC REVOLUTION" HITS

FLIGHT SIMULATOR MARKET

UK flight simulation specialist Rediffusion Simulation, Crawley, Sussex (part of the General Motors-owned Hughes Corporation), is readying a new system using the same Clipper RISC accelerator technology supplied by Du Pont Pixel Systems Ltd - previously benchMark Technologies (UX No 177). Due to be unveiled at the Farnborough Air Show on September 2nd, the move marks a general trend in the simulator industry from proprietary to open systems that offer better price/performance. A Rediffusion spokesman said that "flight simulation is going through a revolution with the introduction of Risc systems", and said that Encore Computer - a long-term player in the simulation market through its acquisition of Gould - was preparing its own Risc systems for launch next year. Rediffusion competitors CAE Industries Ltd of Canada reportedly demonstrated simulator technology using the IBM RS/6000 to customers earlier this year, but refuses to comment on any components of its flight simulators: it has previously used Gould and DEC MicroVAX hardware.

...AS DU-PONT OFFERS

CLIPPER FOR MAC

Informix Software Inc has licensed Du Pont Imaging Co to market its database management software products with its MacBlitz co-computer to provide Apple Computer Inc's Macintosh users with a Unix-based information management system. The \$10,000 MacBlitz uses Integraph Corp's Clipper RISC chip to supercharge the Mac behind the machine's graphical user interface. Informix thinks that Mac users will particularly welcome access to the Informix-OnLine multimedia database engine. It is due to ship before the end of the year; no other details were given.

PRIME TO EXTEND EXL RANGE

Prime Computer Inc is set to further extend its Intel-based EXL range of Unix-based computers this Tuesday: the range currently consists of own-designed single processor 386 models supplemented by re-badged Sequent multi-processors at the top-end. The company is also expected to reveal a Unix version of the Pick-based Prime Information database management system, and has some Series 50 announcements in the pipeline.

RESELLERS GET EXCITED AT IBM'S RS/6000 PLANS...

IBM Corp is planning new iterations of its RS/6000 line during the first half of next year, according to Computer Reseller News, and may offer a field upgrade programme that will extend the lifetime of existing and future machines for up to three or four generations. With a CPU board designed to be unplugged, the paper suggests that upgrading the RS/6000 will be a matter of swapping the CPU and loading extensions to IBM'S AIX implementation of Unix - making the machine much more attractive to resellers looking for further sources of margin and profit. The machine's 32-bit Enhanced Micro Channel bus may also be field upgradable to a 64-bit wide path, said the paper. IBM looks set to reveal its policy on upgrades alongside new models of the RS/6000 during 1991: these are expected to include a diskless workstation at \$5,000 or so - the first to incorporate a low-cost 20 MIPS version of IBM's RISC processor integrating floating point, fixed point and instruction processors on one chip. High-end models are also expected, with next-generation processors achieving between six to eight instructions per clock cycle, against four currently. The existing models of RS/6000, however, are still under limited availability.

...BUT UK SHORTFALLS HIT MID-RANGE SALES

Meanwhile in the UK, where the RS/6000 is expected to do relatively well in the commercial and business market following the limited success met by its predecessor the RT or 6150, IBM has not yet delivered the boxes in significant numbers. Although a fair amount of software has now been ported to the machines, IBM value-added resellers that we spoke to said they were not expecting volume shipments of the 320, 520 and 530 models - scheduled for June - until October; most had only recently received initial evaluation systems. One said "if nothing else, at least the operating system is now coming through in quantity, though we're waiting for the boxes to follow", whilst another claimed that "delivery timescales are around two months - but it depends how hard we push them (IBM)." The shortfall has been causing problems for IBM's mid-range community, but rather than opting to go with the AS/400 as an alternative, it appears that users have been waiting for the RS/6000 to appear before making procurement decisions. This has had a knock-on effect on IBM's mid-range returns, where sales of the AS/400 for instance are said to be down by two thirds at around 1,000, compared to targets set for the year. It was against this backdrop, and the recent re-organisation of its European operations, (UX No 293), that IBM chairman John Ackers met UK president Tony Cleaver at the Havant, Hampshire-based manufacturing plant last week.

SYSTEMS CENTER INTO UNIX WITH UNITECH ACQUISITION

Systems Center Inc, formerly VM Software, which made its living entirely out of IBM users until it signed with Tandem Computers Inc to do versions of its newly-acquired Net/Master network management software a few weeks back, has taken a big step towards diversification with agreement to acquire Reston neighbour Unitech Software Inc, which specialises in Unix system utilities and Unix network administration software. Unitech, whose leading product is Backup.Unet for backing up Unix networks, does over half its \$1.5m annual turnover with the US Federal government. Systems Center is to acquire Unitech in an exchange of shares valuing the target at between \$4.5m and \$6.8m, with closing expected in the fourth quarter. Unitech has \$1.5m sales for the year to May 31 1990 but is looking for \$3m in calendar 1990.

WOLLONGONG GROUP OFFERS NETWORK FILE SYSTEM CLIENT SOFTWARE FOR MAC

Wollongong Group Inc, Palo Alto, California, has unveiled what it reckons is the first commercially available Apple Computer Inc Macintosh-resident Network File System client for corporate networks. PathWay Client NFS for Macintosh, Release 1.0, represents Macintosh-to-VAX and Macintosh-to-Unix remote file sharing servers as desktop icons on Macintosh computers. The software runs on Macintosh computers with AppleTalk networks, or on Macintoshes with an Ethernet interface - no hardware router connection is required. Using 35Kb RAM, PathWay for Macintosh enables Macintosh computers to function as distributed clients to remote Network File System servers so that users can run local applications and access files stored throughout the network. When a remote Network File System directory is mounted, all files appear as Macintosh file and folder icons, and may be used with local Macintosh-based applications or by running the application directly off the server. Once loaded into the Macintosh System folder, the new software makes DEC VAX, Sun Microsystems workstations and other Network File System-compatible systems appear as disk drive icons on the desktop. The product comes bundled with Macintosh TCP for TCP transport communication, and includes a print server application that allows other computer systems access to printers on Local Talk networks - thus, machines from DEC, Sun, NCR and IBM can use a standard print interface to send print requests to LocalTalk-based printers such as Apple LaserWriters or Hewlett-Packard LaserJets. PathWay Client NFS for Macintosh comes bundled with an SNMP, Simple Network Management Protocol agent, and scheduled for an October delivery is priced at \$200 for a single-user license.

INTELLICORP'S PROKAPPA DESIGNED TO BRING BENEFITS OF RULE-BASED SYSTEMS TO UNIX WORLD

Mountain View, California-based IntelliCorp Inc reckons that its new Prokappa application development and deployment environment brings the benefits of object- and rule-based systems to mainstream business applications - companies that used to trumpet such buzz-words as artificial intelligence and expert systems and knowledge engineering to the rooftops, studiously avoid using them at all these days. The company says that Prokappa comprises an application development environment and a set of run-time components based on the C language and written to run under Unix with X-Windows so that Prokappa run-time modules can be embedded into new or existing business applications to provide incremental power. The developers' workbench component and run-time libraries were written to run on Sun Microsystems Sun-3 and Sparcstation workstations, and the run-time modules will be portable to most Unix machines that run ANSI C - when the necessary tweaking has been done: the company plans to announce versions for the leading Unix players' machines in the autumn. Prokappa comprises object-oriented programming to enable developers to describe the structure of, and relationships in, their business operations graphically in terms of real-world objects and their characteristics; ProTalk, a hybrid rule, pattern and functional language written in, and integrated with C to provide a new way to describe and implement business decision making processes and policies; an ActiveImages library of dynamic graphic objects that can be used to represent the status of important events or actions; dynamic links to SQL databases, other data sources and C programs that enable Prokappa applications to extend existing applications. The company reckons that the problem solved by Prokappa is that most programming for the process or logic portion of an application still involves force-fitting multifaceted business processes and decisions into low-level procedural computer code that is usually incomprehensible and difficult to maintain. Prokappa enables the programmer and the end-user to co-operate in building and maintaining the application by using a graphical representation language they can both understand. Prokappa costs \$10,000 for the developer's system on Sun-3 and Sun-4 hardware and run-time modules for Sun workstations are \$2,500. The Prokappa interactive C Environment is \$2,600 and the Prokappa Data Access System is \$2,000, all available in September.

TRIGEM TO INTRODUCE \$4,000 SPARCSTATION

TriGem Corp is preparing to set the cat amongst the pigeons in the workstation wars by introducing a Sparc Risc-based workstation at under \$4,000 during the Comdex/Fall show in November. The Seoul, South Korea-based outfit is nine months into development of the box, (UX No 294), apparently a clone of Sun Microsystems' new low-end IPC - though the Sun machine comes in at \$10,000, (UX No 292), and even its diskless SLC lists at \$1,000 above TriGem's price, (UX No 283). Based upon the Cypress Sparc chip it will come with 8Mb memory, a hard disk, SunOS from Interactive Systems and a 17" monitor with a similar resolution to Sun's. Deliveries are expected in February or March next year, and TriGem is currently trying to raise the cash for a \$30m marketing campaign in the US, some of which will be earmarked for investment in a dealer network. TriGem chairman Young Kimm says he is negotiating with "a couple of companies" and expects to have a deal by the end of the year. Any partners would be able to tailor TriGem machines to American tastes and get better arrangements than in typical OEM arrangements it is believed. In 1987 TriGem was commissioned by Seiko Epson Corp to manufacture its Equity I and II personal computers in vast numbers, mainly for the US market, it has also supplied personal computers OEM to a variety of other companies, including the Chesapeake successor to Columbia Data Products Inc, and is also a 3Com distributor in South Korea.

COAST BECOMES BOAT AS**BRITISH TELECOM CUTS COMPUTER COSTS**

The UK's trade newspaper Computer Weekly hears that British Telecom has rationalised its Common Office Automation System for Telecom - COAST - project, and downgraded estimates of its original £100m cost, following its decision back in June to look to outside suppliers for the hardware (UX No 287). The paper says that an operational requirement for the revised BOAT project - office automation in BT - makes cost savings by making use of BT's existing computer resources, but still aims at providing electronic mail, word processing, spreadsheet and database facilities for up to 20,000 British Telecom staff. Added to our original list of Sun, ICL and Pyramid as potential suppliers are Siemens/Nixdorf, Bull and Hewlett-Packard.

SIEMENS COMES CLEAN WITH 80486 BOXES**RUNNING UNIX V.4-COMPATIBLE SINIX**

Following its decision to go with AT&T Unix V.4 rather than wait for the Open Software Foundation's OSF/1 offering, (UX No 294), Siemens has unveiled a series of Intel 80486-based departmental systems running a Unix V.4-compatible version of its Sinix operating system. The MX300I series has three models, the 300-45 and 300-50 which both run a 25MHz version of the processor and are rated at 20 MIPS, and the 300-60 which operates at 33MHz, which, rated at 27 MIPS, supports up to 54 users. All run Sinix V.40, which the company says is compliant with X/Open's XPG3 portability guide, and are bundled with the OSF/Motif graphical user interface. No prices given.

INTERGRAPH TO MOVE TO**OSF/1 UNIX NEXT YEAR**

Intergraph Corp is the latest company to commit firmly to the Open Software Foundation's OSF/1 implementation of Unix, when it arrives: the Huntsville, Alabama company and Software Foundation member says it will move over to OSF/1 as the base operating system for its Clipper RISC-based workstations and servers, starting sometime in 1991.

TANDEM SEES UNEXPECTED DEMAND FROM BUSINESS FOR FAIL-SAFE UNIX BOX

Tandem Computers Inc's cautious entry into the Unix market with the sealed three-processor Integrity S2 MIPS Computer Systems Inc RISC-based machine was intended almost exclusively as a product for telephone companies, particularly ones whose AT&T Co 3B20D fault-tolerant machines were coming to the end of their useful life - but the company is finding unexpected interest in the machine from commercial accounts, Computerworld reports. It is therefore starting to discuss the machine with commercial users, although it insists that it is not as fault-tolerant as its proprietary Guardian-based machines. The S2 uses the voting system of fault-tolerance where all three processors operate in parallel on the same data and all is assumed to be well when all three come up with the same answer, soft errors are accommodated by taking the output from the two that agree, and when one processor consistently gives results at variance with those of the other two, an alert is signalled, the processor is assumed to be faulty and is replaced. The machine thus delivers the performance of one CPU.

US GOVERNMENT SPECIFIES GOSIP FOR FEDERAL CONTRACTS

GOSIP Version 1 - the Government Open Systems Interconnection Profile goes into effect in the US this week. It stipulates that vendors delivering on federal contracts must supply users with X.400 electronic mail, File Transfer Access and Management software, X.25-based wide-area networking and local-area networks that support the IEEE 802.3, 802.4 and 802.5 standards. Firms like Retix Corp and Touch Communications Inc, which specialise in Open Systems Interconnection products, are now in a good position to fill the gaps that other vendors leave which are not able to deliver GOSIP-compliant solutions, in a market that is reckoned could be worth over \$1 billion by 1993.

NIXDORF PROMISES 32-BIT 8870 TO PACIFY COMET USERS

Siemens AG has moved to pacify worried users of Nixdorf Computer AG's Comet suite of easily customised business software, saying it will remain a central product after Nixdorf disappears into Siemens-Nixdorf Informationssysteme AG. To back up this promise, reports Computerwoche, the Paderborner is offering a range of new Comet products for Unix - but the message to customers is clearly that Nixdorf is not in any great hurry to make the transition from its proprietary 8870 line - it is promising a fast 64-user, 32-bit successor to the 16-bit 8870/Quattro range. Comet Top should itself be enhanced with one or two additional features, such as a report-writer, by the end of this year. A series of modules will be added for production control, time-recording and invoicing, as well as wages applications. The main focus of Nixdorf's activities lies in enabling Comet software to be used with the Unix and MS-DOS operating systems. So, from the end of this year Nixdorf will be offering its Cross-Basic interpreter, running under Comet, for SCO Unix from the Santa Cruz Operation, and for Siemens' MX-I system, which runs Sinix Unix, from mid-1991. Versions for Nixdorf's Targon Unix machines, and for MS-DOS, are already on the market and versions for Novell NetWare networks should be available by the end of 1990. The company made the announcements to back up promises it recently made to the pressure group of Comet users, but there was no mention of Alexander, a long-promised native Unix version of Comet.

SUN RIDES HIGH ON THE BACK OF SPARC SYSTEM SALES

Sun Microsystems Inc of Mountain View, California saw turnover for fiscal 1990 up 40% at \$2,470m while profits rose 83% to \$111m. Scott McNealy, Sun's president said that more than 34,000 units were shipped in the fourth quarter, bringing the company's worldwide installed base to more than 285,000 units. He added that Sun had record bookings during the quarter and ended the period with a record backlog of orders. Over the year Sun's turnover per employee reached a record \$215,000, a 24% increase over last year's numbers. The company ended the fourth quarter with \$394m in cash, a sizable increase over the \$54m reported a year ago. Short-term debt was reduced by \$104m from the level a year before. Sun reduced inventory levels to \$205m at the end of the fourth quarter from \$309m a year ago as a result of improved management over inventory supply and demand, procurement processes and from increased component commonality. More than 50% of Sun's business is now done outside the US. Meanwhile the US business was stronger than expected during the fourth quarter; turnover reached record levels and orders increased over the prior quarter due largely to strong demand for new products. During the fourth quarter, Sparc-based systems accounted for 90% of Sun's system business growing from a share of just 37% one year ago.

NOW TEXAS HOMES IN AS SUN SETTLES PATENT DISPUTE WITH IBM

No sooner has Sun Microsystems Inc settled its patent differences over RISC technology than Texas Instruments weighs in with patent infringement allegations. The company has filed notice with the Securities & Exchange Commission that it has received notification from Texas alleging that a "substantial" number of Sun's products infringe the company's patents. It has begun talks with Texas to settle the dispute and says it "believes that it will be able to negotiate a licence agreement with Texas and that the outcome of this matter will not have a material adverse effect on Sun's financial position." A Texas Instruments spokeswoman said that the discussions have most likely centred on eight patents for Texas Instrument's microcomputer systems which relate to the way microprocessor-based systems interact with the input-output functions of personal computers. In the settlement with IBM, in response to a letter sent by IBM to several RISC designers in 1988, of which only Sun has identified itself as a recipient, Sun has agreed a patent cross-licence agreement covering patents filed before July 1, 1995. Under the agreement, Sun will have to make five annual payments to IBM to reflect the fact that Sun holds only 25 patents, with another 106 applied for, while IBM has about 10,000. The payments are expected to total less than the \$100m that observers estimate Compaq Computer Corp is having to pay IBM over five years under a similar settlement. Some observers believe that Sun may want to take advantage of the agreement to use IBM's Micro Channel in future low-end workstations. IBM is likely to seek similar settlements with other users of RISC technology, with MIPS Computer Systems Inc, Pyramid Technology, Intergraph Corp and perhaps Acorn Computers Plc most in the firing line. In the cases of Hewlett-Packard Co, Motorola Inc and Intel Corp, those companies are likely covered by patent cross-licence agreements with IBM already.

3COM LICENSES BULL HN UK TO MANUFACTURE 25,000 3STATIONS FOR INLAND REVENUE

Bull HN UK has been awarded a licence by 3Com UK to manufacture 25,000 3Stations/2E so that it can meet the requirements of its four-year £50m contract with the Inland Revenue, (UX No 288). The diskless Ethernet workstations are being manufactured at Bull's manufacturing plant in Newhouse, Lanarkshire, and installed in district tax offices as part of the distributed computerisation strategy called IRON - Inland Revenue Terminal of the Nineties. Bull, which is 3Com's largest reseller, is also supplying software, services and over 900 Unix-based servers to manage the network.

CONVEX - NEW SYSTEMS ON THE WAY

Convex Computer Corp, which has distinguished itself from rival mini supercomputer manufacturers by remaining consistently profitable over the last five years, is preparing for the launch of a new series of top-end machines early next year. Iain Davidson, vice president of European operations, said last week that the new range - dubbed C3 - would be an addition to the two year-old C2 range rather than a replacement, and hinted that the machines would include more gallium arsenide technology - first used in the memory detection and protection circuitry of last October's ESP mid-life kicker to the C2 (UX No 253). Convex designs its own CPU technology, farming out the fabrication of the gate arrays to Fujitsu, Texas Instruments and Vitesse Semiconductor, and Davidson sees little merit in the trend towards using off-the-shelf processors such as the Sparc and Intel i860 in rival machines. "The CPU is only 15% of the total product cost - most of the expense is in developing the memory and I/O bandwidth". In fact Davidson dismisses its traditional competitor Alliant's i860-based machine as "difficult to program", and cites his only competition as Cray, DEC and IBM. Of these, DEC has still to release a VAX 9000 with vector facility, and has no date for Unix on the 9000. And although Cray offers Unix, and is moving downwards to Convex territory, its 64-bit implementation uses incompatible data formats and has no virtual memory, making it unsuitable as a back-end system for workstations, according to Davidson. Convex is currently working on porting more industry specific software to its current catalogue of 600 or so packages, mainly concentrating on markets such as computational chemistry, petroleum, defence and aerospace and computer-aided engineering. At the same time it is making its Unix implementation "more like a mainframe operating system", and is currently awaiting C2 level security verification from the US Department of Defense. An optimised port of the Oracle 6.0 database is shortly to be announced. Convex revenues rose 50% in 1989 to \$105.6m, and the company has just announced record second quarter revenues and profits. It also has \$60m in cash. There are now almost 700 Convex systems shipped to 400 customers.

MISTRAL PLANS NEW MIPS WORKSTATION - WILL SHIFT MANUFACTURING BACK TO UK

Mistral Computer Systems, Bracknell, Berkshire, the company that rose from the ashes of UK workstation pioneer Whitechapel Workstations with the launch of the Mistral-20 workstation based upon Mips Computer Systems' R3000 Risc processor last year, (UX No 256), is to continue the strategy begun with Whitechapel's R2000-based Hitech-10 and is planning development of a new workstation using Mips' next CMOS offering, the R4000. At the same time Mistral is moving away from dependence on Kronstanz, West German firm Itos Computer GmbH - formerly known as ComputerTechnik Muller - which manufactured Whitechapel's Hitech-10, and was originally touted as builder of the Mistral-20. It says all manufacturing of the Mistral-20 is being carried out by an undisclosed UK company, and that it also aims to get production of the Hitech-10 shifted back to the UK. Mistral has been keeping a low profile since the launch of the Mistral-20 because it is still digesting the business of Amazon Computers, Milton Keynes, which it acquired at the same time, according to a spokesman. Mistral also distributes Princeton Graphics' range of X-terminals, and says that former Amazon offices in Paris and Frankfurt will soon begin selling its workstations and the X-Windows products. For its part, the West German personal computer and workstation builder is now standing at the gates of the East, having moved part of its manufacturing operations to Berlin. By October it expects the operation to be capable of producing 60,000 units a year - personal computers and Risc workstations - and it will also include a development and service division. The incentive to move eastwards was spurred back in July, when Itos received an order worth over \$6m to supply 18 hospitals in the Zwickau, East Germany region with 80286- and 80386-based microcomputers.

PUZZLE OFFERS MS-DOS OPTION FOR SPARCSTATIONS

California start-up Puzzle Systems in Morgan Hill is selling a \$2,000 386/MS-DOS co-processor for Sbus-based Sparcstations and compatibles. The Synergy 386, Puzzle's hardware/software solution, allows the Unix boxes to run any MS-DOS program that does not require a math co-processor at speeds roughly the equivalent of a 386SX machine, according to the firm's founder James Leslie. The card includes a one-slot Sbus, super VGA graphics, 16K cache and a maximum 8Mb expanded memory. MS-DOS applications currently run as a task under SunView. An Open Look version is slated for the autumn. Users can cut-and-paste between MS-DOS and Unix and do not need Sun's PC-NFS or Windows. Meanwhile Sun, whose past attempts at running MS-DOS under Unix on the 386i were hampered by slow performance, is expected to go to Insignia Solutions Inc, San Francisco, California, for MS-DOS emulation on Sparc-based machines, cutting a deal to take Insignia's SoftPC emulation package.

MICROSOFT SHIPS NEW VERSION OF LAN MANAGER FOR UNIX

Version 1.1 of Microsoft Corp's LAN Manager for Unix is now shipping, and includes new software for remote administration and 70 new programming interfaces for integrating applications on the network. Introduced back in January as LAN Manager/X (UX No 268), the portable version of LAN Manager has been aimed at networking vendors looking to connect Unix machines up to DOS and OS/2-based PC systems, and is claimed to be fully compatible with LAN Manager for OS/2, MS-NET and Xenix-NET versions. The remote administration software allows a LAN Manager server to be accessed from OS/2 via a Windows-based user interface, with facilities to view, copy or delete Unix or DOS files on the server. The 70 additional application programming interfaces, which are backward-compatible with the previous release, are designed to integrate configuration, auditing, printing, interprocess communication, file, server, user, error logging and statistics services into applications. Microsoft had help from Hewlett-Packard on the development work, while other OEMs working on the product include AT&T, Dansk Data, Data General, Groupe Bull, ICL, Olivetti, Tandem and Unisys. The Santa Cruz Operation (for Open Desktop), Informix, Ingres, Oracle and Sybase are also working on software incorporating it. Meanwhile, Microsoft has begun shipping version 2.0 of LAN Manager for MS-DOS, Windows and OS/2 users, changing the pricing structure so that it costs \$1,000 for the first five users, and \$1,000 for each additional ten users, or \$5,500 for an unlimited user licence.

HEWLETT-PACKARD EXPANDS NEW WAVE...

Hewlett-Packard has added three new components to its New Wave Office software environment. NewWave Mail is an electronic mail package which costs £150 and supports HP-UX, which means users of Hewlett's Unixlike operating system do not have to leave the New Wave shell to send electronic mail messages. AdvanceLink terminal emulation software, which allows users to log on to Hewlett minicomputer systems from New Wave is priced at £235, available by the end of the year, and OfficeFax, an application for sending facsimile messages from New Wave is £4,674 per server. At the same time Hewlett has also announced version 3.0 of New Wave, which includes the capability to share objects across a network. New Wave runs on 80286 and 80386 MS-DOS-compatible personal computers and on Microsoft Windows 3.0.

...BUYS \$40m OF SIEMENS PRINTERS OEM...

Hewlett-Packard Co has given Siemens AG's Siemens Information Systems Inc a \$40m OEM order for high-speed, light-emitting diode page printers and the two companies signed for joint development of interfaces. Hewlett-Packard will offer the printers for manufacturing, insurance, medical, distribution, government, telecommunications, direct mail and the like - customers that typically print hundreds of thousands to millions of letter-quality pages per month. The new printers will connect to Hewlett-Packard multi-user computers and will offer company-specific hardware and software interfaces: Hewlett and Siemens will jointly develop plug-compatible interfaces for local connection of HP 3000 and HP 9000 RISC-based computers. The new printer family will complement the 20 pages-per-minute HP LaserJet 2000 and the HP Model 2680A laser printer that does 45 ppm. The range will include both cut sheet and continuous-forms printers running at greater than 45 ppm at 300 dots per inch. Products, prices and availability will be announced in first half 1991.

...AS FORD PICKS HEWLETT TO BE ITS MANUFACTURING PARTNER

And Hewlett-Packard Co has entered into a strategic business relationship with the Automotive Components Group of Ford Motor Co in Dearborn, Michigan to collaborate on major computer-integrated manufacturing and information technology strategies throughout the 1990s. A CIM Alliance Team has been formed to review the most productive methodologies to implement the programme: the team consists of upper-management personnel from both sides with "extensive aggregate experience" in computer technology, enterprise-wide information management and automotive components manufacturing. Collaborative workgroups will focus on technology planning, in particular applications architecture, data model, technology architecture and standards; establish a computer-integrated manufacturing staging centre in Redford, Michigan to simulate plant hardware and software environments; third parties chosen by the Ford unit will be brought into the alliance provided they meet pre-set quality assurance standards. The partnership will be extended to Ford's operations in Europe, and Hewlett-Packard will develop training programmes.

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Unisys plans to sell its proprietary Mapper and Ally software on as many platforms as it can: step one was its recent independent software vendor agreement with Sun Microsystems, which needed Mapper and Ally for Federal bids, (UX No 292) - Foundation Computer Systems, the Unisys subsidiary responsible for the software, has already ported the stuff to NCR Towers and AT&T 3B2s, whilst deals with IBM and Data General are also reported to be waiting in the wings.

Patricia Seybold's Office Computing Group will be holding its Technology Forum '90-Europe at the Rai in Amsterdam on October 18-19: the subject of the two-day conference and exhibition will be object-orientated applications and their business advantage - cost is \$750.

Uniplex is setting up a subsidiary company in Sydney, Australia, which will be up and running by the end of the year the company says - it will service the whole of the Australasian and Asian marketplace.

ICL says it has now taken 500 orders for its DRS 6000 Sparc-based Unix workstation - the latest are from European printing firm BPCC, which is taking nine of the machines together with DRS 400s and DRS 300s linked via an X.25 wide area network in a deal worth £1m, French autoparts distributors Autodistribution, which is taking 17, and Scandinavian DIY group Det Danske Traelastcompagni which has ordered five: in addition ICL claims that over 100 UK local authorities have now ordered DRS 6000 systems.

Bull SA has had to be patient in its effort to acquire all of the computer interests of Honeywell Inc simply because it did not have the resources to buy everything outright, even with the help of NEC Corp. But it now has 70% of Bull HN Information Systems and feels able to afford to add the last of Honeywell's US interests to that company. Accordingly, Bull HN is to buy Honeywell Federal Systems Inc, which sells Bull computers to the US government as part of integrated systems. It employs 1,600 people and has a turnover of \$274m last year.

In the UK, Bull has won two orders: the first is worth £1.2m, from Leicestershire Health Authority for its Case Mix Management System - a resource management and information system that uses Oracle and Uniplex software running on Bull's DPX/2 Unix minis and Zenith personal computers: the second a £9.6m contract from the RAF to computerise administration in 42 of their stations over the next two years, involving 42 DPS 6000 systems and 1,700 terminals and printers.

Cambridge-based Unipalm's Ltd's XTech division is to begin distributing Menlo Park, California-based System Strategies' Alex Open Look development tool in the UK: Alex - A Language Extension to X - converts character-based programs to graphical applications, and numbers AT&T amongst its supporters.

Correction: in Unigram No 285 we listed Yokogawa Hewlett-Packard, the Japanese arm of Open Software Foundation founder Hewlett-Packard, as a member of the rival Unix International consortium; Yokogawa Hewlett-Packard is in fact not a member of Unix International Pacific, however one of its parents - Yokogawa Electric - is, and Unix International's communications manager Steve Payne knows of no reason why Yokogawa Hewlett-Packard shouldn't be privy to any of the information Yokogawa Electric receives from Unix International.

Already available on the RS/6000, Rapltech Systems, Suffern, New York, is now offering its Conversionware translation tools on IBM's AIX 370 operating system: Conversionware converts languages like VMS-Fortran, Fortran and Cobol into C, which means AIX 370 users can port applications written in these languages on to 9370, 4381 and 9030 platforms - prices go from \$60,000 for a six month licence to \$250,000 for a five year licence.

UK X-Windows specialist IXI Ltd, Cambridge, is readying a new version of its X.desktop manager - likely to be previewed at the UniForum '91 show which takes place in Dallas next February.

DEC has announced a follow-on to its VT1000 X-Windows terminal - the VT1200: the 15" and 19" monochrome monitors have a 72Hz refresh rate as opposed to the VT1000's 60Hz, come with 2Mb RAM, TCP/IP and cost \$2,700 and \$4,000 respectively.

Ashton-Tate says that it is developing a version of dBase to run under Ultrix, and that dBase IV 1.1 is about to go into beta test for Sun Microsystems and Apple Macintosh machines.

Sony Corp, which wants its News OS Unix to offer compliance with both Unix System V.4 and OSF/1, (UX No 295), plans to develop the next release of the operating system in the US: it says its Sony Corp of America unit is hiring 30 software engineers to start work in October.

Hewlett-Packard is to begin shipping a Motif-based WSYWIG text editor next month: HP Visual Editor costs \$310 and runs on HP's 9000 Series 800 and 800 systems and on the HP/Apollo Series 400.

Locus Computing Corp has appointed Munich-based Unix software house Workstation 2000 GmbH as a distributor for its DOS and Unix tools in Germany.

Hewlett-Packard does not currently compete with Sun Microsystems at the low-end of the RISC workstation market, but is rumoured to be preparing a Precision Architecture RISC-based system rated at some 30 MIPS with an entry-level price of around \$10,000 for launch this September or October: meanwhile Samsung Electronics, which promised a Precision Architecture-based workstation for \$5,000 back in August 1989 (UX No 244) is set to launch them by the end of the year.

In what could be a blow for Sun Microsystems' recent attempts to boost the fortunes of the Open Look graphical user interface, industry sources claim that General Electric Co, which signed up with Sun Microsystems at the launch of the Sparcstation SLC back in May, (UX No 283), to take 4,000 workstations and servers for its 13 business units has spurned Open Look in favour of OSF/Motif which it will run on the systems.

News reaches us that the beleaguered IEEE 1201.1 windowing group, which recently struck a blow for a standard windowing environment, (UX No 293), has been thwarted in its attempt by disagreements between proponents of the competing windowing technologies: despairing, it has thrown in the towel and the group has been disbanded.

Network Computing Devices Inc and one of its Japanese distributor have set up a new company to sell and support NCD X terminals in Japan: with Software Research Associates of Tokyo, NCD has set up Nihon NCD as a joint venture - the new company, also based in Tokyo, will provide direct support for the three Japanese distributors, SRA, Mitsui and Rikel; it will also be customising the NCD line to suit the Japanese markets, incorporating such elements of Kana keyboards and Kanji versions of the software.

Birmingham, UK-based BI Design looks as if it may become the first UK company to take part in the rush to produce a low-cost Sparc-based workstation - it has a design, and is currently looking for interested parties to provide finance for the project.

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AT&T, SANTA CRUZ, INTEL - AND INTERACTIVE AGREE ON BINARY INTEL STANDARD

Last week at SCO Forum in Santa Cruz, California, AT&T's Unix Software Laboratories, the Santa Cruz Operation and Intel Corp - joined belatedly by Interactive Systems Corp, which was not part of the original announcement - buried another of the hatchets preventing development of a shrink-wrapped Unix software market by agreeing to define and support a common binary application specification for Intel 80386 and 80486 hardware platforms. Although Intel declared its intention to enter the shrink-wrapped Unix market with its own implementation of Unix for 386- and 486-based systems - thereby competing directly with Santa Cruz and Interactive Systems - back at Unix Expo last November, (UX No 255), the status of that development effort was in some confusion as we went to press. The specification will allow software developers to create a single version of applications to run under any iAPX-86 version of Unix that conforms to the specification. Available during the first half of 1991, the specification will be developed in the form of an extension to the Intel Binary Compatibility Specification - iBCS - established in 1988, and called iBCS Edition 2. It will conform to X/Open's XPG 3 and IEEE Posix interoperability standards, and future extensions - defined by so-called "open procedures" - are expected to include support for networking, X-Windows and application installation procedures. Intel will publish iBCS Edition 2 and create the test suites to verify conformance. As a result developers will be able to use Interactive Systems V/386 Release 3.2, SCO Unix V/386 Release 3.2, Open Desktop, SCO Unix 386 and AT&T Unix System V/386 Release 3.2 development environments, and any of these development environments running on AT&T Unix System V/386 Release 4 to create applications for iBCS Edition 2-compliant operating systems. The move has been interpreted by some as a victory for SCO, which has the major share of Unix on Intel hardware, but Interactive claimed that the most important extension to the standard was X-Windows. Interactive also revealed that it was "a major contributor to AT&T's Unix V.4"; it says it will reveal the extent of that contribution within the next few weeks. SCO Forum report, page 2.

PRIME TURNS TO MIPS FOR RISC EXL LINE - PORTS PRIME INFORMATION TO UNIX

Prime Computer Inc has launched a new series of EXL systems using Risc-based hardware from Mips Computer Systems Inc, and at the same time introduced Prime Information Plus, a Unix version of its Pick-based Prime Information relational database management system, previously restricted to the Series 50 machines running PrimeOS. The EXL 7000 Series includes the 7330, 7340 and 7360 models using the Mips R3000 chip, and the 7680 using the ECL-based R6000. Prime Information Plus is binary compatible with the original version, giving Prime around 100 ready available applications, with 4,000 or so Pick applications "easily transferable" from the Pick world. It costs \$1,400 for four users, rising to \$120,000 for 500 users or more, and will also be available on the Intel-based EXL range. Oracle has also been implemented on the new machines, and further database announcements are to come. The company will sell the new Mips machines through its value-added resellers, as well as direct. Prime has taken out a corporate architecture license with Mips, which gives it the option of further development work in the future. Prime also sells Mips-based workstations from Silicon Graphics for CAD/CAM applications. Meanwhile the company said it has agreed with Sequent Computer Systems to end its OEM agreement for multi-processor EXL systems. The company said that some \$550m worth of its \$1,000m hardware sales last year were Unix-based. EXL 7000 prices go from \$18,000 for the 7330 to \$150,000 for the 7680.

"BELEAGUERED" WINDOWING COMMITTEE LIVES TO FIGHT ON

Correction: Reports of the demise of IEEE windowing committee 1201.1 are greatly exaggerated (UX No 296). True, pulling the conversation level above petty bickering over Motif versus Open Look has been a long haul. True, even chairman Sunil Metha would characterize the tenor of things as "beleaguered" and "despairing." And true, the blow it struck for a single windowing environment at its June meeting may not stand. But it is still in business. Committee members who voted in June to use little Colorado-based XVT's technology as the group's base line document for a virtual GUI API that would support both Open Look and Motif, (UX No 294), are now having second thoughts. They want to look further afield to make sure they've covered everything. Oracle has made a presentation but won't submit what it's got publicly. Sybase and SAS may have something but they're not really talking. The committee hopes to look at technologies from at least the UK's System Strategies and little firm amusingly called Windex perhaps at its next meeting October 16-19 in Seattle.

HEWLETT ADDS TUXEDO UNIX TRANSACTION PROCESSING...

As expected, (UX No 291), Hewlett-Packard Co has become the latest manufacturer to license AT&T's Tuxedo transaction processing monitor, for the HP 9000 range. Supporting distributed Unix system transactions across local and wide-area networks, Tuxedo System/T Release 4.0 complies with X/Open's proposals for its XA interface between a transaction manager and database management system, and should make Hewlett-Packard systems more attractive to the commercial market. The implementation is being done by Independence Technologies Inc, of Fremont, California for HP 9000 Series 800 minicomputers and Series 600 servers running HP-UX Unix. Prices will start from \$4,000 when it becomes available in the fourth quarter. Announced back in January (UX No 266), the new version of Tuxedo has so far won support from Amdahl Corp, Pyramid Technology, Sequent Computer Systems and Unisys Corp, and from database vendors Informix, Oracle and Sybase. Hewlett also introduced a new print spooler, HP OpenSpool/UX on the full HP 9000 range with prices going from \$1,550 to \$10,000.

...FILLS GAP AT HIGH END OF HP 9000 800 LINE

And Hewlett-Packard has filled in the gap between its uniprocessor and multi-processor HP 9000 systems with a new box - the HP 9000 Model 860S. Available as an upgrade path for HP 9000 Model 850S and 855S systems, and sitting below the Model 870S multiprocessors launched back in January (UX No 267), the 860S has four times the cache size of the 855S, giving a claimed 30% boost to transaction processing applications over the older box. It is aimed at commercial applications such as payroll and accounting, warehouse and inventory management, manufacturing resource planning, sales and order processing. The price is \$291,000, from October: upgrades from 850S and 855S machines cost \$170,000 and \$80,000 respectively, and 860S owners will be able to upgrade to a single processor 870S/100 for \$178,000. Hewlett is also to begin offering X-Windows on its proprietary HP 3000 series.

KAVNER RESIGNS FROM SUN BOARD OVER "CONFLICTING INTERESTS"

AT&T's computer chief Bob Kavner has resigned from the board of Sun Microsystems to avoid any real or perceived conflict of interest, a spokesman said. Kavner's seat on the Sun board was inherited from his predecessor Vittorio Cassoni who in January 1988 put the deal together that gave AT&T a substantial holding in Sun. Ironically, in just the last fortnight, AT&T's position in Sun has been upped to 19.1%. The AT&T spokesman said there was no intention to replace Kavner with any other AT&T exec. AT&T would not address speculation that the move implied AT&T would be competing directly against Sun in the near future.

SCO IN THE DRIVING SEAT AS NEW STANDARDS EFFORT SOLIDIFIES "SHRINK-WRAPPED" UNIX FOR INTEL

Last week at the SCO Forum, the Santa Cruz Operation, AT&T's UNIX Software Laboratories and the Intel Corporation - joined a couple of days later by Interactive Systems Corp - announced agreement on the promulgation of a standard, to be called the Intel Binary Compatibility Standard (iBCS) Edition 2. The stated purpose of this cooperative venture is to increase the volume of software available to run on the Intel 386/486 platform by enabling "shrink-wrapping" of UNIX applications. **Paul Lavin** in San Francisco and **Maureen O'Gara** in New York report.

Speaking at SCO Forum held at the University of California Santa Cruz campus, Ron Whittier, Intel Vice President of Marketing explained "We are doing five things with this announcement. AT&T, SCO and USL have agreed to fix the incompatibilities that have crept into V3.2 implementations. We will define and extend a standard for binary applications. SCO and AT&T will provide conformant operating systems while Intel will publish the specification and test suites to measure compatibility to the standard. Intel will act as an interface to an open process that will maintain the spec over time." Under questioning, Whittier admitted that the details of the open process had yet to be worked out. "There's little need for negotiating - iBCS2 is about codifying the standards existing in currently applications." This was amplified by Larry Dooling, president of USL "Today's applications will be supported. No one has to worry about applications now on the shelf or currently under development."

SCO holds back on V.4 commitment - Intel's in-house Unix effort in doubt

While Intel and USL representatives spoke enthusiastically about the implications of iBCS2 for UNIX V.4, SCO's Doug Michels would not be drawn into committing SCO to V.4. "We are currently shipping V3.2 and are improving V3.2 for later releases. As a member for both OSF and UI we are in a position to select the best technology at a later date for our customers." iBCS2 plays strongly into SCO's hands. Basing the standard on the applications now in the field amounts to a tacit endorsement of SCO's operating system and applications because of their dominance in the Intel UNIX market. This announcement was also a climb down for Intel who announced their intention to become a UNIX operating system vendor last October when it announced the iABI at New York's UNIXexpo. Sources close to Intel reveal that the development team responsible for Intel UNIX has now been disbanded and disbursed to other areas in the company, although Whittier confusingly insisted that the new announcement would not "decommit" Intel from the Unix development work announced at Unix Expo (UX No 255, 257). of next year.

Second attempt at standard due out first quarter 1991

An earlier attempt to put together something similar took place in 1988, when AT&T and Intel produced the Intel Binary Compatibility Standard (iBCS) Edition 1 but by the time they got it to market it was outdated. iBCS left some critical blanks, such as Posix, X/Open compliance, X/Windows and networking interfacing - mostly because they hadn't been invented yet. There was also no process in place to prevent divergence from the written standard. This time, they are trying again with SCO included. The first meeting of the working group putting the spec together is Sept 5. It will be chaired by Intel Fellow Dr Richard Wort and apparently will include only two technicians each from USL, SCO and Intel. They want to have a draft by the fourth quarter and have a completion target of the first quarter - worst case first half - of 1991 for the final document. The companies declined to put a dollar value on their work, but most of the investment will be from Intel, which is going to develop and publish the thing and come up with a testing suite. According to the companies, applications developers will not have to go back and re-write their applications - the operating system will make all the necessary additions. The spec will conform to XPG3, IEEE Posix 1003.1 and FIPS 151-1. Related work is apparently also going on with Intel's i860 Risc chip, but this is not included in the deal.

OSF and UI agree over Intel market - aside from the user interface

There seems to be little contention between the Open Software Foundation and Unix International in the Intel UNIX market. Taking the lead from AT&T's Unix V.4, OSF announced in May 1990 its intention to build XENIX and UNIX 3.2 compatibility into OSF/1 with SCO's help. Both OSF president David Tory and Unix International's Peter Cunningham welcomed the new announcements. However, the graphical user interface area was good for rise out of AT&T's Larry Dooling. While asserting the technical and market dominance of Open Look (which was open to question by the scribes present), he allowed that there didn't need to be a winner or loser in the GUI battle. These statements could be read as paving the way for a graceful retreat on Open Look "The market will decide" said Dooling. SCO's Michels felt that the scrap was over bar the mopping up, with OSF/Motif (used in SCO's Open Desktop package) the victor. The iBSC2 spec will not include a graphical user interface.

Risc competition and 386/486 clones "will impact Intel"

Bear Stearns has removed Intel stock from its "buy recommended" list because of "an emerging focus by customers on alternative Risc processors" as well as growing expectations that the 386/486 chip will be cloned: The Wall Street firm figures these two factors, coupled with "concern and confusion" over Intel's on-going litigation against Advanced Micro Devices over the 287 and the 386, will negatively impact Intel's P/E multiple and profit margins.

SCO Unix Forum - Roundup

UK windowing specialist JSB released JSB Multiview DeskTop Release 1.2 at the SCO Forum on Thursday. The Microsoft Windows 3.0-based software for MS-DOS systems provides a graphical user interface for integrating PCs with Unix systems via RS-232 or local area network. Available in September, the new release costs \$295 for a one user license, \$995 for five users or \$1,795 for 10 users: updates for current users will be available from SCO.

The first wave of third party applications for SCO's Open Desktop graphical operating system package are at last coming on stream, and at SCO Forum packages on show included: the FrameMaker publishing system from Frame Technology Inc running on an Altos 5000 server; Island Graphic's Write, Paint and Draw applications; Crosswind's Synchronize multi-user time management software; the Uniplex office automation suite; and Informix's WINGZ advanced spreadsheet. Other promised products include: the Wang Clearview and WordPerfect word processors; CAD packages from CAD Solutions, Cognition and Digital MNA-trix; and software development tools from Focus, ICS and Ingres.

And SCO said that the first customer shipments of the Open Desktop Server Upgrade supplement to its Open Desktop package have begun: the supplement adds server capabilities to Open Desktop for PC-Interface and networked SQL databases, including a multi-user license for all Open Desktop system services. This allows multi-user systems using X terminals, character-based terminals or networked workstations to be set up. Available now, list price is \$1,495: Open Desktop itself is \$995.

BABY AS/400s TURN RS/6000 INTO 5250...

Last week IBM announced three new baby models of the AS/400, which reduce the entry price to true AS/400 to \$18,250. The aim of the new low-end AS/400 models is clearly to protect the still very large IBM System 36 base from the threat from Unix, and to marginalise Unix further, IBM is making the RS/6000 look to AS/400 users like an optional adjunct, offering the IBM AIX AS/400 Connection Program/6000, which enables an RS/6000 user to communicate with an AS/400 system. Operating under SNA or TCP/IP, it enables an RS/6000 attached via Token-Ring network, Ethernet or SDLC access to applications and data on the AS/400. Under SNA and TCP/IP, the Connection Program/6000 provides 5250 emulation capability, file transfer facilities, and remote command function. It's out on November 16 in the US.

...AS RT System AND RT AIX SLASHED TO HALF-PRICE IN CLEARANCE SALE

IBM continues its Herculean task to empty its warehouses of the wretched RT machine by announcing that for a limited time only, it is offering the IBM RT System and RT AIX at a reduced price for customers that install the IBM RT for use with computer-aided design and manufacturing applications eg: Cadam, Catia, CAEDS or CIEDS or any third party CAD/CAM applications. Customers taking up the offer will receive a 50% discount off the single-unit price of the eligible machines and a 50% discount off the one-time charge of RT AIX. To be eligible customers must order the RT System on or before December 31, 1990 and install it on or after July 24, 1990 and on or before March 31, 1991. To be eligible customers must also be in the commercial, state, federal and local government sectors.

COMPAQ WILL BUILD ENTIRE FUTURE PRODUCT LINE AROUND THE EISA BUS

In a move calculated to cement market acceptance of the EISA bus as a convincing and uncontroversial alternative both to IBM's Micro Channel and the AT bus in the personal computer world, Compaq Computer Corp says that it is to migrate the bus throughout its line so that all new machines, including laptops will use it. The company does not plan any more 80286-based machines and will build its future bottom end machines around the 16-bit bus 80386SX - the 32-bit EISA bus is perfectly usable, albeit not to its full capability, with a 16-bit processor. A key reason for making the switch, Compaq told Computer Reseller News, is that it is designing its own VLSI support circuits, and it will be much more cost effective to use the same chips in all its machines. Compaq also said that it has shelve plans to take its Systempro servers beyond two processors because it does not see market demand for bigger ones, and that operating system support is not available for more than two CPUs, except using Unix.

ENCORE PARALLEL MULTITHREADED OPEN SYSTEMS INTERCONNECTION "IS FIRST"

Encore Computer Corp, Fort Lauderdale, Florida claims to have the first parallelised, multithreaded Open Systems Interconnection protocol suites - and is offering them on its Multimax and Encore 90 Unix families. The company went to Retix Inc, Santa Monica, California for its portable Open Systems Interconnection software, and claims its implementations are compliant with the US and UK Government OSI Profile, GOSIP. The multithreaded implementation of ISO Transport Services, File Transfer Access and Management and X400 Message Transfer Services is built on top of Encore's AT&T Unix System V Streams kernel and "allows for unprecedented computer system scaling", the company claims. The implementation will be available on the NS32332-based Multimax 500 next quarter and on the 88000-based Encore 90 in the second quarter 1991.

SUEZ VENTURES LEADS TEAM EYEING DAISY SYSTEMS RESCUE

The Suez Ventures venture capital arm of French banking group Compagnie de Suez SA is leading a consortium conducting due diligence on Dazix Systems Corp with a view to making an offer for the bankrupt computer-aided engineering and design company. Members of the team include ADC Technologies, Athena Venture Partners LP, Burr, Egan, Deleage & Co, Euromerica, Sopagri and Seiko Instruments Co, plus key executives of the merged Daisy/Cadnetix firm are considering participation in the rescue effort.

ANAMARTIC'S WAFER-SCALE TECHNOLOGY WINS EUROPEAN COMMISSION FUNDING

A European Commission semiconductor technology committee has awarded \$11.6m to UK-based Anamartic Ltd, Siemens AG and Bull SA, for the development of wafer-scale technology. The award will be spread over four years and is part of the Commission's efforts to support European companies in the development of leading edge technologies. Each company will receive its share of the funding from its own government and the companies are required to underwrite half the cost of the project themselves. Anamartic, which owns the rights to the basic technology for the project, is 13%-owned by Fujitsu Ltd and 19% by Tandem Computers Inc. Fujitsu also makes the wafers for Anamartic's Wafer Stack solid state storage subsystem, (UX No 219), the first product to be based on wafer-scale technology. However, a spokeswoman for Anamartic said that there will be no technology transfer from either of those two investors and that Fujitsu "has no problem with the situation". The project will be kept entirely separate from Anamartic's commercial interests. Waferscale technology refers to the use of an entire semiconductor wafer as the basic unit of the supercomponent, rather than chips cut from the wafer. The supercomponents will be used in a variety of intermediate storage devices and the three companies will concentrate on developing 4M-bit and 16M-bit dynamic hard storage memory systems.

INTERACTIVE WINS FEDERAL ORDERS...

Although Interactive Systems Corp was not part of the ABI announcement at SCO Forum last week - see front page - the Unix supplier has pulled off something of a coup signing deals with Electronic Data Systems and Oracle Corp. Both have chosen the Santa Monica, California-based firm to supply the operating system element in contracts they have with US government agencies for Intel 80386- and 80486-based systems. EDS will use Interactive Unix as part of its \$700m Small Multi-user Computer contract with the US Army, (UX No 276), Oracle will use the operating system for the \$39.4m Cataloging Tools On Line document imaging system which it is putting together for the US Defense Logistics Agency.

...AS SUN PICKS UP COMMERCIAL SUPPORT

Sun Microsystems Inc has won a loyal supporter in General Electric Co. Following the decision to buy 4,000 Sparcstations for its 13 business units back in May, (UX Nos 283, 296), General Electric's GE Aerospace division has signed up for \$100m worth of Sparcstation 1+ workstations over the next two years, beating competition from Data General, DEC, Hewlett-Packard and IBM.

HOW GREED AND FEAR HAVE LEFT IBM WITH AN AS/400-RS/6000 NIGHTMARE TO MANAGE

by Tim Palmer

It already begins to look as if the worst-case scenario for the outcome of IBM's gamble in making the RS/6000 competitive with the leading offerings in the Unix market may be about to unfold - the machine is attractive enough to steal sufficient business from the company's proprietary base to start seriously hurting the bottom line, but is not sufficiently successful to sweep all before it and generate the vast sales needed to replace profits foregone on proprietary systems.

According to the UK trade paper *Computer Weekly*, IBM UK is doing so badly with the AS/400 that the company received a visitation from on high a couple of weeks ago - John Akers dropped in to ask the reason why. IBM UK's plan called for sales of 3,000 mid-range machines, mainly AS/400s and RS/6000s, this year, but that by the end of June it had sold only 1,000. IBM agents we spoke to put the blame firmly on paralysis in the market caused by the RS/6000, (UX No 296).

RS thingy

US figures culled from the *Computer Intelligence* database by *Computer Systems News* found that in a survey of 6,000 sites, as of April 21, suggests that 30% of AS/400 sales were to new accounts or as additional machines in existing accounts. The proportion converting from System 36 was 21%, down from 27% in April 1989, and only 17% came from System 38 sites against 35% a year ago - but that's because most System 38 users - the easy AS/400 sales - have moved already. If the profile of new AS/400 sales in the UK is anything like that in the US, the new accounts and System 36 conversions are extremely important to keep the market bubbling - and those are the sites most at risk from RS/6000-induced paralysis. The hype that accompanied the RS/6000 at its launch can hardly have failed to arouse the interest of all IBM mid-range users whose machines were coming to the end of their useful life - and was sufficiently widely broadcast that it will have got to the ears of most chairpeople. Picture the typical System 36 user. The machine is clearly a dead end but the chap in charge of computing - data processing manager may be too grand a title - has heard enough from his siblings about how hard it is to upgrade to the AS/400, how impossible to do it without putting up the computing budget substantially. But he's got to have a bigger machine. He's interested in the touted price-performance of the RS/6000 but is worried about the heat he'll get from IBM if he says he wants to jump ship and duck the AS/400. He decides it must be an AS/400 Model 25 and tells the chairman so. The chairman says "Hey, what about this hot IBM Unix box, the RS thingy?" "Yes sir, but they can't deliver the thing yet - they can't get the software to work properly, and we ought to see it at work at a few other sites before we make a decision." The chairman inwardly hugs the man. In the present economic climate the last thing he wants to do is to burden the company with a big new capital commitment. "Well they've got it right now, haven't they - I think we'll wait till we have some reports back from the field on how it performs before we make a decision - OK? Next business." In the end, the company will probably go for one of the new baby AS/400 models launched last week - see page 3 - which are designed to ease the migration of System 36 users - but the cost-benefit may still come down on the side of the RS/6000, and almost certainly will in all those virgin target sites for the AS/400.

Paralysis

Meantime IBM hasn't sold anything where without the RS/6000 paralysis both types of site would almost certainly have committed to the AS/400 by now. But the fact that such uncertainties have been raised in users' minds is something to give IBM and its shareholders a Merino flock full of sleepless nights. Any AS/400 prospect that opts for the RS/6000 instead is a disaster for IBM.

In the first case the margins on the AS/400 hardware are much better; in the second, in any AS/400 sale, IBM gets most of the software revenues - and it has an in-built database where the first thing an RS/6000 sale does is hand business over to Oracle or Ingres; in the third, a user lost to the RS/6000 is a user lost to Unix. The whole point of open systems and Unix is that users are no longer locked in to one supplier, and there is every chance that IBM will over time alienate RS/6000 users enough to set them running to another Unix vendor when the time comes to upgrade. Alienate? Well it's already doing its best to alienate its most loyal AS/400 users, the ones that came from System 38 and are already on the largest models and are desperate for the machine that IBM promised would double the performance of the Model 70 within two years when the line was launched - it now says it will deliver such a top-end model by the middle of next year - missing its 1988 promise by around one year. And why? Because it fears that too many 4381 and small 3090 users would trade down. It knows it can afford to do that because AS/400 Model 70 users have nowhere else to go. But it can't afford to treat its RS/6000 users with the same contempt - try it and they'll be straight on the phone to Hewlett or Sun. And in Europe it's too late for IBM to back-track on Unix. In the US, the company is still promoting the RS/6000 as a technical machine not really suited to commercial applications - but it doesn't really need to be so emphatic there: most commercial users in the US are still very doubtful about the benefits of Unix. No such reticence in Europe - and IBM did all it could to help the message along. Finding it couldn't sell the RT as an engineering workstation, but with quotas to meet, IBM Europe went out energetically and promoted it for business in an effort it must be beginning to regret deeply. If an uncompetitive machine like the RT could be sold successfully to European business users, how much more successful should be the vastly better RS box. The demand is clearly there, but IBM has fatally handicapped an RS/6000 that needs a quick take-off: it has said that at some time in the next two years or so it will switch to OSF/1 from AIX.

Hard-bitten

It assures everybody that the switch will cause no disruption to applications, but then it promised AS/400 users double the power within two years - better hold off from committing to the RS/6000 until OSF/1 is up and running, say hard-bitten software developers, while canny users, convinced by IBM's promotion of the benefits of Unix, may well decide to go Unix - but not bother to wait for OSF/1 on the RS/6000 but go with somebody else instead. IBM is left with a nightmare to manage - and few are in a more unenviable position than UK managing director Tony Cleaver, who has been given the poisoned chalice of having to promote IBM Unix right across Europe while finding that his home AS/400 base is paralysed and he can't sell RS/6000s either because Austin goofed on the software. How did IBM get itself into this ghastly situation? By putting short term profits ahead of the needs of its customers and by trying to get the best of both the proprietary and open systems worlds. If it had priced the low-end AS/400s to give System 36 users an affordable performance increase in emulation mode, its AS/400 base would be twice the size it is now and there'd be no question of mass defection to Unix. If it had brought the "4391" out when 4381 users first began to need it, shrugged at small 3090 users trading down, and let AS/400 performance to rip at the top end, the AS/400 would be the fastest-growing base in the industry and bidding fair to become the most profitable - and IBM would have happy customers.

NEW X SOFTWARE DISTRIBUTOR GEARS UP FOR "SERIOUS DEMAND"

Xecute, a brand new X/Windows-based software distributor headquartered in Edison, New Jersey, opened its doors last week. The company has cut deals to resell the Visix desktop manager Looking Glass and Locus Computing's networking products such as PC Interface. Similar arrangements are reportedly in the works with Santa Cruz for Open Desktop, Advanced Graphics Engineering (AGE) for its Xoftware TI34010 technology and Applix for Alis. Xecute founder Eric Korb intends to produce turnkey solutions for dealers whom he estimates are relatively unsophisticated around Unix. His initial focus will be on the CAD market for which he has already produced a GUI product called Open Sesame! for AutoCAD. The new product is, as he anticipates his follow-on products will be, based on Looking Glass because of its leadership position. Korb admits he may be 12 months premature distributing X software, particularly on desktop or office automation applications, but reckons it's a year well spent learning the trade and preparing for serious demand.

NEW GKS SOFTWARE FROM SCIENTIFIC

Scientific Software Ltd, Marlow, Buckinghamshire, is aiming to give the ISO Graphical Kernel System - GKS - standard a new lease of life with the release of a new GKS-based toolkit claimed to simplify the development of graphics in C or Fortran for scientific and technical applications. E-GUL, Engineering Graphics Utility, runs on Unix, MS-DOS and VAX/VMS systems. It allows three-dimensional data to be shown in a variety of guises without resort to the use of the 3-D version of GKS, or Phigs, the 3-D Programmers Hierarchical Interactive Graphics System. Although it is built upon Scientific Software's S-GKS implementation of GKS, the company says that E-GUL will interface with any version of GKS. In addition Scientific Software has introduced version 2.1 of S-GKS, which, written in C, offers compatibility with the X-Windows system and window management environments such as OSF/Motif and AT&T's Open Look. GKS offers high-level graphics capabilities in application areas that are unsuitable as X-Windows tasks, and although X-Windows is becoming a de facto standard in the industry, Scientific Software stresses that the two should be regarded as complimentary technologies - not rivals. The firm also has business-orientated version of E-GUL, called B-GUL - Business Graphics Utility - and C-GUL, which allows CalComp applications to be transferred to GKS. Following the adoption of a standard for the C language by ANSI, (UX No 262), Scientific Software expects a C-based GKS standard to be ratified sometime next year.

NEW SPARC COMMUNICATIONS CONTROLLERS FROM CoSystems

Sun Microsystems and Solbourne workstation users are getting connectivity options thrust at them from all sides at the moment. Now Sunnyvale, California-based CoSystems Inc's CoALM-S communications controller boards for Sbus-based Sun and Solbourne workstations are available from Thame Microsystems Ltd, Thame, Oxfordshire, following a distribution deal the two signed last month. The boards incorporate a VLSI device with an in-built 10Mhz Risc processor and SunOS 4.1 Streams driver designed by CoSystems, allowing printers, modems and other peripherals to be connected to the workstations. A four-channel serial CoALM-S4 costs £527, expandable to eight channels with the CoALM-S4E which is priced at £333. A single-slot eight channel version, the CoALM-S8, is £973, or £1,060 with the addition of a Centronics-compatible parallel port, (the CoALM-S8P). A two-port CoPIO parallel input/output controller - also Centronics-compatible - is available for £527.

SPARC INTERNATIONAL "NOW HAS 60 MEMBERS"

Sparc International is very secretive about who is in the club: its members list is held strictly confidential to pacify the companies that are paranoid their alignment will become known and their kit pre-announced. There are now reportedly around 60 members, and they're not all hardware or chip merchants - there is a high proportion of ISVs in the ranks, we're told.

NORSK DATA SURPRISES EVEN ITS FANS WITH RETURN TO MODEST PROFITS

Norsk Data Group executive vice-president Tor Alheim readily admits that he may be too old to relish the prospect of a revamp of corporate strategy on the scale that Norsk Data Group A/S has undergone in recent years, since the decision to move into Unix was made. But last week's announcement of the minimaker's interim figures that included a return to pre-tax profits for the first time in two years, Alheim may be quite justified in saying that he at last feels that its "strategy is in now place" and no radical changes of direction will have to be made - including no more job losses. Pre-tax profits for the six months were at the equivalent of \$495,000, a turn around from last time's losses of some \$40m. At \$201m, revenues for the first half were up 10% on last time, but still significantly down on the kind of business the Norwegian was doing two years ago at the height of its success. Since then, Norsk Data has completely restructured its operations and actual product sales rose by 22% in the period. Revenues from standards-based as opposed to proprietary products stand at around 40% of turnover, with sales specifically from Unix up to 25% of the total "and growing" - this compares favourably to the 10% of total sales from Unix that Data General, which has also tried to take Unix on board, is currently managing.

NATSEMI SHUTS PLANT, CUTS 2,000 JOBS...

National Semiconductor Corp is finding it a much harder grind than it had hoped to get the company back on an even keel, and last week announced lay-offs of another 2,000 people from its 32,000-strong work force and its intention to close two plants. It is getting out of the high-speed static RAM business and will close one fabrication line at its Puyallup, Washington facility and is also closing its Tucson, Arizona military-product assembly and test facility, transferring the work to other locations. It will also restructure its ASIC business. This will all cost a charge of some \$140m to the first quarter figures to the end of the week - and operating results will be below expectations as well. It is also cutting to four divisions from six - VLSI, Analogue, Military/Aerospace and a new Standard Products Division.

...AND DATA GENERAL IS ALSO EXPECTED TO SHED 2,000

One of the frightening aspects of biting the bullet and making the transition from proprietary to open systems is that a company's proprietary business always dwindles more rapidly than the company forecasts, and much more rapidly than the new open systems line can grow to fill the gap. Caught in what has become a classic bind is Data General Corp, which according to insiders tapped by the Wall Street Journal will likely cut the already heavily thinned ranks of its workforce by another 2,000 people or more: it currently employs 11,700, down from 17,700 at peak in 1985. Sales peaked at \$1,360m in 1988, and have been slipping gently since. And although the Motorola 88000 RISC-based AViiON Unix machines have got off to a very good start, they are still expected to contribute only about \$100m to total sales of between \$1,100m and \$1,200m this fiscal year to the end of next month. The fact that the shares are trading at just \$5.75 against book value of \$16 a share has caused speculation that the firm is for sale - denied by president Ronald Skates.

SPARC LAPTOP MAKER RDI HAS A MIPS LAPTOP IN THE LABS

Research Development Innovations (RDI), the little California start-up with the all-embracing Unix/DOS/Mac laptop in the works (UX No 296), also has a MIPS laptop up its sleeve. Whether the MIPS widget ever sees the light of day depends on whether there's really a market for Risc laptops. RDI says it should know by the second quarter of next year, when it's had its Sun-compatible on the market for a while. Like the Sparc laptop, the MIPS version would be intended for the OEM market, and RDI hopes that MIPS themselves might be interested. Sparc systems should be ready for delivery by November, and although the thing will run Mac software as well as Unix and DOS, the company does not anticipate problems from Apple's lawyers. Apple reportedly saw a 68030/Mac only version of Brite Lite four months ago, but wasn't interested in taking it per se - only in getting its hands on RDI's proprietary 1152 x 900 screen technology: Apple has been an early entrant with the Japanese active matrix LCD technology for its own laptop screens.

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SUN "READY TO SIGN MASTER VAR AGREEMENT FOR CAD"

This week, Sun Microsystems expects to sign a contract making Access Graphics a master VAR servicing other smaller VARs selling into the CAD market. This would be the first time Sun countenances a third-party distributor getting between it and the companies that have made it famous. Sun says it is not interested in Access recruiting new technical VARs, merely in supplying, shipping, servicing and collecting from those that already exist. Similar talks, which could culminate a month or month and a half from now, are being held with Tech Data that could make it a master VAR serving business/commercial resellers. Sun has only recently entered the distribution game: when it released its new low-end IPC Sparcstation a few weeks ago, it appointed resellers Intelligent Electronics, Microage and Nynex to carry it and other Sparc machines into channels new to Sun. IE and MicroAge are reportedly interested in picking up some of the older Sun VARs.

Previously an exclusive supplier to DEC VAX/VMS sites, G C McKeown & Co, Ltd, Stevenage, Hertfordshire, is now offering its Integra management software applications on Ultrix and Unix.

Following a similar deal with Stratus Computer, 4GL developer Uniface BV has signed a joint marketing agreement with Pyramid Computer - it will begin selling Uniface tools on its systems.

The June issue of Software Practice and Experience, published by John Wiley & Sons Ltd, is a special Unix tools issue, and includes papers on interprocess communications by Dave Presotto and Dennis Ritchie, and "3-D" extensions to the Unix file system by David Korn and Eduardo Krell.

Hewlett-Packard has signed up with image processing firm Visual Information Technologies Inc, Plano, Texas, to develop workstations for remote sensing and mapping operations based upon the company's recently introduced Series 9000 Model 400 systems, (UX No 288).

In the UK, Meltek Data Ltd, Feltham, Middlesex, is offering Hellos Systems' 4Mb SLC-4S add-in memory board for the diskless Sun Microsystems SLC workstation: it has eight 4Mb and four 1Mb memory chips and four of the modules take the SLC memory up to 16Mb - the SLC-4S costs £550.

Computer International, Aylesbury, Buckinghamshire, is to market Le tx range of X-terminals from Gipsi SA, Paris, in the UK, they run the real-time Chorus Unix kernel originally developed by the French research organisation INRIA: the Motorola 68030-based terminals are priced at from £3,350.

NIXDORF ADDS 68040, SMP UNIX

Undeterred by its forthcoming immersion within Siemens Nixdorf Informationssysteme AG, Paderborn-based Nixdorf Computer AG has launched a new Model 25 and Model 55, both based on Motorola's 68040 chip, to expand its Unix-based Targon/31 range; various enhancements have also been made to the Unix-TOS Targon operating system. ixdorf claims that the 68040 processor helps the new models to twice the previous performance: accordingly, the Targon series now offers a performance range extending from the 3.5 MIPS of the Model 5 up to 20 MIPS on the Model 55; upgrades to the new central processing unit will be available for Model 15s and 45s. The Unix/TOS operating system has been given a tuning feature designed to optimise the use of several processors in a symmetrical multi-processing configuration. Like Tandem's Integrity S2 Unix machine launched last January, the new Targons will include the Berkeley Fast File System for faster input-output; X-Window and the Open Software Foundation's Motif are available as options. All of the new operating system functions can be incorporated in existing Targon installations. Included in the prices of base configurations - which now go from the equivalent of \$15,000 for the Model 5 to \$115,000 for the Model 55 - are an SCSI interface, Ethernet or Cheaper net controller, modem and battery back-up.

AT&T ISTEEL SPENDS £2.5m TO EXPAND UK COMPUTER SIDE

AT&T Co is getting impatient to establish itself in the UK computer and has decided that growing its AT&T Istel Computer Systems Ltd from scratch will take too long. Accordingly, the company is looking around for acquisitions and has spent its first £2.5m buying Swindon, Wiltshire-based Unix systems house and systems integrator Daton Systems Ltd. Daton specialises in ICL and Bull HN systems, and it has in turn acquired WP Associates Ltd, which is a Bull and Philips value-added reseller. Daton does £3.5m a year and has 42 employees, and is still celebrating a £400,000 software development contract with the Ministry of Defence in partnership with ICL using the Informix relational database; a £250,000 ICL DRS installation at Dungeness Power Station; and £100,000 MS-DOS and Unix system for the Royal Air Force on Bull kit. WP does £1m of business a year building systems using Oracle and Dataflex databases and has 15 employees. A key product is an electoral administration package.

Following the release of OSF/Motif 1.1 last week, (UX No 296), and the continuing reluctance of Sun Microsystems to offer the interface directly on its workstations, IXI Ltd, Cambridge, is stepping into the void and offering Sun and Solbourne Computer users a Motif development kit - it costs £695.

Stockholm, Sweden-based TeleSoft's Tel-Den2 Ada Cross compiler is now available on VAX/VMS systems that are being used to develop embedded Motorola 88000 Risc applications.

Unix servers can now connect with MS-DOS and OS/2 networks over 3Com Corp's implementation of TCP/IP - 3 Plus Open - via a port of Locus Computing's PC-Interface from Paris-based Unix software house Synsoft.

Acer Corp's newest sibling, Altos Computer Systems, has introduced an office automation version of its Altos 5000 system based on the Intel 80486 processor: using an EISA bus, the Altos 5000 OA comes with eight slots for connecting up to 512 terminals, a maximum of 64Mb RAM, five SCSI channels which can support up to 29Gb of disk and SCO Open Desktop as an option; A 50-user system with 24Mb memory, 3.5" and 5.25" floppy drives, two 440Mb hard disks, tape streamer, 12" terminal, Ethernet card and Altos Unix 5.3.2 comes in at £40,500.

US sources say that NeXT Inc is likely to reveal its promised colour version of the NeXT workstation on September 18th. Look for a box with a 25MHz Motorola 68040 processor, 8Mb RAM, 200Mb disk, three expansion slots, colour monitor and Pixar's Renderman graphics technology - but no optical drive - priced between \$13,000 and \$15,000 to ship in the Autumn. Also predicted are two new low-cost systems that are said to undercut Sun Microsystems' Sparcstation line. They will feature the "pizza box" design that figures in Sun's Sparcstation line, run the same 68040 processor but come with only 100Mb disk, no slots or optical drive.

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MICRO-KERNEL, REAL-TIME CHORUS "IS FUTURE OF UNIX"

AT&T AND OPEN SOFTWARE FOUNDATION TALKS IN PROGRESS

French operating systems house Chorus Systemes of Paris thinks it has developed what the next generation of Unix ought to and is approaching both AT&T and the Open Software Foundation, product in hand, seeking their endorsements. It also says it is talking at various levels with almost every conceivable US and European hardware vendor about OEMing its real-time distributed software for System X digital switches (UX No 269) and with French X-Terminal maker Gipsi. Two other "major" deals with US and European computer firms remain unannounced. To close other accounts, four year-old Chorus, barely more than a start-up despite its \$6.5M in revenues this year, has launched a US subsidiary, Chorus Systems Inc, in Beaverton, Oregon and hired Bob Anundson, ex-president of 88 Open, as VP, marketing and business development. The Chorus' sales pitch maintains that Unix, as currently structured has run out of steam. To extend its life another 10 or 15 years requires extensive modularisation using a microkernel approach, something that OSF VP of research and advanced development Ira Goldstein has been preaching for some time. It was also exactly what AT&T and Sun planned to do in Phase III of its Unix development, once referred to as System V.5. an effort shot down in the OSF/Unix International controversy.

"work on OSF/2 progressing"

OSF/2, which is to be stripped of all AT&T code and made free of AT&T royalties (UX No 282), has always been referred to as a research effort and dismissed by some as more of a pipe dream. However, Chorus co-founder Hubert Zimmerman and US president Will Neuhauser say work on OSF/2 is progressing. In fact, they say, earlier this summer OSF quietly started an open technology review, or "quasi RTF", out of its offices in Grenoble searching for existing OSF/2-style technologies. Chorus claims to have a three-year lead on any possible competitors and the only commercialised microkernel available. Therefore it should be a strong contender. Although currently based on System V 3.2 and going to SVR4, the Chorus system could easily be stripped of any offending AT&T code and rewritten, Zimmerman said. Chorus' immediate difficulties with OSF have been drawing Goldstein out on the subject of "terms and conditions", a bugbear that has haunted OSF through all its technology requests. Zimmerman and Neuhauser say Goldstein wants to put OSF/2 in the public domain, a highly unappetising prospect for any ISV. Chorus' response, they say, has been to go to OSF sponsors, some of whom now fail to see the value of putting OSF/2 in the public domain. Goldstein did not return calls by press time. Chorus is also talking to AT&T Unix Systems Labs aiming to get USL to adopt it as the basis of the modular system it eventually develops. USL VP Mike DeFazio indicated any notion of a tie-up is premature. USL is kicking Chorus' tires, looking at what it is the French have and how they did it. However, the problems that Unix in the late '90s attempts to address have to be updated from the 1987 V.5 fiasco, clearly articulated and consensus reached within Unix International. DeFazio said that that part of the UI roadmap would be laid out a year from now. In the meantime, what he has seen of Chorus shows "some promising technology" and at least "some elements" of it could be used, perhaps blended with pieces of AT&T's own Plan Nine work (UX No 291 & 292). As for Chorus, it looks "very good," he said, "I have a lot of respect for it."

FUJITSU LAUNCHES FIRST UNIX V.4 FOR MAINFRAMES

Fujitsu Limited has superceded its Amdahl-based UTS/M Unix mainframe operating system with the launch of UPX/M, which it claims to be the first computer mainframe operating system to be based on Unix System V Release 4. Launched last Wednesday, the system runs on Fujitsu VP2000 series and M series mainframes, and includes enhancements to SVR4 that were previously available under UTS, such as large volume data back-up and automatic operation functions. And Fujitsu has added additional tools, such as an automatic parallel FORTRAN compiler, and an automatic vector compiler for C, to support the high speed vector processing capabilities of its VP2000 range. It supports multiprocessing configurations of up to four processors on an M Series computer. The company claims to have installed over 200 UTS/M-based systems since 1985: it has now established three porting centres in Japan and centres in the US, West Germany, Australia and Spain to increase the number of applications to 300 engineering and 200 commercial over the next three years. Fujitsu says it plans to adopt V.4 on all of its Unix range, which also includes the A family (currently running SX/A Unix), the FMR PC range running Xenix and the S family of workstations from Sun Microsystems. Fujitsu first demonstrated Unix SVR4 running on a mainframe at the V.4 launch in New York, and again at the SIMO show in Madrid. Meanwhile, Amdahl Corp says that it too is working on a V.4 release of UTS, but would not commit to a release date. New Fujitsu supercomputers - see back page.

DELL LAUNCHES 486 SERVERS

Dell Computer Corp has introduced two new 486-based floor standing systems in the US, aimed at Unix multi-user and server applications. The 425E and 433TE systems use 25 and 33MHz 486 chips respectively, and use the EISA Extended Industry Standard Architecture bus. Prices start from \$6,750 for the 425SE with 4Mb RAM, floppy drive, 80Mb disk and VGA monitor, available immediately (33MHz versions from October). Also launched were 386 based 325D and 333D desktops with prices \$900 and \$300 lower than the existing Dell System 325, and Dell's second laptop, the battery powered 320LT laptop using a 20MHz 386SX and priced from \$3,600. The UK launch has been set for September 25th.

...AND HAS OWN-DEVELOPED i960 DISK SUBSYSTEM

And Dell is making its server systems more attractive and competitive against such competitors as the Compaq SystemPro by introducing its own-designed disk subsystem for applications such as software development, computer-aided design and other graphical applications that need good disk performance and data reliability. According to Dell, the Drive Array gives "substantial" performance gains over ESDI and SCSI hard disk drive and cache controllers by using techniques such as data striping, data redundancy and simultaneous seeks across multiple drives. Data striping transfers data from multiple disks simultaneously; data redundancy allows data to be recovered intact after a disk failure; and simultaneous seeks allows concurrent access to files on different disks. The product is a 32-bit EISA bus master controller card using Intel Corp's i960 RISC processor, and can support up to eight drives on the new 486 systems, the limitation being power supply capacity. This gives an initial maximum storage capacity of 1.6Gb using 200Mb disks, but larger drives sizes can be supported when they become available. AT and SCSI adapters are available, and the subsystem supports MS-DOS, OS/2, NetWare, Dell and SCO Unix and Banyan Vines operating systems. Available fourth quarter, when pricing will be announced.

POSIX-COMPLIANT VMS BY '92

DEC has been promising a degree of compliance with Posix in its proprietary VMS operating system for the VAX for ages and word is that DEC will start field testing the first Posix-compliant release by the mid-91. It is being designed to conform to the first four levels of Posix - the interface itself, the management utilities and real-time capabilities. It is unlikely to be shipped until the first quarter of 1992.

HOW LOWER UNIX MARGINS CAN TAKE THE SHIRT FROM YOUR BACK

Despite any technical difficulties cited, the real reason why companies such as Atari and Commodore have not yet entered the Unix market (see page three) are all to do with marketing. Both companies found their niche by bucking the trend of IBM compatibles, and while they now both offer MS-DOS machines as a sideline, they are understandably thinking twice before moving into the highly competitive world of Unix workstations with their mainstream Motorola-based lines, even though that is what they will have to do if they wish to break into the mainstream business world. Elsewhere the prospect of the reduced margins that have become associated with Unix can cause even greater problems. As we pointed out last week (UX No 297), IBM took a big gamble when it made its RS/6000 Unix box competitive with the rest of the industry, thereby attracting business away from its AS/400 line, where margins and lock-ins make the sale so much more valuable. Now IDC analyst Kate Oakley has produced a report that looks at the same issue. In a survey of some 15 US-based companies (excluding IBM), the report takes publicly available financial data to compare gross and operating margins over the period 1985-9, and finds that Unix high flyers such as Sun are indeed achieving lower operating margins than vendors still successfully holding on to their proprietary business, such as Apple and DEC. Compaq heads the table, a fact attributed to its huge volumes and strong channels strategy in a standards-based market, with Apple second and DEC fourth. As for the Unix vendors, NCR Corp is the surprise number three, while Sun only manages eighth position, followed by Sequent, Silicon Graphics, Pyramid, Unisys and Altos. But as a warning of just how fast the market can turn, the table is footed by Data General and Wang, two vendors who relied for too long on proprietary business, only to find it evaporated.

Half-way house

One of the problems is that Unix is still a half way house. Although hardware vendors are beginning to suffer from the cut throat competition found between PC vendors, Unix has not yet achieved its eventual goal of becoming a "shrink-wrapped" commodity market, meaning that research and development costs are still high while volumes are still fairly low. Although a hardware manufacturer no longer has to produce his own operating system, and can offload some development onto organisations such as the Open Software Foundation, there is always another hot new technology around the corner, such as networking, parallel processing or distributed computing, that must be investigated. For in the world of lower margins, timing is key. Oakley cites the example of Apollo Computer, which paid a high price for pioneering the technical workstation before Unix was the obvious operating system choice. Other examples are numerous. Should HP have developed its own RISC chip, or waited, like DEC, until merchant RISC processors could have saved it the effort? Would Altos now be as successful as Compaq if it had used its commodity hardware and sales channels to go after the Xenix PC marketplace? Of course its all too easy with the benefit of hindsight.

Anticipating which horse to back is one way of differentiating your product from the run-of-the-mill, and IDC identifies security, transaction processing and networking as likely areas for adding value to Unix-based systems, while tuning applications such as databases for specific hardware platforms can also bring the margins back up.

Applications availability and a focus on niche markets can also do the trick - "owning" a niche market has been key to for both Apple and NCR. Paying software companies to port to a system is becoming more common, something which both IBM and Unisys have been doing recently. Rationalising product lines can help cut costs - Sun had to be fairly ruthless towards its customer base in its fast move from Motorola to Sparc machines, but its single architecture should stand it in good stead when competing against competitors such as Hewlett-Packard, which now has four different workstation platforms. And as the market matures, traditional areas of additional revenues from areas such as service and systems integration should also increase. So come on, Atari and Commodore, perhaps now is the time to finally take the plunge!

"Buddy, Can You Spare a Dime? Or How to Make Money in the Open Systems Business" by analyst Kate Oakley is available from IDC in Boston.

CABLETRON OFFERS LANVIEW NETWORK MANAGER FOR SUNNET

Cabletron Systems Inc, Rochester, New Hampshire, has brought out a version of its Lan view TCP/IP-based network management software for Sun Microsystems' SunNet Manager network management system. Unix-based Lanview/SunNet Manager conforms to the Open Systems Interconnection SNMP Simple Network Management Protocol and is designed to enable users of SunNet Manager physical and media access control layer management and monitoring capabilities of Cabletron devices, including the MMAC Multi Media Access Centre intelligent wiring hub, bridges and desktop network interface boards. Cabletron claims that the combination of the two products will give physical and data-link layer management features for Ethernet and Token Ring local area networks, fibre distributed data interface and wide area networks. Among the main areas monitored by Lanview/SunNet manager are network hardware and software configuration, fault detection and isolation, and network information security. Developed as part of Cabletron's multi-vendor Integrated Network Architecture, Lanview/SunNet Manager is priced at \$3,500 and is available in the US now through Cabletron or Sun Microsystems. The price does not include the SunNet Manager system.

ALLIANT "FIRST WITH MULTI-THREAD UNIX"

Alliant Computer Systems has announced the latest release of its Concentrix Unix operating system. Concentrix 5.5 is claimed to be the first "multi-threaded" version of Unix. Multi-threading, a technique allowing sections of the operating system, such as the file system, virtual memory and networking systems, to execute concurrently on multiple processors, gives Alliant FX systems a boost in response, throughput and network performance, claimed the company. Using AIM benchmarking figures, Alliant said that multi-user throughput is tripled, and I/O rate and supercomputer network performance doubled through using the new operating system release.

V.4 IS THIS YEAR'S REASON FOR NO-SHOW UNIX ON ATARI

Waiting for Unix on Atari and Commodore machines is like waiting for Godot - both companies have been promising it for what seems like decades, but always at the last minute it fails to appear. Atari Corp's last assurance that Unix would indeed appear was back in June when it said that Atari's ATX port of Unix V.3.2 would be out in September. But at the Atari Fair in Dusseldorf last week the new 32MHz 68030 Atari TT - first launched at the same show last year in a 16MHz version - there was still no sign of Unix. Atari now appears to be holding off until its port of Unix System V.4 (from Unisoft Ltd) is completed, and in the meantime is offering only its proprietary TOS operating system, albeit a new release (3.01). According to a report in the UK national newspaper The Guardian, Atari will eventually opt for the OSF/Motif user interface along with the WISH2 user interface and XFaceMaker2 development system from Non Standard Logics of Paris, along with the GNU C compiler from the Free Software Foundation. Pricing undercuts the £2,500 entry price of the rival Commodore Amiga A3000 by about £500, with a 2Mb colour system with 40Mb hard disk priced at £1,990. Commodore is also holding out for V.4 for the A3000 range, but despite its early demonstration of V.4 on a Commodore machine last November, observers at the UK launch back in April (UX No 280) were left with the impression that it would not be appearing for some time yet...

NIPPON STEEL PLANS ITS MOVE INTO COMPUTERS - STARTS WITH LAPTOPS

It didn't take Nippon Steel Corp, partner of Concurrent Computer Corp and Supertek Computers Inc and a reseller of Sun Microsystems workstations in Japan, long to make up its mind to get into the US personal computer market. In July, it said it was considering such a move, and last week it announced formation of Librex Computer Systems Inc in San Jose, California to manufacture and market a broad line of computer products under the Librex name. Next quarter, the new company plans to come out with 80286- and 80386SX-based notebook computers that will "rival products produced by current industry leaders," it says. The new firm will get design help from the company's Electronic Information Systems Division back home in Japan, and manufacturing, operations, sales and marketing will be planned and implemented from San Jose - and a research and development capability will also be established shortly in the US. By mid-1991, a 33MHz 486 notebook style machine bundled with both DOS and Unix is planned. Nippon's next move, also scheduled for next year, calls for a workstation that may turn out to be Sparc-compatible, although the Mips, Motorola and Intergraph chips are still under consideration.

RECOGNITION DIVESTS UK, ITALIAN UNITS

Recognition Equipment Inc, the Dallas, Texas company that specialises in image processing systems these days - it bought the Unix imaging software developed by now defunct Plexus Computers Inc - has sold its Italian and UK subsidiaries to their respective managements in separate deals. Terms of neither of the agreements were disclosed, but both new companies will continue to market Recognition's document processing systems. Recognition Equipment's efforts to move into the bright new world of image processing and secure its future as its traditional products decline, have been compounded by arguments and suits over a big contract with the US Postal Service.

GOLDSTAR PREPARES SPARCSTATION 1 CLONE

Goldstar, the giant \$23b Korean conglomerate that licensed the SunOS operating system from Sun Microsystems last year, expects to have its Sparc clone ready by the beginning of the second quarter of next year. Unlike the handful of other Sun compatibles that have come to light in recent weeks with their value-adds, Goldstar makes no bones about its "pure and simple clone" of a Sparcstation 1. Using LSI Logic's chipset in 20MHz and 25MHz versions, the company is having the motherboard design carried out by a team of 10 engineers at its subsidiary in San Jose, Goldstar Technology Inc, buttressed by loaned personnel from Korea. Pricing, according to engineering VP Michael Kim, is very dependent on what the chip sets and other components, such as monitors, cost at the time the unnamed workstations are introduced. The company would like to come in under \$5,000, but Kim thinks they'll be lucky to bring it in under \$6,000. Initial plans are to manufacture in Silicon Valley - Korean manufacture would require volumes - but sites are rumoured to be under consideration in England, Scotland and Wales. Goldstar is looking to sell 50,000 units a year, though not initially. To get those kinds of numbers, Kim reckons Goldstar is going to have to get into the complementary business of servers. To help it to market, Goldstar is looking for a partner, and is currently talking to an engineering company experienced in Unix with distribution channels in place that it is currently expanding. The unidentified concern has its foot in the Motorola camp with an add-in board for the 88000. A deal could be in place in a month, Kim said.

SUN-TEXAS-SARNOFF VIDEO STATION WINS \$7.7m US CASH

The ambitious project at SRI International Inc's David Sarnoff Research Center with Sun Microsystems Inc and Texas Instruments Inc to develop a high-resolution video workstation for displaying text, graphics and video (UX No 256), has now received \$7.7m funding from the US Department of Defense, which sees the workstation as a building block for use in combat information systems. The Princeton, New Jersey research laboratory, which also received a \$3m contract to develop its parallel video processing supercomputer - also announced last October - for the Pentagon, says that the workstation would also have applications in video teleconferencing and medical imaging. Under the agreement between the partners, Sun will build the system and provide digital image hardware and system level software, including Unix and window system, and Sarnoff will develop applications and a high-speed programmable digitiser, while Texas will examine what parts are worth putting into Silicon, and will disseminate them.

MS-DOS 5.0 TO HAVE UTILITIES SUCH AS UNFORMAT

Before the now-promised MS-DOS 6.0 with Windows integrated arrives on the scene, there is the very long-awaited MS-DOS 5.0 to look forward to - and it could prove bad news for the likes of Symantec Corp's Peter Norton Computing according to Computer Reseller News. Microsoft Corp told the paper that as well as vastly improving use of memory by loading parts of the operating system into high memory between 640Kb and 1Mb to leave up to 624Kb of memory free for network and device drivers and applications, it will come with a long list of utilities, including Recover to restore deleted files, and Unformat, which puts the hard disk back the way it was before you accidentally reformatted it when all you wanted to do was initialise a floppy. As important for users is likely to be the installation procedure - simplified in the same way that it has been in Windows 3.0. It also has a chameleon feature that makes it look like earlier releases for programs that run with only one MS-DOS release. The new MS-DOS 5.0 is likely to hit the streets early next year.

GERMAN MAINFRAME USERS DECRIED UNIX - BUT ONE YEAR LATER, 35% HAD CONVERTED

If the German market is anything to go by, the influence of Unix is slowly but surely creeping into the mainframe world despite resistance from long-standing large users of proprietary systems, but according to Computerwoche, a report by the Kronberg-based arm of the International Data Corp research group shows that the most entrenched opponents of the open systems operating system are IBM mainframe users. The IDC report used two surveys carried out in 1988 and 1989: for the first, 154 mainframe users - 100 IBM 3090 users, the rest with Sperry or Burroughs machines from Unisys Corp - were polled; a year later, interviews were conducted with 69 3090 users and 31 Unisys customers - the other 54 of the group polled in 1988 had already become Unix users. Computerwoche points out that in this respect the survey is not completely representative, because it leaves out users of Amdahl mainframes, which include a Unix derivative in native mode. According to IDC's most recent estimates, Unix machines currently account for 4% of the German market for machines costing more than two million deutschmarks (\$1.3m), with Crays installed for technical and scientific applications making up much of this figure. But IDC reckons that the increasing popularity of Unix for small and medium systems and support for the operating system from name suppliers will boost the demand for Unix in the mainframe world over the next five years. Nonetheless, the resistance to Unix among IBM users remains strong: while 26% of Sperry and Burroughs users said they could imagine running life or death applications on Unix, a massive 96% of IBM users rejected that possibility out of hand - first because they reckoned that Unix could not handle extensive databases well enough, and second the impression persisted that Unix was not user-friendly.

...AS ROBOTRON SPINOFF TO BUILD SIEMENS MAINFRAMES, UNIX, MS-DOS BOXES FOR THE EAST

Siemens AG has signed a framework agreement with Computerelektronik Dresden GmbH - phoenix from the ashes of the old state-owned Robotron Elektronik Dresden operation - that will have the two collaborating in hardware research and development, and will allow Computerelektronik Dresden to manufacture Siemens MS-DOS-based PCD-2s, Sinix-based MX 300s, and the BS2000 mainframes. Computerwoche reports that for the manufacture of the mainframes, the two plants in Dresden and Augsburg will start off by working on past versions of the System 7.560 processor to gain experience in Siemens' manufacturing techniques; in all other areas, the ex-Robotron engineers will be schooled in the manufacture of Siemens hardware to present-day Siemens standards. Computer Elektronik, which has already started its first research and development project with Siemens this month, will begin manufacturing in October, with the first shipments available by the end of the year; until it has established its own sales network, Siemens, which clearly intends to keep a firm grip on the new company, will handle sales from its Berlin branch; eventually, a sales network covering not just East Germany, but the Soviet Union and other East European markets is envisaged. Overall, the operation hopes to reach a market worth around \$250m by 1992. As to whether Computer Elektronik Dresden will be manufacturing Nixdorf-origin products as well, a spokesman for Siemens commented: "at the moment we just can't say".

INMOS COLOUR VIDEO CHIP OFFERS WORKSTATION GRAPHICS ON PCs

Inmos has released two high resolution versions of its IMSG300 colour video controller chip for colour graphics devices. The IMSG332 and the IMSG364 have increased pixel ports - the G332 has a 32-bit wide multiplexed pixel port, while the G364 has a 64-bit port. All the chips include Inmos's 256-bit colour look up table - used in IBM's PS/2 - as well as a triple video digital to analogue converter, a programmable video timing generator, and a phase-locked loop. The G332 and G364 also come with a 64 by 64 pixel cursor store using three 24-bit colours. The chips can interface to any microprocessor and monitor, enabling them to be used in the workstations of any of the big four manufacturers - IBM, DEC, Hewlett-Packard and Sun Microsystems. They can also support multimedia applications including high definition television, currently being looked at by most of the workstation manufacturers. Because of the ability to interface with with any processor, the chips can also be put onto personal computer and Apple Mac add-in circuit boards. The result is workstation standard graphics from a personal computer.

Hopes for X-Terminal market

If the chips are as successful as the Inmos colour look up table, we could see the chip becoming the definitive standard for workstation manufacturers. Inmos has already hinted at a couple of deals with unnamed companies, to be announced during the year. Those are bound to include some sort of contract with at least one of the big four - Sun, Hewlett-Packard, IBM and DEC. Inmos is hoping that the chips will follow the success of its look up table and become a de facto standard in graphic and multimedia systems. The IMS G171 colour look up table was launched in 1984 and immediately adopted by IBM in its PS/2 range, for its VGA graphics systems. And MS-DOS clone manufacturers in Europe and the Far East are also designing G17X range into their personal computers. Although Inmos is most famous for its Transputer chips, around one third of its business is in the graphics arena, more, in terms of turnover. Most of that is from sales of its colour look up table range, but Inmos says its first colour video controller chip, the IMSG300 has sold "tens of thousands". As well as selling chips to computer manufacturers, Inmos is hoping to capture a slice of the X terminal market in particular, as well as selling the parts for use in personal computer add-in circuits. The IMSG364 and IMSG332 will be shipped in the autumn, priced at \$95 and \$125 respectively.

DATA GENERAL LAYS-OFF 2,000

As everyone was going away for the weekend last Friday, Data General announced those expected job cuts, saying that it intended to dismiss more than 2,000 of its 11,700 employees over the next several weeks in an effort to return the company to profitability next fiscal. The cuts will cost the firm about \$70m against its fourth quarter figures to September 30.

TERA WORKS ON RISC SUPPORT CHIPS

Tera Microsystems Inc, Santa Clara supplier of RISC components and systems, has completed its first round of financing raising \$4.3m to take its total financing to \$6.1m. Participants included Sequoia Capital, Philips Components-Signetics, Singapore Technology, Stanford University and China Coast Investment. Philips Components-Signetics also agreed to provide Tera with access to its Silicon foundry and to co-operate in joint marketing of Tera's products. Tera is developing RISC components and systems targeted at the low-cost workstation, laptop computer, X-terminal and embedded controller markets, employing 26 staff in Santa Clara. Currently in its engineering development stage, Tera would not go into its product plans at this stage, other than to say that it is working on peripheral components for RISC chips rather than the CPU itself, and has identified the Sparc and MIPS chips as the most promising to concentrate on. The company was formed in November of last year.

ALPHA MICRO LAUNCHES SERIES 90 PCs

Alpha Microsystems of Santa Ana, California is making an effort to integrate the product lines of the various companies it has acquired over the past 18 months by announcing a new family of Intel 80286, 80386 and 80486-based personal computers specifically designed to support MS-DOS as well as the Pick, Xenix and Business Basic software environments, including the company's Recap proprietary operating system which came with Rexon Business Machines. The Series 90 replaces the RBM 1386, RBM 2386, RBM cache 2500, AM-386 and AMS 1000 product lines. Alpha's own Motorola lines running the proprietary Amos operating system are unaffected by the announcement as are Motorola products from recently acquired Pick concern Fujitsu Systems of America. The Series 90 offers seven processor options ranging from an entry-level, 12MHz 286-based processor without cache memory, up to a top-end 25MHz 486-based chip with 8Kb of on-chip memory. The machines come in three configurations - the desktop AM-940, the mini-pedestal AM-960 and the large pedestal AM-980. Prices for the "mix and match" Series 90 ranges from \$3,480 to \$65,000.

IXI STRIKES AMDAHL DEAL

This issue has become unintentionally dominated by the mainframe, which is obviously still alive and kicking despite reports of its demise. Now user interface specialists IXI Ltd of Cambridge in the UK have struck up a porting agreement with Amdahl Corp for its UTS 2.0 operating system. X.desktop for Amdahl systems will be available from IXI in the UK and Unipress Software, Edison, New Jersey in the US. It can be run in native mode on a dedicated Amdahl processor, or in a domain through the Multiple Domain Feature. Amdahl UTS 2.0 is compatible with AT&T's Unix System V.3.1, and also runs on System/370 compatible mainframes as a guest of VM/XA.

**NETWISE RPC MOVES TO IBM
MAINFRAMES AND APPLE MACS**

Netwise Inc has adapted its Remote Procedure Call (RPC) technology to IBM mainframes, creating the first cooperative processing product to integrate Big Blue heavy iron with OS/2, SunOS and VMS. The development represents an important step into mainstream corporate-wide computing for the little Colorado-based company. Mainframe RPC is intended to provide cultural compatibility between Cobol programmers on big boxes and C programmers on PCs, minicomputers and workstations, preserving their accustomed development environments, salvaging existing applications and adding value to SAA by extending it to heterogeneous platforms. The product is currently shipping to qualified accounts. Netwise intends to build a library of reference sites and has 15 mission-critical sites targeted. Esso Petroleum Canada, which is recommending it as its own corporate standard, is already implementing it. Pricing will be tiered, like IBM's, and based on the number of CPUs, with both annualised licenses and buy-out available. Last week, the company also announced the first RPC for MAC on TCP/IP networks. The technology, which will allow a Mac running 6.0 or higher, and Symantec's C development environment Think C 4.0 to connect to PCs, VAXes, Suns and other Unix-based workstations, will be available in October and priced at \$3,200.

**IBM SUMMIT ANNOUNCEMENTS DUE THIS WEEK
- SOME UNIX PROMISED**

The entire IBM 370 mainframe line - bar perhaps the baby 9371s - will be replaced with a new 9000 line - but IBM will not be able to ship a truly new top-end mainframe until the fourth quarter of 1991, Hesh Wiener reports in the September issue of Computer & Communications Buyer. And IBM will count backwards, to trap the unwary, so that the 9370 will be replaced by the 9221 family; the 4381 will be succeeded by the 9121 family; and the 3090 will give way to the 9021 family. At the top end, even a year from now, only two models - a four and a six processor model - are likely to be offered, and in the interim, users will have to make do with repackaged, upgradable versions of 3090 mainframes with optional features such as fibre optic channels. IBM's really new machines will be the four-processor, 161 MIPS 9021-820 and the six-processor, 212 MIPS 9021-900. All the old-technology machines should be shipped in limited quantities by year-end. Upgrades of 3090s to old technology 9021s will become available during the first several months of 1991. The "4391" will appear as the 9121 - with very low power consumption, and the smallest new 370- architecture systems, the 9221s, will encompass four boxes: the model 120 at 2 MIPS, the model 130 at 3 MIPS, the model 150 at 5 MIPS and the model 170 at 6.5 MIPS. A key aim of introducing new lines at each level is that applications will be able to be cross-compiled on any level machine, which is currently impossible. And IBM is planning at least some Unix content to the announcements on Wednesday.

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FUJITSU ADDS VP 2000 SUPERCOMPUTERS

Fujitsu Ltd has upgraded its VP2000 series of supercomputers with two new models running the new Unix V.4 operating system (see front page). The VP2000/40 and VP2200/40 are the first to use gallium arsenide processor technology, and include new data transfer technology, including a 100Mb/sec high performance parallel interface and 4.5Mb/sec channels to allow the systems to fully utilise the UltraNet local area network technology from Ultra Network Technologies Inc. The systems are rated at peak operating speeds of between two and five gigaflops, and are currently expandable to a maximum of four scalar and two vector processors. Models with a higher degree of parallelism are in the pipeline. No prices given, delivery dates are set for September 1991. And the company is expected to launch upgraded IBM-compatible mainframes this Tuesday, the day before IBM's Summit announcements. Asset Technology Ltd of Cobham in Surrey has not lived up to its name, and last month went into receivership. The company had high hopes over its controlling interest in Circulas Research, acquired last Summer (UX No 259), and exhibited an office communications package based on the Circulas Ceemore technology under Xenix. MS-DOS versions were ready to be launched.

Swedish Universities will be supplied with X-Terminals from Visual Technology, according to an agreement signed between the Swedish Board of University Equipment Procurements and Swedish agent Erbe Data. The first 45 terminals will be supplied to the Swedish Royal Institute of Technology in the last week of August.

Nokia Data Systems AB of Sweden has signed a long-term strategic alliance with SCO under which it plans to extend its current Unix line to include Open Desktop and the new Server Upgrade on its 386 and 486-based range.

Maxtor Corp has a new contract with Sun Microsystems: Maxtor is shipping its LXT-213 3.5" SCSI disk drives, formatted to 207Mb, to Sun for use in its new workstations.

Sounds a bit like vanity publishing where you pay to get your slim volume printed and distributed: Unisys Corp is having to pay developers of leading business applications to convert them to run on its Unix machines, Computer Systems News reports: the paper says that it has signed agreements with Cincom Systems Inc for its Control manufacturing package, and Access Technology Inc for its 20/20 spreadsheet, adding that similar deals are cooking.

In the UK, Meltek Data Ltd, Feltham, Middlesex, is offering Helios Systems' 4Mb SLC-4S add-in memory board for the diskless Sun Microsystems SLC workstation: it has eight 4Mb and four 1Mb memory chips and four of the modules take the SLC memory up to 16Mb - the SLC-4S costs £550.

Intel Systems Group and Arrow Electronics Inc's Commercial Systems Group have teamed up to offer Intel 386 and 486 processors, add-in boards, networks, digital video and software running on Unix, Xenix, MS-DOS and OS/2 to value-added reseller channels in the US.

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Reflecting the importance of the European market to US computer manufacturers, Hewlett-Packard Co is to move the headquarters of its Personal Computer Group from Sunnyvale, California to Grenoble in France.

Determined not to go unheard at the binary application specification announcement (UX No 298) the Open Software Foundation reaffirmed its commitment to provide compatibility with Xenix System V and AT&T Unix V/386 Release 3.2 in its OSF/1 operating system which is due in November.

The Sheraton Sand Key Resort in Clearwater Beach, Florida, is to become the first beta-test site for, Sanata Ana, California-based Ecco Computer Inc's ECI/UX Unix-based property management system: running on a DECsystem 5000 server with 900Mb of disk the system will support and initial 15 terminals and three personal computer emulators.

Release 6.2 of the Ingres relational database is now available on Bull's DPX/2 range of Unix minicomputers.

Informix Software Inc's Wingz spreadsheet is now available on the NeXT Computer System from Businessland priced at £600.

Brentford, Middlesex-based Celsius Holdings plc's Mellordata division has introduced a colour graphics terminal tailored specifically for Unix users running Uniplex office automation applications - the M4305MU is priced at £897 and supports Tektronix 4104A graphics.

Cincom Systems Inc says it plans to make its Supra high-end relational database available on Sun Microsystems Inc's Sparc- based machines and on IBM's RS/6000. A version for Unix on 80386 machines is planned.

The deal between NCR Corp and Teradata Corp to develop parallel processing systems has led to the opening of a new 81,000 square foot facility in San Diego, California: the unit is headed by Boyd Pearce, who was previously vice-president of strategic planning at Teradata; the plan is for 200 people to be employed at the Joint Development Operation by the end of next year.

Sun Microsystems Inc is reconsidering its planned share issue (CI No 1,490) which was intended to raise \$150m: since the announcement Sun's shares have been hit by the market downturn falling \$6 to \$26.

Judge Robert Aguilar of San Jose, who was at the heart of a controversy two years ago when, while he was hearing Microsoft Corp's suit against Apple Computer Inc and Hewlett-Packard Co, was revealed to have a son working at Hewlett-Packard, has been found guilty on charges of having leaked information gained by wire-tap to a criminal and of having lied to Federal Bureau of Investigation agents in an effort to thwart a Grand Jury investigation into his conduct; in October 1988, he relinquished the Microsoft suit and sent it up to San Francisco because of the pressure of workload on his court and that of Judge William Ingrams, who had 500 patent infringement suits waiting.

Sun Microsystems Inc has completed its deliberations and concluded that in current market conditions it is not worth proceeding with its offer of 5.9m new shares and has withdrawn the filing, saying that to proceed would not be in the best interest of shareholders. It does not plan a new offering.

Hewlett-Packard Co staffer Mark Miller has a nice line to explain how IBM was able to out-MIPS the world - at least on paper because not too many users have seen the machines yet - with the RS/6000 Unix box: quoted in HP Chronicle Europe, he suggests that the only reason God was able to create the world in seven was only because he didn't have an installed user base.

NCR Corp, which claims to have developed and pioneered the Small Computer Systems Interface, has implemented it on a laser printer and says that it enables the printer to run at 15 pages per minute: it says that SCSI is designed to operate up to seven times faster than a standard parallel port and 100 times faster than RS 232 serial port, and that the new NCR 6436-0301 SCSI Laser Printer is designed for graphics-intensive applications: it says that data transfer over the SCSI connection is so fast that the \$8,000 printer runs a 1Mb bit-mapped graphics file at 300 dots per inch up to seven times faster than the conventional parallel interface; the 6436-0301 is designed for shared-resource printing environments and has the ability to accept input from dual host systems - the other being parallel.

And, using that weasel word of very doubtful etymology, NCR Corp says it has opened a "porting centre" in Columbia, South Carolina to provide technical assistance for third party software vendors wanting to convert their applications to run on NCR kit under Unix, OS/2 or MS-DOS.

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MICROSOFT JOINS OPEN SOFTWARE FOUNDATION

Microsoft Corp, whose Unix interests are all currently embodied in its significant minority stake in the Santa Cruz Operation Inc, has joined the Open Software Foundation alternative Unix club. Although OSF has not made an official statement on its new signing, Unigram.X hears that Microsoft joined up last week, paying a \$25,000 fee to enroll as an ordinary member. The reason given for this move is that the Open Software Foundation is using elements of Microsoft's LAN Manager in its Distributed Computing Environment - although no formal agreement for this was ever signed - and other parts of Microsoft's windowing technology in its Motif graphical user interface. OSF employees interpret this to mean that Microsoft has far-reaching ambitions in this area - however cynics will say that Unix is simply the biggest threat to market acceptance of OS/2, and that like IBM and DEC, Microsoft has an interest in preventing a single Unix standard emerging and in derailing the rush towards machine-independent standards. Craig Lamont, business manager for user interfaces at the Open Software Foundation in Cambridge, Massachusetts, told the US trade weekly *Infoworld* that IBM, Microsoft and the Foundation had formed an informal working party to harmonise the behaviour of OS/2 Presentation Manager, Microsoft Windows and OSF/Motif. Although Microsoft's Unix watcher Bob Kruger denies the existence of such a working party, Lamont insists that the developers of the Common User Access user interface element of IBM's Systems Application Architecture, which is effectively Presentation Manager - are responsible for making contacts with the Open Software Foundation and Microsoft, and for ensuring that all parties get an equal opportunity to participate in the further development of Motif.

UNIFORM UK SETS OPEN SYSTEMS BRANDING, CODE OF PRACTICE
Similar to what X/Open's XPG branding policy does for open systems hardware and software products in the international arena, Uniform UK is introducing a Code of Practice which will form the basis of an accreditation procedure for open systems service and product suppliers, resellers and manufacturers in the UK. Traders identified as delivering a high level of service, and conforming to the guidelines of the Code, will be awarded the status of an Accredited Trading Member, ATM, and will be able to use the logo in their business activities. Version 1.0 of the code defines open systems as an "environment in which it is possible to interconnect and interwork, through standard interfaces, a variety of products from different suppliers to support all information management activities". As a result a product and services location service will be offered to Uniform members, from the list of ATMs, and a database of information on its members and traders will be set up known as MIP - Membership Information Programme. The Code is intended "to introduce an enhanced and visible level of professionalism for that sector of the industry which is devoted to the pursuance of Open Systems." Accreditation rules and testing and appeals procedures will be set up over the course of the next few months.

HOUSTON 30 REPORT SLAMS VENDORS AND USERS ALIKE

"We need to take charge of our own destiny again by declaring global war against proprietary systems that hold data hostage," says Houston 30 in its promised report on the obstacles to introduction of open systems, (UX No 290). Houston 30 is one of several rebel groups of multinational Unix user companies that have banded together in the wake of the failure of so-called "Unity" talks between Unix International and the Open Software Foundation. Entitled "Overcoming Barriers to Open Systems Information Technology", the scathing report rockets both vendors and users for failing to make open systems a reality, and corporate management for supporting open systems in theory but not in practice. It attacks suppliers for not bringing a full range of open systems products to market and for dragging out development schedules. Users are blasted for investing in the continued development of proprietary systems via short-term procurement plans which include the installation of such equipment, at the expense of laying down long-term open systems strategies which would encourage manufacturers to speed up their open systems development plans accordingly. "Vendors with a vested interest will not move to vendor-neutral products until they are convinced of a reasonable market," it says. Products which support Open Systems Interconnection, File Transfer, Access and Management, electronic data interchange and network management standards are particularly lacking it adds. Within companies, proprietary systems limit communications and information sharing, stifling creativity and impacting business. Failure to adopt open systems strategies will erode firms global competitive edge because they will lack the ability to share information on an enterprise-wide basis. The group - which counts industry giants like Eastman Kodak, Du Pont, Exxon, Ford, General Electric, General Motors and Hughes Aircraft amongst its members - hopes the report will speed the adoption of open systems by putting pressure on vendors. The report says the user community lacks both a process and a vehicle to exert collective pressure on vendors to meet open systems requirements.

SEPTEMBER 18th IS

RED-LETTER DAY FOR UNIX

After the traditionally quiet summer period, September 18 is shaping up as something of a red-letter day for the Unix industry, with major announcements expected from AT&T, NCR Corp, NeXT and Stardent.

- AT&T's Unix Software Laboratories is set to make a number of Unix announcements on that day, most importantly of will to be the multi-processing extensions that are to be incorporated into Unix System V.4, promised as part of Unix International's five year plan for the operating system known as the Road Map, (UX No 266). Although front-runners for supplying the technology, such as Pyramid, Silicon Graphics, NCR and the joint Intel/Olivetti/Unisys effort, declared themselves back in June, (UX No 286) - other hopefuls include Unisoft and Carnegie-Mellon's Mach - the announcement was postponed by USL, then still known as USO, until after the summer break and its own metamorphosis, (UX No 289). Although the extensions are unlikely to be available until mid-1992, early access program members will get them early.

- As predicted back in April, (UX No 278), NCR Corp is set to move from the Motorola stable in favour of Intel Corp CISC microprocessor parts for future generations of its Tower range of multi-user Unix systems. NCR is set to reveal a new line of Towers based upon the 80386, and possibly the 80486, as part of its Open Co-operative Computing environment. NCR currently uses Motorola's 680X0 line exclusively in its Tower minis, and Intel's 80X86 range only in its MS-DOS and OS/2 personal computer-based offerings.

- Meanwhile Steve Job's NeXT Computer Inc will be launching the first colour version of its NeXT Unix "cube." The system, which currently uses Motorola's 68030 part, will feature a 25MHz 68040; with 8Mb RAM, 200Mb disk, Pixar's Renderman graphics technology - but without the earlier version's optical drive which has been criticized as too slow - it is likely to come in at around \$15,000 (UX No 297). Despite the fanfare which accompanied its introduction back in September of last year, (UX No 250), sales of the cube have been meagre, and NeXT hopes the addition of colour, and a more powerful processor will give its fortunes a boost.

- At Stardent Computer Inc, where allegations by co-chairmen Allen Michels and Matthew Sanders that its Japanese partner Kubota Corp was out to steal Stardent technology led to their being sacked from the company, (UX No 292), the high-end graphics player will pitch into the September 18 festivities with new low-end boxes built around the MIPS Computer Systems Risc chip set with an Intel 80860 acting as a vector processing unit. In four-processor configurations they are expected to perform at 128 MIPS and 192 MFLOPS.

FIRST EAST-WEST HIGH-TECH FORUM SET FOR OCTOBER IN BUDAPEST

How do you provide service if the phones don't work? How do you drop-ship if the planes don't take off? How do you stock if the warehouse is constantly pilfered? In other words, how do you do business in Eastern Europe and Russia? If you're curious, you might go along to Esther Dysan's first East-West High Tech Forum in Budapest, Hungary, October 21-24. Dysan, the doyenne of American PC watchers, has spent months travelling in Eastern Europe and the Soviet Union exploring the local markets and networking with local computer people. This latest shindig of hers is modelled on her famed PC Forum, the industry's annual by-invitation-only assembly of glitterati. The idea is to meet the players and get a taste of their business strategies, corporate structures and distribution channels. Formal discussions will focus on how to get into the market, what to do when you get there, who to sell to, the differences among the various marketplaces, intellectual property, government restrictions and how to get the money out. Speakers will include folk like the head of the Softsel/Microamerica joint venture in Moscow, the founder of Novotrade, Hungary's first private stock company, the author of the Soviet computer game Tetris, the manager of IBM's Prague office, the heads of the Microsoft distributor JV catalogue in Moscow, an East German entrepreneur and founder of a new software reseller Software Direkt and westerners representing Bull, Siemens, Sun and Unix Systems Labs. Unix has its own slot along with OS/2, networking and groupware. Because conference space is limited, Dysan can only accommodate 230 attendees and expects about a third of them to be from Eastern Europe, a third from Western Europe and a third from the US and elsewhere. The fees are structured so that Westerners will subsidise their Eastern counterparts. Cost is \$3,000 or DM5,400 and includes the conference, a hotel room at the western-style Atrium Hyatt, meals and any related taxes. Only English will be used and there won't be any translations. To register call Dysan's offices in New York at (212) 758-3434.

SABER AND ASTEC SIGN JAPANESE DISTRIBUTION AGREEMENT

Sesha Pratap, chief executive of Saber Software Inc of Cambridge, Massachusetts was in Tokyo last week to announce his company's distribution agreement with Astec Inc of Tokyo for his Saber-C variant of the C language, which features support of an interpreter, X-Windows and support development of X-Windows applications, a Data Browser and Cross reference browser. Astec, a small company of 35 people nevertheless well regarded for its technical expertise, particularly in Unix, is pitching for \$2.7m sales this year, and looks to sell 700 copies of Saber-C in the first year, although interest ahead of October 1 availability is such that its forecast may prove too pessimistic and sales of 1,000 copies is on the cards. 3,000 licences to Saber-C have been sold in the US, Europe and Australia since its release in 1988, with customers including Sun Microsystems Inc, AT&T Co, the X-Consortium and defence contractors. Astec is going after the same type of hardware vendors, software houses and major end users, but highlights its policy of not offering discounts. A licence to Saber-C will cost about \$4,660 in Japan, Astec said.

PRIME'S DEBT TO J H WHITNEY "WILL BE REPAID IN TWO YEARS"

Now privately-owned, and 2,500 or so employees lighter after collapsing in to the arms of J H Whitney & Co last year, (UX No 244), Prime Computer Inc believes that the debt owed to its white knight will be repaid by the end of 1992 - "if we don't do it in two years we'll be surprised," concluded officials at Prime UK. They said present income means the firm has 2.43 times the amount of coverage needed to meet the repayment schedules, and that public ownership is again likely to become a possibility in the future. Following the mini-maker's decision to join the MIPS Computer Systems bandwagon for its EXL 7000 Unix Risc machines a couple of weeks ago, and take out a corporate architecture licence with MIPS, (UX No 297), Prime says that it will be working with MIPS on developing multi-processing versions of the chip set, and will be making a multi-processing system announcement next year. Prime decided to go with MIPS after it realised that developing its own Risc chip set would take at least three years - "we lacked the foresight," the company said. Ironically Prime, which now sells Sun Microsystems and DEC workstations as the basis of CAD/CAM solutions could also have had a burgeoning workstation division of its own had it listened to its engineers. It abandoned a project to investigate the promise of workstation and Risc technology ten years ago - the engineers involved went on to form Apollo Computer Inc.

EQUINOX HAS NEW EXPANSION BOARDS

Miami, Florida-based Equinox Systems Inc's Megaport LD series of multi-user expansion boards, including drivers, are now available for AT, EISA, PS/2 and other Micro Channel Architecture systems running Unix or Xenix. The 12- and 24-port are claimed to be able to connect RS-232 terminals to Unix hosts located up to 4,000 feet away - most others it claims can only handle distances of several hundred feet. Further distances can be achieved with the addition of one of its LDA-232 line drivers. Megaport LD boards for AT and EISA bus systems are priced at \$1,200 for the 12 port version, or \$2,000 for the 24 port card. The Megaport/2 LD line for PS/2 and Micro Channel systems cost \$1,400 and \$2,200 for 12- and 24-port boards respectively. A combination of LD and standard distance modem control port boards - Megaport-12LD + 12CS - are also available priced at \$2,000 for the AT and EISA busses, or \$2,200 for Micro Channel systems. Support for Interactive Systems Corp's Unix and IBM's AIX will be added later this year.

ADVANCED COMPUTER COMMUNICATIONS ADDS X25 FRONT-END FOR DEC'S MIPSTATIONS

Advanced Computer Communications Inc, Santa Barbara, California has added an X25 front-end processor for DEC's MIPS Computer Systems Inc RISC-based DECstation workstations to complement the ones it offers for DEC's Qbus, Unibus and VAXBI machines. The ACP 3250 X25 front-end processor uses the SCS interface and is designed to enable the workstation to accommodate X25 communication schemes such as TCP/IP, X29 and custom stacks via a programmer's interface. The X25 protocol resides in EPROM and executes on the front-end, so the performance of the workstation is not degraded by the need to run X25 router or server. Under TCP/IP, the ACP 3250 provides wide area network routing capabilities under the control of a designated workstation. The Multi-Protocol Driver supplied with the ACP 3250 enables it to support X29 terminal packet assembly-disassembly, raw packet level X25 through a programmer's interface as well as TCP/IP traffic. It uses the same X25 implementation and user-level interface as the ACP 5250 Q-bus, ACP 6250 Unibus and ACP 7250 VAXBI processors. It costs \$5,250 and is available now.

IBM JAPAN, HITACHI, HEWLETT TEAM ON OSF/1 APPLICATIONS...

IBM Corp and Hitachi Ltd may be at daggers drawn over 370 architecture mainframes, but both companies see an interest in derailing the bandwagon running for a single Unix standard - IBM because it puts its vast proprietary revenues in jeopardy, Hitachi because its closest rival, Fujitsu Ltd, is in the "original and best" Unix International camp. In Japan, the two, together with Hewlett-Packard - which has the chair and is probably the sternest advocate of OSF - have agreed to join forces on development of applications for the Open Software Foundation's OSF/1 version of Unix. The two will initially second engineers to a joint project to convert Hitachi's Software Engineering Workbench development tools to run under OSF/1: the Workbench is designed for developing financial management and marketing administration applications, and the resulting version will be used and marketed by both companies. IBM Japan told Reuter that the agreement was a first step towards a broader collaboration on Unix planned between the two companies.

...AS HITACHI SETS FAULT-TOLERANT 68040 UNIX BOX

Hitachi Ltd is rushing to follow Fujitsu Ltd into the fault-tolerant systems market, and is designing a Unix-based machine around the Motorola 68040 operating system. It is planned to run both Hitachi's HI-UX-E Unix from the higher-end models of the company's E-series machines, and OSF/1. The machine, being developed at the Oomika Plant in Ibaraki prefecture, is to be announced by the end of the year, with first ships next summer.

AT&T ADDS FULL MAC SUPPORT ON ITS STARGROUP SERVER

AT&T Co has joined the fans of Apple Computer Inc's Macintosh, giving the machine parity with those running MS-DOS, OS/2 and Unix on its Intel iAPX-86-based StarGroup Servers. A new StarGroup Server for Macintosh program, working in conjunction with the StarGroup LAN Manager Server, enables a Unix system computer to act as a file and print server for Macintosh clients, with full native interoperability, so that Macintosh users get the same benefits as those using MS-DOS, OS/2 or Unix and linked to the server. A data file created by a Macintosh client can be accessed and modified by any of the other operating systems and vice versa and a database application can be accessed by all four client operating systems and share the same server-based script and data files without the need for modifications to the files - and each client continues to use its own familiar interface and operating system features. No prices for the facility.

NEW MEMORY CHIP GLUT THREAT AS JAPAN SETS MOVE TO 8" WAFERS

In a development that threatens to generate the oversupply and tumbling prices that led to the 1987 Chip Wars, Japanese companies are planning to produce the next two generations of dynamic memory chips on 8" wafers, Microbytes Daily reports. Because bigger wafers yield more parts if you get the design right, this should enable chip makers to get the 4M-bit and 16M-bit generations to market in volume more quickly. An 8" wafer has 1.8 times the surface area of the 6" wafers currently in common use. According to the English-language Mainichi Daily News in Japan, several of the largest Japanese chipmakers are planning to set up lines producing 4M and 16M parts on 8" wafers - Toshiba is expected to start up its 8" line for the current 4M generation late this year, and NEC Corp plans to start testing this year or early next, and expects to have its 8" line operational by 1992. The hope is that by then, the market for high-definition televisions will have taken off by then: these will need to be stuffed with memory chips, but there is a big risk that consumer take-up will be very slow.

INTERGRAPH INTRODUCES NEW LOW-END 2000 SERIES 2D/3D LINE

Intergraph Corp has lowered the cost of entry to its graphical workstation family by introducing a new range of low-end systems - the Series 2000. With prices starting from around \$16,000, the Huntsville, Alabama-based company is claiming that the new models - configured as fully functional and production ready - are priced well below competitive machines once those have been set up to run real 2D and 3D colour applications. The InterPro 2020 comes in single or dual 19" screen versions, either as a desktop machine or with integral furniture and digitising table, and uses Intergraph's own Clipper C300 Risc chip rated at 12.5 MIPS. Standard features include 16Mb memory (expandable to 64Mb), 200Mb hard disk, 1.4Mb floppy, SCSI port, three RS232 serial ports and one parallel port. The graphics engine is capable of 360,000 2D vectors per second and 100,000 3D vectors per second. Running Unix V.3.1, the systems come with the Looking Glass interface from Visix Software Inc, and support XNS and TCP/IP communications - and Intergraph claims to have built up over 900 in-house and third party applications for the range. They are available immediately. And the company has lowered the price of its mid-range and high-end 6000 Series workstation, introduced back in January at the UniForum show (UX No 266). The cuts range from 10% to 35%, with a 27-inch, 2-megapixel display workstation now available for \$26,000, a price comparable to rival 19" display workstations, according to Intergraph.

ADVANCED MICRO 80386 CLONE "PLANNED FOR THIS AUTUMN"

Advanced Micro Devices Inc plans to introduce a clone of Intel Corp's top-selling 80386 microprocessor in the autumn, the Wall Street Journal reports. AMD, which has been locked in litigation with Intel for two or three years now, has long threatened to come out with a compatible re-engineering of the 80386 - and despite all normal reticence about buying an unauthorised copy of a key chip, demand for 80386s, particularly the 80386SX, is so far out stripping supply that the AMD chips are likely to get a warm welcome - not least from chip users wanting to punish Intel for handicapping their production plans. Chips & Technologies Inc is thought to be working on an 80386 clone too, and a Japanese start-up, VM Technology Corp, is promising one by year-end. And NexGen Microsystems Inc is working on a chip set to enable users to build machines that are 80386-compatible but much more powerful. New 386SX from Intel - see page 6.

ATLANTIX TO DEBUT NETWORKING SOFTWARE AT NETWORKD

Following delays that meant re-writing portions of Microsoft code, (UX No 297), Atlantix Corp, Boca Raton, Florida, which formerly traded under the name CocoNet Inc, is due to come out with a Lan Manager version of its Xenix and Novell-based networking software at the NetWorld exhibition in Dallas this week. Designed for Intel 80386- and 80486-based personal computers running SCO Unix, Atlantix Axxess is a Microsoft Lan Manager-compatible local area network which will support Unix, Xenix, MS-DOS, OS/2 and Apple Macintosh computers, and integrates with Novell, TCP/IP-NFS, Lan Manager and NetBIOS networks. Axxess allows the personal computer to act as a server supporting local area networks. Users get transparent access to Unix files, applications and peripherals from their native environments, and there is a Microsoft Windows facility - Atlantix WindowView - which allows users access to multiple Unix and MS-DOS sessions concurrently from personal computers. Axxess supports up to 255 concurrent users per server, and topologies supported include Token-Ring, Ethernet, Twisted-Pair Ethernet, ArcNet and StarLAN. A 32-user version is \$4,600, WindowView is \$200 per personal computer.

IBM INVESTS IN SYSTEMATICA AS FIFTH AD/CYCLE PARTNER...

Systematica Ltd, the tiny £5m turnover Bournemouth, UK company that already licenses its technology to Information Builders, Informix and Cognos, has really hit paydirt this time with an agreement on its software engineering products with IBM that is being cemented by IBM taking an undisclosed equity stake in the company that could go as high as 20%. In a move that brings IBM's AIX Unix closer to Systems Application Architecture, IBM has named Systematica as its fifth AD/Cycle partner, joining Knowledgeware Inc, Bachman Information Systems Inc, Index Technology Corp and Synon Ltd. As an AD/Cycle business partner Systematica will work with IBM using its Virtual Software Factory meta tool for computer-aided software engineering to develop a tool for IBM's BSDM methodology. The tool will be used internally under OS/2 by both IBM and some of its business customers to develop applications that conform to this business methodology. Virtual Software Factory is also to be implemented under AIX, (UX No 287), to enable the RS/6000 to take advantage of Systematica's Hood-SF workbench - Hierarchical Object-Oriented Design is the standard European methodology for aerospace and defence - ironically, Hood-SF was developed in collaboration with DEC as part of an ongoing technology agreement between the two companies. While, Systematica's marketing director Michael Fish says that integrating AIX into SAA is a problem far bigger than that addressed by Virtual Software Factory, he did add that having this meta tool under both OS/2 and AIX gave a greater commonality to the two environments. He said the tool could be used as part of a project to bring AIX into SAA, but said that IBM would probably build slightly different interfaces to address the two operating systems. Systematica is the first AD/Cycle partner to license technology to IBM so that the company can create products itself.

...BUT TRADITION, NOT IBM, IS SLOWING AIX/SAA INTEGRATION CLAIMS BIG BLUE

According to Jack Clemmons, IBM's manager of technical computer-aided software engineering solutions, speaking in Computerworld what separates the AD/Cycle and AIX development systems is: "tradition - IS traditionally is mainframe-oriented, and the technical market traditionally is workstation-and-Unix-oriented. But as these traditions start to blend, we will evolve the strategy on both sides". He added IBM's overall strategy is to allow customers to move around and do commercial or technical work on both types of platforms. This would mean that developers could use either OS/2 or Unix on workstations to write applications that are meant to run on IBM mainframes. Until now the IBM strategy has only stretched to the building of bridges between the two markets using common languages, user interfaces and communications protocols. Indeed, just a few months ago Mike Saranga, assistant general manager of IBM's Development Operation said that SAA and AIX will come closer but they will not converge on a single destination. This latest statement must be causing increasing consternation among IBM's AS/400 camp - which already appears to be under siege from the RS/6000, (UX No 297) - since a cross system code generator for the AS/400 is so low on IBM's list of priorities that it called in the Islington, London company Synon earlier this year to plug the gap with its Synon/2 product. However, IBM's real commitment to open systems will be revealed when it has a repository for the RS/6000 - at present the IBM Repository Manager is tied exclusively to the mainframe host running on MVS.

SUN FIGHTS ON IN GUI BATTLE -

MAKES A PLAY FOR FAR EAST MARKETS...

The GUI wars are far from over, it would seem. Sun is making an end run around Motif aiming to conquer Japan and other Far East markets for Open Look before Motif even gets to the playing field. Next month, it is bringing out a Kanji version of OpenWindows 2.0, the new 3-D rendition of its application development environment which includes Open Look, the X11/News windowing systems, DeskSet productivity tool and the XIM-compliant XView toolkit. Also in the works is a Japanese version of the OpenWindows developers' guide. The kit has already been endorsed by 58 software and hardware vendors including the solidly Sun-aligned Toshiba, Fujitsu, and Fuji Xerox. The localisation, which can easily be retrofitted for the Chinese and Korean markets, will make it relatively simple to port Sun's existing and extensive English-language software base over to Japanese, Sun executives said. It will also decrease the amount of time usually required to get US and UK software into the Japanese market since only the test files - not source - would need to be translated. The move could reinforce Sun's already strong position in Japan at the expense of the Open Software Foundation and its rival GUI, Motif. OSF has made little headway in Japan where SVR4 remains the operating system of choice almost exclusively and Motif still lacks full internationalisation (UX No 296). Sun, meanwhile, has been rated best-selling workstation in Japan, selling between 18,000 and 25,000 systems in calendar 1989 for approximately 28% of the universe. Sun intends to drive this position with its new IPC whose small footprint was designed in part for the Japanese market where real estate - even in the office and on the desktop - is at a premium. To ensure they win hearts and minds, Sun will give the Japanese XView away free, as it does the English version through MIT's X Consortium beginning in the first quarter. The Japanese version of OpenWindows will cost \$295.

...SIGNS UP FIRST MASTER VAR...

Sun Microsystems last week in a significant shift in its channel strategy, signed its first master VAR deal with Access Graphics making it responsible for supplying, servicing, and training all the small Sun resellers who sell into technical accounts nationwide. Access will take over some 200 existing Sun VARS, selling primarily into CAD/CAM markets. The anticipated agreement (UX NO 297) also calls for Access to distribute to smaller companies currently acting as Sun OEMs, such as independent software developers who resell their applications on Sun gear. The arrangement is ostensibly intended to provide more timely delivery to small-quantity purchasers. Simultaneously, Sun also removed all geographic restrictions on its VARs. Sun wants to put a parallel arrangement in place with another distributor to service its business/commercial resellers. However, sources close to the company now say that master VAR is unlikely to be Tech Data.

...AS FRAME UNVEILS SIX X-WINDOWS VERSIONS OF ITS PUBLISHING SOFTWARE

Tomorrow, September 11, Frame Technology's X-Windows version of Framemaker 2.1 is going to go on six separate workstations: Sun, Hewlett-Packard, Apollo, DEC, IBM and SCO Open Desktop. The Sun, Hewlett and DEC packages have already started shipping; Apollo and IBM will go later this month. The SCO product isn't even in beta test yet and probably won't ship until the end of October. Frame reportedly had some difficulties with Open Desktop, SCO's first go with a graphical front-end. A Frame source described it as still buggy and Frame had to rework its software a bit to accommodate Open Desktop anomalies such as its short file names. To run Frame and Open Desktop also takes a lot of power: big desk, big display and 12MB of memory at least.

LITTLE UNIX AFTER ALL IN IBM'S I50 PRODUCT OVERLOAD

IBM severely overloaded industry-watchers and customers alike last Wednesday, when it introduced 18 new - or fairly new - processors, major new releases of its three 370 operating systems and new releases of DB2, IMS and AD/Cycle Repository Manager/MVS. The new line fits into four categories, all under the ES/9000 tag: the four 9221 models (9370 successors); six 9121s (or "4391s"); six 9021 models (or 3090s); and at the top-end the two "Summit" mainframes, four and six processor 9021 models rated at 161 and 212 MIPS, with up to 9Gb memory and 256 channels. Unix content, however, was severely limited. In response to the question - where does the RS/6000 fit into all of this, IBM replied "read TCP/IP for Unix!". But RS/6000s can be connected to the new mainframe line via the IBM 3172 Interconnect Controller, which attaches multiple local area networks to multiple host computers. It provides customers with a tool for integrating different kinds of local area networks with host computers using multiple operating systems. It is IBM's first product to support the Fibre Distributed Data Interface standard for transmitting data at up to 100Mbps. This will help make it possible for host computers and high-speed local area networks to share large amounts of data. In addition, the 3172 Models 1 and 2 support IBM's Systems Network Architecture and will support the Open Systems Interconnection standard. The 3172 will support the new Enterprise Systems Connection Architecture - ESCON - for transmission of data between host computers using fast fibre optic communications lines spanning 9km. Indications that making six months' worth of normal announcements on a single day was not such a good idea came when IBM's Link information service for customers and consultants seized up and became unavailable as everyone tried to down-load the megabytes of data at the same time - and most failed.

INTERACTIVE INTEGRATES NOVELL AND UNIX NETWORKS WITH PORTED NETWARE

After a year-long development effort Interactive Systems Corp has introduced its Interactive Ported NetWare product, which integrates Intel-based systems running Interactive Unix with Novell NetWare networks. The product is the first to offer both client and server capabilities, according to Interactive, meaning that all NetWare clients have access to Unix servers and applications, and Unix users can access native NetWare servers, via the Ported Client NetWare product. As part of the deal, Interactive has licensed Portable NetWare from Novell, and plans to sell Ported NetWare through its distribution channels. Interactive Unix was chosen by Novell as the reference port for Portable NetWare, which was first announced back in March 1989 (UX No 221). Interactive's product runs on top of Interactive Unix and works in conjunction with TCP/IP and NFS to bridge the NetWare and Unix networks transparently. Pricing starts at \$5,000 for Ported NetWare, with Ported Client NetWare costing \$300, available this Autumn. Additionally, the company introduced SMB/ix, an application to provide compatibility with PC LANS using the Server Message Block (SMB) network protocol: it costs \$900.

VIRUS ATTACK ON COMPARTMENTED MODE WORKSTATION

A Macintosh virus has infiltrated a system on which SecureWare's Compartmented Mode Workstation (CMW) software was co-resident. The SecureWare system, developed and up for B1 evaluation on a Macintosh platform, is the technology the Open Software Foundation is using to secure its OSF/1 operating system. It is also a part of a consortium bid to secure a system for use by Great Britain's Ministry of Defense. The nVir virus, described by SecureWare as a benign replicator, was discovered on a SecureWare demo unit at Mitre Corp, the civilian contractor that wrote the CMW spec. Mitre is part of the team evaluating SecureWare's CMW implementation for B1 authorisation along with the Defense Intelligence Agency (DIA) and the National Computer Security Center (NCSC), the US government arm charged with Orange Book ratings. SecureWare president Michael McChesney told Unigram he had not isolated the original source of the infection, but thought he could trace it to one of two, which he did not identify. Mitre got the infected software from a SecureWare employee who informally sent Mitre a copy of the SecureWare software running on his own machine, which was subsequently found to be harbouring the virus. McChesney was not sure how far the virus had spread. SecureWare, he said, has ten or twelve CMW units in the field.

Letters were sent out to all the field sites about two weeks ago telling them to check their systems. McChesney, who has been on vacation, did not know whether any other sites reported the virus infection. He claimed the virus had nothing to do with his CMW technology which remains uncompromised. The virus, he said, was found only in the Mac OS portion of the software which was partitioned from A/UX and hence did not infect the CMW. Other security experts, however, maintain that the virus could have infected the CMW file system. It is trivial, they said, for a virus to cross a partition particularly on a Mac, one of the most virus-prone platforms, and in this case could have modified CMW code, passwords and data structures. Orange Book specifications mandate no anti-viral or anti-worm safeguards. However, McChesney maintained his software would be relatively proof against infection once a formal release was arrived at because it would be delivered to users via an external "trusted distribution path," simply a controlled shipping procedure which tracks how the software gets to its destination, and also by an internal system of "least privilege." SecureWare's technology, whose design was frozen in January, will only begin formal B1 evaluation procedures in the next couple of weeks, delayed, McChesney said, by additional operational charges the DIA wanted. Mitre intelligence information systems department head John Woodward corroborated McChesney's claim that the virus never escaped the partition and pooh-pooed its existence on the Mac partition as "irrelevant" to whether CMW+, the SecureWare software meets the DIA or Orange Book requirements.

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Sybase Inc of Emeryville, California has not hit its projected revenue targets, and so is to cut 50 of its 800 jobs, says **Computer Systems News**: the privately held company in which both Lotus and Apple hold equity stakes has reported losses for the last two quarters. Plans for a public flotation have been put on hold and the company does not now expect to come to the market before the third quarter of 1991. Last year the company had a revenue around the \$50m mark which it expected to more than double this year. However, Sybase has reportedly limped in with a turnover that is below the magic \$100m measure. The shortfall was blamed on the soft US market, but international sales and software and services acquisition SQL Solutions Inc are both said to have done better than expected.

Hewlett-Packard has won a \$25m contract with the US West telephone company for HP 9000 Series 300 and 400 workstations and servers running HP-UX: US West will use the systems networked via Ungerman-Bass Inc and HP StarLAN to access customer customer billing and service data on its AT&T minis and other mainframes - Hewlett secured the contract against competition from DEC and Sun Microsystems.

According to US press reports the National Institute of Standards and Technology - NIST - which oversees conformance testing for the US Government Open Systems Interconnection Profile, GOSIP, which went into effect last month, (UX No 296), says that initial tests may be incomplete or even flawed, meaning that users have no guarantees that products are fully GOSIP-compliant: NIST recommends that users get compatibility assurances from vendors which are setting up their own conformance-testing centres, however it says problems should be resolved next year, and that a comprehensive set of tests will be in place before the arrival of GOSIP version 2.

Corollary Inc, Irvine, California, has a new low-end multi-port subsystem for Intel 80386- and 80486-compatible PC-AT systems offering 8- and 16-user RS-232 serial connections: the 8x2 is available as a basic kit for \$1,000, which includes the board, an 8/ct+ terminal concentrator, RS-422 host cable, RS-232 cable, documentation and new drivers for SCO Xenix and Unix, Interactive 386/ix and AT&T Unix.

3Com Corp is tip-toeing towards interoperability, announcing that it will support Novell's NetWare 386 on its proprietary 3Server line of network servers - though drivers won't be available until the beginning of next year.

Intel Corp is said to be developing a more powerful version of its 386SX processor which incorporates several chips in one package - initially running at 16MHz it is likely to be aimed at firms developing new lightweight laptops and faster 386SX desktops.

Cimline Ltd has won a #2m order from the Scania division of Saab Scania for a networked computer aided design and manufacturing system: 15 Sun Microsystems Sparcstations running Cimcad 3D Wireframe and Intelligent Documentation software are to be installed immediately, and that number will rise to 85 over the next two and half years; 46 of these will have 12Mb of memory, 104Mb of disk, and will be linked to a Sparcserver-490; the other 39 stations are to be installed in manufacturing divisions.

Hewlett-Packard is dropping the development of its proprietary electronic design automation software to focus on the mechanical engineering and data management markets: after the release of new design automation software this quarter, the Electronic Design Division will spend two years "strengthening third-party ties" to make the software comply to standards such as X-Windows - the software will be supported until 1995; Hewlett-Packard hopes that the 165 people working at the division will be relocated within the company.

The Framingham, Massachusetts-based Object Management Group which is working towards standards in object-oriented techniques, and the Cambridge, England-based company APM Ltd which, backed by ESPRIT and the UK Department of Trade & Industry, is developing the ANSA standard architecture for distributed processing, have got together: the Object Group has joined ANSA to help develop the standard distributed network object architecture.

Digital Equipment Japan is to form a network of 60 of its independent software vendors selling workstation software, and will link them together and with itself on an international wide-area network: in particular DEC is trying to expand the range of Unix-based software for its workstations - it currently has around 10% of the workstation market in Japan, far below sales of Sun Microsystems Inc and its OEM resellers, and also behind Yokogawa Hewlett-Packard Co and Sony Corp.

As expected, (UX No 286), in the US DEC has released multiprocessor Intel 80486 systems running SCO Unix with Corollary Inc's MPX symmetrical multi-processing kernel.

Talk about niches: the flaks over at Smith & Shows may be specialising on Unix companies (UX No 292), but San Diego-based Coopers Iverson has gone one better, concentrating only on Sun spin-offs.

DEC is hoping to get rid of 5,000 to 6,000 employees in its latest voluntary redundancy programme announced in the US this week. The packages include medical and life insurance for a year and assistance in finding other jobs, and will be offered this month: the programme should be completed by the end of the year. The company does not plan any compulsory redundancies and no closings are planned. DEC now employs 71,400 people in the US and has a total of 124,000 employees worldwide.

Apple Computer Inc's USA Division has cut prices up to 20% on all models of the top-end 25MHz 68030-68882-based Macintosh IIfx, the machine most suited to running the company's A/UX Unix: an optional cache card with 32Kb of 25nS static at \$400 boosts performance up to 30% - the reduction is a uniform \$1,500 across the board so that the 4Mb floppy model is cut 20% to \$6,000; the 80Mb hard disk version falls 18% to \$6,700, and the A/UX version is reduced 17% to \$7,300.

Given the acceptance of the Open Software Foundation's Motif and the lack of acceptance of its OSF/1, shouldn't the thing be renamed the Look And Feel Foundation, suggests Rick Richardson of PC Research Inc, who goes on to suggest that Unix International should become the Foundation for Unix Nurturing, to leave us all with FUN and LAFFs.

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AT&T GETS THE GO-AHEAD TO SELL UNIX TO THE SOVIET UNION, EAST EUROPE

AT&T's Unix Systems Laboratories Europe has been given a green light to licence its Unix operating system freely throughout the East European countries - including the Soviet Union - according to USLE's London-based European managing director Bob Mitze. The announcement that Unix can be sold under a General Export Licence follows negotiations between Unix Labs and the US Government Trade and Commerce Department on a relaxation of the CoCom rules which have up till now included Unix on a list of technologies prohibited for export to the Eastern Bloc. Unix was left on the list despite a partial relaxation of the rules back in February which legalised the sale Intel 80286- and 80386-based technology in those countries, (UX No 271). The move paves the way for a single worldwide source-code version of Unix to be created, without the encrypted portions of code that were previously required to prevent its use in those countries on the US Government's black-list. Although USLE is keen to press ahead and sell binary copies of its operating system to untapped markets in the East, sales of source-code versions are more problematic due to the general nature of East European legislative systems, which contain little or no provision for the safeguard of intellectual property rights, (UX No 275). Mitze says it will be negotiating source-code rights on a country-by-country basis as the former Comecon countries bring property and commercial laws in line with the West. USLE is already studying laws that Hungary has recently adopted, and whilst the Soviet Union is only now getting around to the introduction of patent laws, Mitze says that most of the Eastern Bloc countries are gradually moving towards the recognition of commercial and intellectual property rights. Initially all sales to the countries in question will be handled by USLE's London office, but Mitze says that it is currently investigating the possibility of opening Eastern bloc subsidiaries.

ASK TO BUY INGRES WITH HELP FROM FRIENDS HEWLETT, EDS

Despite hot denials from the company, it has been clear, as we revealed in June, (UX No 284), that Ingres Corp has been for sale for some time now, and last week the buyer was revealed as manufacturing software specialist Ask Computer Systems Inc, which is being bankrolled for the purchase by the ubiquitous Electronic Data Systems Corp, and by one of the companies most widely tipped as the outright buyer of Ingres, Hewlett-Packard Co. The Alameda, California relational database software company has agreed definitively to be acquired by Ask for \$9.25 a share cash or \$110m all told. A substantial part of the money - \$60m - is coming from Electronic Data Systems and Hewlett-Packard, which have agreed to pay \$10.78 a share, a 15% premium to the market price for new Ask shares to give the General Motors subsidiary 19.7% of the enlarged Ask equity and Hewlett 10%. Ask founder and chief executive Sandra Kurtzig, reckons that "By combining Ask's application expertise, Ingres' tools and database leadership, and our partners' worldwide systems integration capabilities," and computers, the company will have the ability to implement global enterprise-wide systems. The consolidation of Ask and Ingres would result in combined revenue approaching \$400m, up in the Novell Inc range. Ingres says it has worked closely with Ask - in February Ask announced its use of Ingres tools and database products to develop a new generation manufacturing information system for open, networked computing.

MISSION CYRUS HANGING ON FOR DEAR LIFE

Mission Cyrus, the would-be Canadian Sparc cloner, is effectively out of business, having failed to put a deal together with either of the multi-billion dollar European conglomerates it was hoping would salvage it from financial ruin (UX No 288). The company, reduced to a mere shell with only a skeleton staff left to answer phones and open mail, is still limping along protected from its creditors until October 9 by the Canadian equivalent of America's Chapter XI. But any thoughts of eventually bringing out a Sparc compatible have long since vanished, according to caretaker manager Bahman Sanii, formerly responsible for operations. The best the company can hope for at this point, he said, is structuring a take-over deal with a local Vancouver computer maker interested in some of Mission's 386/486 PC products and its MCA license with IBM. Sanii did not identify the firm but described it as an OEM. Mission Cyrus got into difficulty earlier this year when its backers pulled out of a promised round of financing. Then its lead investor, the UK, Huntingdon-based company Mission Electronics, which had continued to underwrite its activities, decided it was costing too much money and cut it off. Mission Cyrus founder Farad Azima, who has been in the UK for months, tried in late spring to get the company acquired by one of two large unnamed European companies with electronic subsidiaries but negotiations apparently never got beyond the tyre-kicking stage.

OSF SPONSOR PHILIPS

ADOPTS UNIX V.4 AND RISC

Philips NV has become the second sponsor of the Open Software Foundation to commit to use the rival AT&T Unix System V.4 operating system on its p9000 range. Philips Information Systems spokesman Peter Macnamara said that new 88000 RISC-based models of the P9000 m-series, sourced from Motorola under an expansion of the four year-old OEM agreement between the two companies, would be offered with System V.4 rather than OSF/1. The announcement was made at the European launch of Motorola's Multi-Personal Computer line, which first saw the light of day in the US way back in March, pitched against IBM's RS/6000 (UX No 273). Macnamara said the RISC deal with Motorola would not restrict Philips from using other RISC processors - it is, after all, a European source for Sun's Sparc, which it uses as the engine for medical and imaging systems. Like Motorola's own-badged versions, the Philips m-series will run Unix with MS-DOS and Pick emulation. And Philips will also take the X-terminals that Motorola gets from Network Computing Devices Inc. The relevance of Phillips' Open Software Foundation membership has dwindled as it increasingly relies on third parties for its hardware: it sells the P9000 series mainly to the banking and insurance industries.

INTERGRAPH GOES SUPERSCALAR WITH C400 CLIPPER

Intergraph Corp is set to come out with the latest iteration of its Clipper chipset with the C400, which will be introduced at the Microprocessor Forum in California on October 10th. The upward compatible 50MHz CMOS chipset aims at single-cycle integer execution, but like IBM's RS/6000 RISC chip it claims to be superscalar by having the ability to issue floating point and integer operations in the same clock cycle. Like its predecessors, the chip is also "superpipelined", increasing the pipeline stages to allow a higher clock rate: initial versions will be 40MHz, but the 50MHz version at 1 micron will be scaled up to 70MHz using 0.5 micron CMOS technology. Intergraph is very shy about issuing a notoriously inaccurate "blanket" MIPS rating for the chip, but provides performance data from "small segments of the SPEC benchmarks" - achieving 50 MIPS using the Espresso integer benchmark, 56 MIPS using the Spice scalar benchmark and up to 94 MIPS and 33.3 MFLOPS using the vector Linpack Daxpy inner loop benchmark. Samples fourth quarter, systems (from Intergraph) early next year. The company says its major customer for the chip, Du Pont, is currently considering using the new version.

UNIX HOLDS SWAY IN SMALL AND MEDIUM GOVERNMENT SYSTEMS PROCUREMENTS

According to a report from the Spanish Interministerial Commission for the Acquisition of Information Technology Goods and Services, 78% of new computer systems bought by the Spanish government during 1989 were Unix-based. Spain has a formal commitment to Unix on mid-range and small systems following the decision by other European Community countries to move towards Unix as a standard to promote open system interconnection and integration. As yet it has no signed agreement with any of the various associations which set world standards for Unix, but the Spanish government meets with X/Open representatives in September and there are hopes that this could result in a co-operation agreement similar to the one signed with the German Government, says Cinco Dias. An opens systems seminar in Madrid established that Unix currently holds 40% of the mid-range market in Spain, but is having most success in the networking of workstations and personal computers in medium-sized firms. Larger companies buying mid-range and mainframe computers are sticking with proprietary systems - the financial world is dominated by IBM in Spain. Many users are waiting for a truce between the Open Software Foundation and Unix International before they put their money where a standard claims to be - but 19% annual growth in Unix sales is expected between now and 1993. With regard to total public spending on computers in Spain, the figures increased dramatically for purchases made via the Commission between 1988 and 1989, rising to \$211m from \$122m, but this is due mostly to the fact that the Commission has, since March 1988, included Social Security's purchases of over \$1m. The Commission does not expect the figures to rise so dramatically this year. Of the Unix systems bought last year, 51% went to unemployment, 25% to the police and 14% to the Social Security's information technology management. More than a third of the Unix systems purchased were Nixdorf, while 28% were Bull, 14% came from Unisys and 14% from ICL.

DTI'S OPEN SYSTEMS PROGRAMME RUNS OUT OF CASH

The Department of Trade and Industry is now fifteen months into its three-year Open Systems Technology Transfer programme, (UX No 237), and has already spent the £12.7m originally allocated for the project. It has produced a wealth of brochures and pamphlets encouraging businesses and organisations to begin adopting open systems strategies in their information technology plans, however there is little of any substance. The Department refuses to deal in specifics, and although it says it has identified international standards that maybe worth supporting in the areas of graphical user interfaces, data structures, distributed applications and operating system functions - it does not say what those standards are, although a positioning statement is being prepared. At a briefing in London last week, DTI officials revealed that four open systems demonstration projects are now up and running at Aston University, Northants Health Authority, Rolls Royce and Lucas Diesel Systems. A spokesman described systems interconnection and applications portability as "key areas of interest" - presumed to be muted references to OSI and X/Open's Common Application Environment - but went on to say that the Department is "trying to tell people open systems isn't just about OSI and Unix", that the relevance of X/Open's standards effort "is a subject open for debate," and that "Unix is a proprietary system". Perhaps the whole thing is best summed up by the opening comments of the briefing - "there is not enough sound and practical advice to help users make up their minds." Exactly.

SOURCE 1 AIMS TO BE DEC'S "NUMBER ONE UK RISC/ULTRIX HOUSE"

Source 1 Solutions Ltd, Hinckley, Leicestershire, part of the Source 1 Group plc, is offering California-based Minx Software Inc's MFG1 on-line transaction processing MRPII manufacturing application on DEC's Risc systems in the UK, following an exclusive distribution and software development agreement signed with the US firm. Started in June by former Misys Group managers, Paul Heron and Paul Hacker, the group is spending £1m to make itself "DEC's number one Risc/Ultrix house in the UK." Minx has around 110 MFG1 installations worldwide - MFG1 was designed by developers responsible for Ask Computer Systems' Man-Man product, the same developers went on to found Minx. Source 1 Group will be dealing solely in DEC Risc products, and is offering MFG1 at from £20,000.

FUTUREBUS+ PROFILE FOR TELCOMS INDUSTRY ON THE WAY - AS DEC

PUTS I/O PROTOCOL INTO PUBLIC DOMAIN

The UK Futurebus Manufacturers and Users Group, Fleet, Hampshire, says that a Futurebus+ Telecom profile is to be created for the telecommunications industry, and a desktop profile is being considered for personal computers. A Futurebus+ profile is an industry-specific subset of functions and mechanisms chosen to fit the needs of particular industries. For some time the telecommunications industry has been working on Combust, for dedicated Integrated Services Digital Network functions such as call diversions - a decision to make Combust compatible with Futurebus+ was taken in 1989. Other profiles are already being created for DEC, VMEbus and workstation manufacturers, and for the military, (UX No 270). Indeed DEC last week opened its patented general purpose input/output protocol for Futurebus+ systems to all Futurebus+ developers. It is said to run equally well with VMS, Ultrix, MVS and SunOS. Futurebus+ is an IEEE project to create a set of standards for next generation computer backplane buses.

- Separately, a new report from UK firm Elsevier Advanced Technology, Oxford, reckons that the market for systems built around the Futurebus+ will be worth \$500m by 1994, and predicts that it will become the biggest selling bus standard by 1998. The report, A Market Assessment of Futurebus+, costs £895, or \$1,460.

DATA GENERAL ADDS VECTOR-PROCESSING TO AViiON RISC LINE

Data General Corporation has added vector-processing options to its Motorola 88000 Risc-based AViiON workstations and servers. The 32-bit Model 5069 VME add-on board is rated by the firm at 66MFLOPS, and up to eight of the things can be attached to the system. Running 20MHz or 25MHz 88000/100 parts - depending on target system - with from 2Mb to 8Mb memory, they are priced at \$9,000 and \$12,200 respectively. Data General has also come up with a range of VMEbus interface devices for connecting AViiONS to other peripherals. Models 5089 and 5099 are DEC DR11-W interface emulators, they cost \$1,900 and \$3,000 respectively. The Model 5517 will connect with the General Purpose Interface Bus as defined by IEEE-48 - it costs \$2,400, whilst Model 5400 is a general purpose interface for parallel block data transfer to external devices priced at \$4,500.

UHC SHIPS SHRINK-WRAPPED UNIX V.4

UHC Inc, a tiny Houston, Texas start-up, is claiming to be first out with a fully commercialised shrink-wrapped version of Unix V.4 for 386/486 machines. The company began delivering its system in the last two weeks and AT&T's Unix System Labs (USL), from which it derives its SVR4 license, agrees that that timing would give it the distinction it claims. Its software includes X/Windows, support for both Open Look and OSF/Motif, networking extensions and developers kit. List price, including documentation, is \$2995 and qualified developers can claim an introductory discount bringing their cost to \$1995. UHC plans to sell the software direct, joining the Unix distribution line-up that includes or will include Intel, Santa Cruz Operation, Microport and possibly Everex' Esix unit. USL, which supply the source code, will not be in the shrink-wrapped business. UHL figures its first serious competition will come from Microport, which UHL thinks will release its 386/486 product in November. Intel and SCO are less of an immediate threat, according to UHL communications manager Brad Elliott, because products may not appear until sometime next year. Elliott maintains both these firms want to clear out all the 3.2 product on their shelves and recoup their investment before they bring on SVR4. Elliott says UHL has spent the last four months cleaning up AT&T's code and 15,000 pages of documentation. "It was not exactly bug-free and therefore took us longer to bring to market. At least now it's useable and not incorrect," he said. UHL started life in Austin, Texas about a year ago as UnixHouse, subsequently moving and changing its name. It is a privately held company owned by a family firm in Arizona called Anam Inc that is into real estate, ranching and oil and gas. UHL's second product line, a family of 386/486 boxes, has been forced to take a backseat to its current software interests, but is still available. The high-end, representing an installed base of a couple of dozen units, includes an Intel 486/i860 EISA machine currently running Unix APX and priced from \$30,000. It will move to i860 Unix as soon as the software completes AT&T certification.

KUBOTA TO PAY \$12m FOR SOME STARDENT TECHNOLOGY

Details of the new arrangements between Stardent Computer Inc and its principal backer Kubota Corp were announced last week: Kubota has committed to putting up yet more money for Stardent - \$12m over the next 12 months - and will increase its stake to 28% from the current 21.5%. In return, its new Kubota Pacific Computers Inc subsidiary in Sunnyvale will get development and distribution rights to some models of Stardent's graphic minisupercomputers. It is expected that the low-end models will be handled by Kubota, which currently builds all the machines in Japan and has distribution rights for the Far East.

dBASE IV FOR SUN MICROSYSTEMS TO SHIP FOURTH QUARTER

Ashton-Tate's long-awaited implementation of dBASE IV 1.1 for Sun Microsystems workstations which went into beta-test last month, (UX No 296), will be out in the fourth quarter, the company says. With the same look and feel as the MS-DOS version, it is claimed to allow existing MS-DOS-based dBASE applications to run on Sun systems without modifications. Available for all Sun workstations and servers, the database requires SunOS 4.0 or above and 4Mb memory - prices will be announced later in the year.

NOW LYNWOOD GOES SOLO IN MANAGEMENT BUYOUT

One of the UKs few remaining terminal and workstation manufacturers - Lynwood Scientific Development Ltd - has broken free from its parent company Hunting Plc after a management buy-out, completed late last week. Chairman Keith Rushton, managing director David Prior, finance director Paul Rossiter and hardware and software development engineers Dr Richard Young and Kevin Law have moved the company from its four separate sites in Alton, Hampshire, over to new premises in Farnham, Surrey. Lynwood, established in 1968, provides Sun and Data General system solutions and project management, as well as designing and manufacturing its own ranges of terminals and Unix-based office workstations (UX No 271). The company reportedly just failed to break even last year, but hopes that by centralising operations it will enjoy "a tighter control of activities". Details of financial backing were not given. Primarily a defence contractor, Hunting Electronics has been looking to divest itself of its non-core businesses for some time.

IBM, METAPHOR SET UP OS/2, UNIX SOFTWARE COMPANY

IBM has formed a company called Patriot Partners with its long term partner Mountain View, California-based Metaphor Computer Systems Inc in order to develop software which will act as a go-between for each application and different types of computers. This new software will support software technologies such as object-oriented programming, multimedia support, end user visual programming capabilities and structured access to expert system facilities. The software will be designed for use with either OS/2 or AIX and other versions of Unix. According to the Wall Street Journal the software will not mean that someone using an OS/2-based application on a personal computer could use it on a workstation as a Unix application. However, it should make it easier for a programmer to translate software from one operating system to the other. David Liddle, chairman of Metaphor said 200 programmers will be involved in the development work. A product is expected to come to market in two to three years - IBM will sell the software on its own machines, while Metaphor will have the right to sell it to other hardware vendors. In 1988 IBM took a 10% equity stake in Metaphor to get its man machine interface technology into its Data Interpretation System. The Metaphor system consists of Ethernet worked workstations linked to file, database and communications servers. The workstations are based on the 68000 family and run a proprietary operating system with an icon-and-mouse user interface similar to Xerox Star and Apple Mac.

SEA CHANGE COMES FIRST AT LONDON'S 4GL GRAND PRIX

It's hard to tell whether it is the software or the programmers, but the UK's Sea Change applications generator came first in the 4GL Grand Prix held last week in London, competing against products such as McDonnell Douglas' Pro-IV, Atech's System Builder, Progress from Progress Software, Ingres and Unify Corp. Sea Change, from the York-based company of the same name (previously Thompson Computers), was the only product to finish the task - building a sports equipment hire system - and won the highest productivity award. System Builder's SB+ came second, and was judged to have the best development and information centre categories, while Progress won the best MS-DOS product award and McDonnell Douglas the best mainframe product. Norwegian company Systemator launched its eponymous product at the event, which was organised by Horsley Associates.

SUN OFFICIALLY OPENS LINLITHGOW SUPPLY CENTRE FOR EUROPE...

With overseas business now contributing almost half of its revenues, Sun last week opened its first European supply centre in Linlithgow, Scotland, which will concentrate on manufacturing desktop products. Currently producing 500 units a week, Sun will eventually ramp up production to 2,000 a week, and has plans to expand the distribution side. Sun only carries out final assembly, using outside contractors to provide the ready-made parts, and is looking to forge local relationships that will enable it to meet EEC regulations about the European content of its machine components - hence the deal over circuit boards with ICL recently (UX No 291). Sun president Scott McNealy came over for the opening last Monday, and then flew over to Grenoble (see below). The centre was opened by Secretary of State for Scotland Malcolm Rifkind, who had performed similar duties for DEC in nearby Queensferry only one week earlier.

...SETS UP GRENOBLE RESEARCH FACILITY

Even the skills resources of Silicon Valley are not inexhaustible, so Sun Microsystems has followed in the footsteps of many others and set up research and development facilities in Grenoble, France. Under the direction of former Hewlett-Packard networking guru Jean Pierre Baudouin, the centre will develop Sun's range of SunNet communications products, and will be looking in particular at OSI and ISDN communications. It will be part of Sun's distributed computing organisation, headed by vice president of distributed systems Jonathan Feiber.

Will they or won't they - Sun and Unix V.4

Competitors of Sun Microsystems are still throwing some doubt on just how committed Sun Microsystems is to Unix System V.4 - they say that Sun technicians, with a "not-invented here" disdain, are dismayed at having to use AT&T developed code rather than their own highly-tuned efforts: but in Scotland last week Sun president Scott McNealy confirmed that Sun would be coming out with a V.4-based operating system. But he also confirmed persistent rumours that the old Unix V.5 project headed by Bill Joy, and started in the days when AT&T and Sun were much closer, was still the basis of operating system research work at Sun - not necessarily destined for commercial release, said McNealy.

SPARC/Open Look "the number 3 desktop after MS-DOS and Mac"

McNealy was also adamant that the Open Look user interface was the number three desktop after Microsoft Windows and the Macintosh, saying that its close relationship with the widely used SunView interface gave it a further edge: OSF/Motif, he said, was not shipping in volume on any machine, and moreover applications could not be moved from machine to machine because of the various implementations of Motif from different manufacturers.

SPARC is now Sun's single architecture

Sun's official line is that it now has a single architecture - Sparc - across its entire range: it still makes Motorola and even Intel products on demand, and will continue to do so, but says sales of Sparc systems are now topping 95% of the total: McNealy said the shift, which took place in little more than two years, made them unpopular with customers and resellers to start with, "but now they all love it". He insisted that the upgrade path from Motorola Sun-3s to Sparc-based RISC systems "was one of the easiest in the business".

Will OSF "Oppose Sun Forever"?

Not entirely joking, McNealy referred to the OSF as standing for "Oppose Sun Forever", pointing to X-Windows, OSF/1 and the Distributed Computing Environment as strategies to de-rail Sun's efforts to establish de facto standards in the same area - "they are trying to force standards through with big marketing budgets", he said.

Superscalar, superpipelined Sparc "within two years"

One of Sun founder Andy Bechtolsheim's pet projects these days is supposedly a thing called the "Megaframe Videostation", which according to Wall Street house Bear Stearns is the next-generation Sparc platform - a real superscalar/superpipelined graphics box good for multimedia. They're not looking for anything actual for another 18 to 24 months.

Cars win out over bicycles, except under tow

Comparing the Unix hardware business to the motor industry, Scott McNealy said that mainframes were the trains of the computer industry: then in the 1970s came minicomputers - buses - and the PC, which he likened to bicycles, offering the owner more freedom and fun than the buses, but not much power. Workstations, of course, he compared to cars: "and not many would want to go back to bicycles for anything serious after using a car". But what about X-Terminals, something that Sun is known to be less than enthusiastic about? They are like cars without an engine that have to be towed around by the bus, slowing down when the bus slows...

LIANT SEEKS TO SEDUCE IBM SYSTEM 36 TO UNIX WITH LPI-RPG-II DESIGNED TO HIDE THE BEAST

IBM didn't come out with the new AS/400 blandishments to persuade recalcitrant System 36 users to migrate up the route so carefully mapped out for them any too soon: the Unix vultures are gathering enthusiastically over the expiring older models of System 36 - and all those System 34s still out there - in the hopes of wearing users away from their dependence on IBM and into the liberating world of Open Systems. We haven't heard from the company in the UK on the subject, but in Germany, the Munich outpost of Liant Software Corp, Framingham, Massachusetts has come out with version 3 of the LPI-RPG-II compilers, an implementation of the System 34 and System 36 RPG programming environment, Version 5, which runs on 80386-based computers with Interactive Systems Corp's Unix System V.3.2 or Santa Cruz Operation's SCO Unix System V/386. Special attention will be paid to achieve a "System 36 look-and-feel", says Liant, to reduce to a minimum the necessity for users to have to struggle with Unix directly. Terminal definition data will make it possible to use the development system on every workstation. Liant says LPI-RPG comes as a package with a compiler and a systems navigation language which both interprets OCL Operations Control Language commands as well as offering an interface to many of the service program functions, which can be easily used on System 34 and 36. In addition, there is a data conversion program to translate existing data from EBCDIC to ASCII as well as other tools to aid portability. For an unlimited number of users the complete system costs the equivalent of \$8,080, reports Computerwoche - the run-time module is available for a cost of \$4,035.

USL SQUARES UP TO OS/2 WITH UNIX DESKTOP TECHNOLOGY LAB

AT&T's Unix System Laboratories (USL) has quietly set up a business unit focused on competing head-to-head with OS/2 and landing Unix squarely on the desktop. The Unix Desktop Technology Laboratory, headed by Don McGovern and staffed with what he called "the best and brightest engineering and marketing people AT&T has to offer", is chartered to shrink Unix to fit on an archtypal "\$5000" desktop computer. Their first desktop product is due the second half of next year. The repackaging job will mean reducing Unix memory requirements to 4MB and disk space to 40MB so it can easily outstrip OS/2 which currently needs 8MB internal memory to function at its best. Desktop Unix would retain the multiuser/multitasking/virtual memory/windowing features of classic Unix, McGovern said, but some functionality, such as some networking/OSI support, would be stripped out into modules that could be added if the user wanted to go to full graphical install and graphical admin, features missing on classical Unix that are obviously needed to propel it into the mass market. The graphical model McGovern has in mind is the MacIntosh and he said USL is currently talking to some unidentified companies about a "complete user interface environment" for the desktop. How exactly Open Look or Motif fit in this scheme, if at all, is unclear. From his conversation McGovern seems to find neither of them all-embracing enough. Desktop Unix will also mean a pricing schedule different from what AT&T currently demands. However, details have not been worked out as yet, McGovern said. The challenge is paring Unix into desktop space while coming up with a system that OEMs can add value to without changing the core or the interfaces, McGovern noted. The operation, which negotiated the recent Intel binary standard deal with some Santa Cruz Operation (UX No 297), also has some shorter term initiatives in the works. It is currently completing the reference ports for the Motorola, Sparc and Mips chips and will be doing SVR4 OEM kits for each of those chips too. Desktop Unix, when it comes, will be available in OEM kits for all of those chips as well as Intel's.

INSIGNIA LAUNCHES SoftPC FOR NeXT

Insignia Solutions this week will announce that it has developed a version of its SoftPC for all Next machines, including the ones Next unveils tomorrow September 18 (UX No 299). Insignia's solution will allow Next to run most DOS software, as though its Unix boxes were ATs or XTs, side-by-side with NeXTstep, allowing copy and paste between windows. Insignia, which will do all the sales and support for the \$599 product, expects to have it all shrink-wrapped and available in multiple retail channels starting the first quarter of '91. Porting a product like SoftPC to the Next architecture is estimated to have cost Insignia between \$400,000 and \$500,000, a significant investment considering Next has failed to sell its boxes and has an installed base of maybe 5000 machines. Insignia, which has already ported SoftPC to some 20 platforms, reckons its stuff gets on 5% to 15% of each platform. General manager Don Gallagher says he has no idea how many boxes Next, a highly secretive company, is projecting to do once it relaunches its reconfigured machines this week. However, he expects return on his investment in two years.

88open CONFIRMS NCR

HAS DROPPED FROM ITS RANKS...

Although NCR is set to unveil new Intel-based Towers tomorrow, Tuesday, (UX No 299), the multi-user Unix system builder's Risc strategy remains unclear. Originally the company opted to take Motorola's 88000 part - which it chose in preference to Sun Microsystems' Sparc, (UX No 171) - but 88open Consortium's marketing director Derek Meyer confirmed last week that NCR's principal membership of the 88000 supporters club lapsed in April. A principal member comes right after sponsor member and pays between \$27,500 and \$250,000 in dues to 88open depending on revenues. NCR would have been kicking in \$250,000. No-one at NCR was available for comment, but there is an unsubstantiated report in the US trade weekly Computer Reseller News that NCR is planning a series of Sparc machines.

...AS APPLE MOVES CLOSER, WORKS ON NEW 88000 WITH MOTOROLA

NCR's decision to pull out of 88open is yet another blow to the flagging fortunes of Motorola's Risc microprocessor - but indications from the US suggest that Apple Computer Inc is now moving closer to the group. This will certainly please 88open, as well as Motorola, as Apple declared more than a year ago that it is designing around the 88000, (UX No 239), but has never given an indication of when a box will come out, or what it will look like. If Apple were to join, it would likely pay the \$250,000 required for principal membership, as Apple knows that it needs 88open's Unix experience for its federal and other markets. It also seems that Motorola and Apple have been working closely together on the next generation 88000 chip - the 88000/110 - due out in the first half of next year.

VISUAL TECHNOLOGY'S X-STATION BUSTS \$1,000 BARRIER...

Visual Technology Inc, the Marlborough, Massachusetts, company rescued from oblivion by Hambrecht & Quist Co, claims to be the first to offer a true X-terminal at \$1,000. The Visual X-14/ES Display Station is a small footprint, networked X-Windows graphics display terminal claimed to comply fully with the X11 Release 4 server specification. Based on a 12MHz 68000 with 1Mb to 4Mb, the X-14/ES has a 14" 1,024 by 800 resolution landscape display and supports X-Windows, DECWindows, OSF/Motif, OpenWindows, Open Look, Open Desktop and Xview. It measures 12.5" by 12.5", supports thick and thin Ethernet and RS232/422/423 serial connections, TCP/IP, XDMCP, Telnet and ICMP. The price includes three-button optical mouse and keyboard - it ships in November.

...WHISLT HDS MOVES TO SECOND GENERATION WITH VIEWSTATION PLUS

Human Design Systems is now into its second generation X-terminals, claiming the best price/performance on the market. The Pennsylvania company plans to sell heavily to OEMs and says it can easily customise the units, disguising the fact vendors are all selling the same box. OEMs, for instance, could configure HDS units with mice, keyboards and screen purchased from other suppliers. HDS reckons this will help avoid over-distribution, a factor it believes will impede its top competitor Network Computing Devices. The new machines, the Viewstation Plus, reportedly offer a six-fold increase in speed over their predecessors. They come with up to 10Mb memory; 14", 15", 16", 17", 19" and 21" screens; and 256 displayable colour, grey-scale and monochrome. Prices start at \$2,000 for a monochrome unit and top out at \$6,000. Uniquely, the Viewstation Plus can be upgraded from small screen to large or from mono to colour and come with a new four-year warranty. HDS has gone over to the high-end 60MHz TI 34010 chip backed by a 16MHz 80186 communications processor. Quoting Dataquest and IDC figures, the company estimates 60,000 X-terminals will be sold this year, 250,000 next year, delayed by the lack of office automation software. In the X-terminal market since 1989, HDS declined to discuss its installed base but noted that it had shipped 1,000 units last month.

THE NEW COLOUR'S AGREED, NOW SIEMENS NIXDORF DECIDES WHAT PRODUCTS SHOULD WEAR IT

by Mark John

Siemens Nixdorf Informationssysteme could be the only European concern capable of competing on a worldwide scale with the US and Japanese giants, or a disaster waiting to happen. But before the 78%-owned Siemens affiliate can really start to prove its worth in the market, there are a number of burning issues that need to be sorted out following the fusion of two companies with radically different corporate cultures. Like, for example, the colour of the badge on future Siemens Nixdorf offerings, or the allocation of parking spaces at group headquarters.

The *Wall Street Journal* reports that mid-level marketing managers spent hours debating whether to paint the joint product line in Nixdorf red or the Siemens "petrol" - a shade of blue. The Siemens marketers felt that red wasn't "special" enough, believing that Siemens petrol was "unique". Whatever the arguments were for Nixdorf red, the controversy eventually reached board level where it was decided in half an hour that Siemens petrol should prevail simply because Siemens had just bought a vast job lot of the paint for its other electronics products. And then there's the question of parking spaces. Within the Siemens hierarchy, executives are allotted company cars and private parking spaces according to rank, whereas at the more democratic Nixdorf the criteria for such privileges are based on need - even the late Heinz Nixdorf himself didn't get a reserved space.

Militant users

No doubt such differences will eventually be settled, but in the meantime it is the decisions of the seven workgroups set up to guide the direction of the company, due to come into being this October, which will have a much more far-reaching effect on the success or otherwise of Siemens Nixdorf Informationssysteme. A few weeks ago, Workgroup 2 announced a corporate structure organised strictly around ten perceived customer groups, with these ten divisions supported by regional arms (UX No 293). Now, *Computerwoche* reports that Workgroup 1 - the group charged with making the most important recommendations - deciding which products out of the existing Siemens and Nixdorf offerings should survive - has announced its conclusions, and much to the relief of Nixdorf's band of increasingly militant users, it turns out that the future product range will by and large include all existing hardware and software offerings from both firms. Above all, Siemens' proprietary BS2000 mainframe operating system, used on the broad line of compatible mainframes that goes from top-end machines it gets from Fujitsu down to desk-top models, will stay, despite the risk that the non-IBM-compatible machines will experience a sudden dwindling of the user base. What's more, Siemens Nixdorf will continue to market and support two separate Unix ranges, the Sinix machines of Siemens and the Targon supermicros developed by Nixdorf. Unlike Hewlett-Packard, which swiftly announced an intensive merging of product development when it acquired Apollo, Siemens Nixdorf says that common successors to both ranges will only start appearing within the time scale of a normal development cycle, in a way intended to "protect existing installations". Due to the relatively short time period involved, the first jointly-developed product is likely to be a new personal computer - "practically no compatibility problems exist" in Siemens and Nixdorf technology in this area, claims Bernhard Wobker, who is to be in charge of products planning.

The core of the Siemens Nixdorf Informationssysteme personal computer range will be based on AT and Micro Channel buses, with MS-DOS, Unix and OS/2 operating system options. An 80386SX-based Micro Channel machine is also expected shortly, and 80386- and 80486-based versions will be available mid-1991.

All technical changes to products that have already been announced - such as the controversial move to Intel chips and AT&T Unix System V.4 for the Siemens MX range (UX Nos 288, 294), and the switch to the Motorola 68040 processor for the Targon/31s - will be supported and continued by the new organisation. As planned, the Targon/33 will become the fault-tolerant offering within the Unix range, and the Targon/35 will be the first to be equipped with a RISC chip from MIPS Computer Systems Inc - Siemens WX workstations will be RISC-based from mid-1991. Siemens Nixdorf will develop an application programming interface based on standards and the most important elements of the Sinix and TOS Unix implementations: "We want to make it quite unequivocal to our existing customers that their investment in application software is protected now and in the future", states Wobker. The interface specification - labelled SNI-API - will be published and developers encouraged to write to it, he continued. The outdated Quattro/8870 line will be kept on, despite the fact that virtually no new business is coming from this range at all - a clear response to the 80,000 users of the business computer. On the other hand, development of Nixdorf's 8890 IBMulators will be stopped - a move expected ever since Nixdorf decided that its future lay with Unix - but support for existing installations will continue. Wobker is hopeful that 8890 users will prefer to migrate to the BS2000 system, rather than remain in the IBM world by opting for the IBM variant offered by Comparex Informationssysteme, with which Nixdorf made a deal some time ago to unburden itself of its 8890 clients. To underline Siemens' commitment to its proprietary mainframe, the performance at the top end of the BS2000 line will be increased to 500 MIPS; new 1 to 20 MIPS machines are planned for use with a number of cheap office application peripherals.

Wasting asset

In the areas of communication and networks, Siemens Nixdorf is basing its products on a number of protocols, de facto and official standards including TCP/IP, the open systems interconnection model, LAN Manager, proprietary and public network types and integrated services digital network services; IBM SNA links will be available for all Siemens Nixdorf systems, and will be supported by future Unix-based Siemens Nixdorf network management systems. In telecommunications, the future is not so concrete - for the time being, all that has been confirmed is that Nixdorf's 8818 digital private branch exchange will remain and continue to be developed; discussions as to how the rest of the Nixdorf and Siemens telecommunications product lines can be harmonised are still going on. Finally, it has been confirmed that all existing support and service agreements will be taken over in their entirety by the new organisation. As a whole, Horst Nasko, chief of Nixdorf and deputy to Siemens' Hans-Dieter Wiedig - expected to head up Siemens Nixdorf - looks to have succeeded in avoiding the asset-stripping that could have occurred following the takeover, but what could emerge as a result of Siemens' concessions is a weaker company - for example, Siemens Nixdorf will be marketing two almost directly competing Unix lines until it can come up with a successor to both. And the main area in which Siemens is determined to stick to its guns - namely, the proprietary, non-IBM-compatible BS2000 mainframe operating system - looks threatened: all non-IBM proprietary mainframe bases are wasting assets these days.

NEW SOFTWARE AND SERVICES FROM AT&T

Last week AT&T Computer Systems announced new network and systems management products and services in its Networked Computing Support strategy. The StarGroup Systems Manager is a graphical front-end tool for doing centralised management tasks. To manage networked personal computers, AT&T is offering the Remote Management Package, which includes support for AT&T's Intel 80486-based StarServer E multi-processor server. Systems management services include 24-hour on-line consultation and call-out support for networks that incorporate AT&T, IBM and Compaq personal computers, and Epson and Hewlett-Packard printers. There is a remote monitoring and administration service for AT&T Unix system-based systems, and an on-line software distribution service. On the networking side, AT&T has moved its StarGroup LAN Manager Server over to Unix V.4 - release 3.4 incorporates Microsoft's LAN Manager technology. New hardware includes a StarWAN 10:4 Bridge, StarLAN 10 Network EISA network access unit and a GPSC-AT/E, general purpose synchronous controller for AT and EISA bus links to SNA hosts and X.25 networks.

INFORMIX PUTS INFORMIX-ONLINE UP UNDER NETWARE 386

Informix Software Inc says it plans to deliver its Informix-OnLine database engine as a NetWare Loadable Module for Novell Inc's NetWare 386 operating system in the fourth quarter and reckons it will be the first database server for NetWare 386 to provide fault-tolerant transaction processing. It combines the functionality of Informix-OnLine for Unix with support for the multi-threading and 32-bit architecture of NetWare 386. It also handles information objects which can range from word processing documents, graphs, spreadsheets, digitised images, facsimiles and speech up to 2Gb in size. It includes support for on-line archiving, disk mirroring, fast recovery, and distributed database applications. It has also been enhanced with use of shared memory and group commits, which enable OnLine to send groups of transactions to the disk at the same time. With the multi-threaded architecture, several users can share the same database engine process, reducing the drain on the central processor. It costs \$5,000 for an unlimited number of users.

PYRAMID TO HELP UNIFY WITH ACCELL 4GL SERVER

The only time a company ever admits that its hardware or software product doesn't run at just below the speed of light is when they introduce a faster version. Now Unify Corp is to boost the performance of its Accell 4GL product line in conjunction with Pyramid Corp, with the aim of making it more suitable for the high-performance transaction processing applications that Pyramid is interested in. The co-development project will result in an Accell 4GL application server, allowing as many as 1,000 users to share the 4GL resource through workstations, X-Terminals or dumb terminals. The work involves multi-threading the Accell Manager, making 4GL code re-entrant so that only a single copy is needed at runtime, and caching 4GL code in shared memory, so that hundreds of users can access the re-entrant applications. Communications between terminal drivers and the application will also be improved to boost terminal I/O performance. No dates on availability were given.

BANYAN HAS PRICEY SYMMETRIC VINES FOR COMPAQ SYSTEMPRO

Marlborough, Massachusetts-based Banyan Systems Inc claims that its Vines SMP is the first multi-processing personal computer network operating system, and the first such system to support Compaq Computer Corp's Systempro servers with two 80386s, two 80486s or one of each. All server-based network applications and services run on whichever CPU is available, and it is compatible with the other Vines. It is designed to support up to eight Intel microprocessors and versions for other multiprocessor machines are planned. It ships for Systempro this month at \$14,000.

PROGRESS VERSION 6 LAUNCHED IN UK

Progress Software Inc has released version 6 of its fourth-generation language and relational database management system in the UK. The new edition incorporates two-phase commit architecture, supports integration with multiple - up to 240 - copies of Oracle, DEC Rdb and RMS, and its own databases, as well as X-Windows, Presentation Manager, Motif, Open Look, Open Desktop and DEC Windows interfaces. Privately-owned Progress - it has UK offices in Basingstoke and Sheffield - claims 40,000 licencees of its technology worldwide, 2,000 of them in the UK, and says discussions are currently underway with Sybase about the possibility of supporting the Sybase relational database under Progress. Development of an IBM AS/400 version of Progress is now well underway - though the company is still awaiting a decent C compiler for the machine - a release date is scheduled for Spring next year. Progress version 7 is expected to encompass enhanced support for graphics toolkits.

NCR HAS A WIRELESS LOCAL AREA NETWORK RUNNING AT 2Mbps

NCR Corp is the first of the majors to move into the embryonic field of wireless local area networks with the launch of WaveLAN, and sees it being used for short-term installations and by users that are constantly changing the topography of their local net. It runs at 2Mbps against 10Mbps for Ethernet, and uses spread spectrum technology, where data is dispersed across a range of radio frequencies. It is compatible with Novell Inc's NetWare 2.1X network operating systems. It supports the IEEE 802.3 Ethernet protocol. NCR is working on a 10Mbps version and plans a NetBIOS bridge for WaveLAN by the end of the year. Drivers to support NetWare 386 and OS/2 LAN Manager are also in the works, as is a Micro Channel adaptor board. It consists of an AT bus board attached to an omnidirectional 3" antenna box it has a reach of 800 feet, but a planned directional antenna will increase the range to five miles. The board and antenna with NetWare drivers costs \$1,400 - that's for each machine on the network. It will be available in November in the US, after Federal Communications Commission approval has been received.

COGENT LAUNCHES ETHERNET CARDS FOR NETWORKED PCs, UNIX

Cogent Data Technologies Inc, Friday Harbor, Washington, has introduced a line of Ethernet adapter cards for networking personal computers running SCO Open Desktop to Unix systems, and fault-tolerant, high-speed disk controllers for Open Desktop, Unix and Xenix-based systems. The E/Master Ethernet cards support PC AT, PS/2 MCA and EISA bus-based machines and drivers include those for AT&T Streams LLI for Unix applications. MS-DOS and OS/2 connectivity is supported via NetBIOS and TCP/IP drivers, and an NFS protocol module is available for connecting to Sun Microsystems workstations. Cogent claims a file transfer rate of two megabits per second and prices start at \$700 per E/Master card. The DiskMaster/x disk controller is said to have automatic fault detection and recovery facilities such as drive mirroring and dynamic hot fixing of bad media. It supports up to four hard drives and can accommodate PC AT class ST506 and high-capacity EDSI hard disks in any combination. It comes with drivers for SCO Open Desktop 1.00y and SCO Xenix 386 version 2.3. Out now, it costs \$700.

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Control Data Corp's Intergrated Information Systems division, Pleasanton, California, has signed an OEM deal with Uniplex for its Business Software in a deal said to be worth several million dollars.

AIX watcher Harley Hahn has observed a little-noticed fact in IBM's mammoth mainframe announcement: System 9000 models 190 and above will support AIX/370 1.2 as a guest under VM. He figures the smaller rack-mounted models just don't have enough memory or disk to make the enterprise worthwhile. Now Hahn is left to wonder when there'll be an AIX/390 version 3 available.

The European Centre for Medium-Range Weather Forecasts, Reading, England, is to install one of San Jose, California-based Ultra Network Technologies Inc's one gigabit per-second UltraNet network later this year: with a capacity for connecting up to ten FDDI-type local area networks, the Centre will improve the links between its Cray Y-MP supercomputer, IBM 3090 mainframe and other workstations - it will be the first UltraNet installation in the UK.

Berlin-based UniWare Computer GmbH, and Uniplex Deutschland GmbH, Munich, have signed a technical agreement to integrate Uniplex's Business Software with UniWare's secure UniDesk office software: first prototype was presented at the German User Unix Group '90 conference.

A new survey of member's attitudes from the US UniForum Unix users group reveals that problem of integrating databases comes top of the list of problems that should be given priority in standards efforts: it is followed in descending order by graphical user interfaces, networking technology, windowing software and device driver interfaces.

Following the blitz of Unix announcements expected tomorrow, Tuesday, Xerox Corp is holding US and European press briefings on Wednesday 19th, at which it is likely to reveal network and groupware applications running on a series of workstations built around Sun Microsystems' Sparc processor, together with integration and consultancy services: the effort marks the company's attempt to claw back some of the IT ground it has lost over the last decade, that despite its being responsible for some of the pioneering developments in workstation, networking and user interface technology.

West German company Ingenieurburo GmbH is now getting prototypes of its microprocessor that combines Risc and Cisc features: a US foundry is producing 25MHz versions the 32-bit part - dubbed the Hyperstone - which is aimed at embedded systems and peripherals; Hyperstone was designed by the German outfit which is headed by Otto Mueller, formerly with IBM's Thomas J Watson Research Centre.

Retix UK Ltd, Guildford, Surrey, is offering a new Ethernet bridge for local area network users: the Retix 4660 runs a Motorola 68020 processor and costs £2,950.

Unitech Software Inc, Reston, Virginia, has a new password management and control package, Upass, which is claimed to incorporate US Department of Defense guidelines for security password management: Upass has been implemented as part of Unitech's Usecure 3.0 system security administration system, licences go from \$1,000 to \$4,000.

In the US, Electronic News reports that Amdahl Corp has scrapped the supercomputing project under development at its Key Computer Laboratories subsidiary: Amdahl hoped to get in to the supercomputing business on the back of Key, which it acquired in February last year, (UX No 217), apparently the mainframe builder was unable to enlist the Unix software support needed for the machine's proprietary Fujitsu-designed ECL chip-set.

The Brussels-based Society for Worldwide Interbank Financial Telecommunication - SWIFT - which transmits money and financial data between banks and institutions, has ordered three Stratus XA2000 68030-based fault-tolerant systems worth \$2.3m which it will use as part of a service that will transmit accounting and credit request data from 1991.

And although Stratus Computer plans to move to AT&T Co's Unix System V.4 - its FTX is presently System V.3.2-based, it is not supporting it blindly, and has announced that it will also support the rival Open Software Foundation's Distributed Computing Environment under both its FTX Unix System V and VOS operating systems; the Marlborough company is a member of both the Foundation and of Unix International.

Corollary Inc, Irvine, California, has signed up UK firm European Marketing & Sales Ltd, Heathrow, to open up distribution channels for its multi-port subsystems in Europe.

UK software firms JSB Computer Systems, Macclesfield, Cheshire, and IXI Ltd, Cambridge, have teamed up on a package that will allow Unix system users to run Microsoft Windows 3.0 environment as a front end to their Unix applications - with additional X-Windows functionality. The as-yet unnamed product will be unveiled at the Open Systems '90 show in London's Olympia which runs from November 7-9. It is said to be a combination of JSB's Multiview MS-DOS/Unix integration technology and IXI's X-Windows management software on which the two have been working for sometime.

Separately, IXI has appointed three new distributors for its X.desktop manager: Avnet Computer, Los Angeles, California; Workstation 2000, Munich, West Germany; and London-based Amarante.

Meanwhile Unipalm's XTech division - neighbour to IXI in Cambridge - will be launching development and users kit based upon OSF/Motif 1.1 at the European X Users Group show at Surrey University on 25 and 26 September. XTech says it is on the verge of signing deal "with several major companies".

Also on the user interface front, TeleSoft, San Diego, California, has released TeleUSE, a set of tools for creating interfaces based upon OSF/Motif: independent of the application code, TeleSoft claims TeleUSE reduces development time by 50% or more.

Unix International's ISV program aimed at getting DOS developers writing to SVR4 is chugging along: it held its first developers' seminar in Boston last week and fifty companies showed up. To date, it's gotten ninety firms to commit and has some eight hundred leads to sort through.

Real Time Systems Ltd, which lives on the Isle of Man off the UK's North West coast, has released Version 4 of its transIDRIS Unix-alike operating system for the Transputer: it offers better performance and response time, wider host support, additional utilities and better documentation, and now conforms to Posix 1000.3.

Alliant has added a DNX/LAT capability to its FX/Series supercomputers to allow them to be hooked into DEC's Local Area Transport Services for VAX network users: the company says it provides an easy migration path between VAX/VMS and Unix.

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AT&T SPELLS OUT SECURE, MULTI-PROCESSING UNIX, CHOOSES SEQUENT AS MAJOR PARTNER...

After months of speculation, AT&T's Unix System Laboratories, USL, has called up a battalion of hardware and software firms to work with it on the next generation of Unix, as well as the secure and symmetrical multi-processing versions of the current SVR4 release promised in the Unix International Road Map. A standard symmetrical multi-processing implementation of Unix - SVR4 MP - is due out in the first half of next year on Intel and Motorola architectures. USL says it will support systems with more than 10 processors, and is being developed in conjunction with Intel Corp, Motorola Inc, NCR Corp, Olivetti & Co, Oki Electric and Unisys Corp. With Amdahl and the old Gould unit of Motorola, USL is working on SVR4 ES, a secure version of SVR4 due out in the same 1991 timeframe and already available to members of Unix International's early access programme. Further afield, an advanced, full symmetric multi-processing version of Unix called SVR4 ES/MP will be released in 1992 for up to 30 processors. As expected, (UX No 286), USL's prime developer on this project is Sequent Computer Systems, which has licensed base technology in its Dynix/ptx operating system to USL, including the file management system, input/output sub-system, memory management and parallel Streams capabilities. Other partners in this effort are ICL, Intel, Fujitsu, Motorola, Pyramid, Unisys and AT&T, however Sequent's Symmetry system is both the development platform and the reference platform for ES/MP on 80386 and 80486 boxes.

...CALLS UP VERITAS FOR COMMERCIAL SYSTEM V DEVELOPMENT

USL has also signed up Veritas Software Corp, Santa Clara, California, to develop disk and file management products which will improve support for data intensive applications in Unix SVR4 - also part of the Unix International Road Map. First fruit of the agreement is Veritas' VxVM Volume Manager virtual disk management system - expected by the end of the year - aimed at commercial on-line transaction processing, database management and network application users, which allows Unix to span multiple disks. It includes disk mirroring, disk striping and on-line disk reconfiguration, back-up, performance analysis and tuning. A Unix file system-compatible fast recovery file system, visual administrator and configuration management software will follow in the first quarter of next year. Pyramid Technology, and Sequent Computer Systems have also signed agreements with Veritas, and Intel Corp, NCR Corp, Prime Computer Inc, Wyse Technology Inc and Unisys Corp have said they will take VxVM.

NCR HAS 35,000 SOFTWARE PACKAGES FOR OBJECT-COMPATIBLE INTEL LINE - LAPTOPS TO 200,000 MIPS PARALLEL PROCESSOR

NCR Corp revolutionised its product and marketing strategy last week with the introduction of a seven-layer single architecture product strategy based entirely around Intel chips and using high-speed implementations of IBM's Micro Channel Architecture - claimed to be the most important announcement in the company's 106-year history. The move, confirming a story first reported here back in April (UX No 278), means that the company is turning its back on its established Motorola-based line of Tower systems, as well as the proprietary I Series and V Series mainframes - all of these, however will be continued and enhanced for some time to come, with NCR introducing a 68040 upgrade only a few weeks back. The seven product layers range from low-end portables up to a massive 4,096 processor machine using 50MHz 486s, 100Gb memory, disk capacity in the terabytes and performance of some 200,000 MIPS, due 1993. The systems will run MS-DOS, OS/2, SCO Unix or Unix System V.4, and support the Microsoft Windows, Presentation Manager and OSF/Motif user interfaces, with IXI's X.desktop and Visionware's PC-Connect and XVision. Launched last week were six machines covering levels 3, 4 and 5: the 3320, 3340 and 3345 costing from £3,000 to £36,000 in the UK; the 3445 and 3450 servers, with 64-bit wide memory bus (£12,000 to £50,000); and the 3550 loosely-coupled symmetric multi-processor running Unix V.4 (£63,000 to £500,000), and rated at 320 MIPS, using one to four 50MHz 486s and an 80MHz MCA bus. Laptops will be out next year, and 1992 will see availability of the 3600, with 100 80486 processors delivering a claimed 4,000 MIPS. NCR claimed that it had over 35,000 software packages ready to run on its new 3000 series; namely 25,000 MS-DOS packages, 1,000 OS/2, 6,500 SCO Unix, 350 Unix V.4, and another 2,300 database applications for V.4; the most for any new computer series ever, the firm claimed. NCR is following up its move with further announcements on Co-operative Computing on the 9th October, followed two weeks later by more networking announcements.

XEROX UNVEILS FRUITS OF THREE-YEAR SPARC EFFORT

Xerox Corp and its Rank Xerox affiliate has revealed the first fruits of the monster \$200m OEM contract with Sun Microsystems Inc, launching the Sun Sparcstation IPC as the Xerox 6520 workstation, with its GlobalView document processing software bundled. It also plans to make GlobalView available on third party machines under Unix and OS/2. The 6520, to which Xerox contributed the interface, screen and keyboard technology, comes with 8Mb to 24Mb of memory, 200Mb disk, Sun Sbus and SCSI interfaces, runs SunOS 4.1 and starts at \$15,000. GlobalView, an integrated document environment combining graphics, word processing, imaging, scanning, publishing, printing, electronic mail and terminal emulation, is also being offered as a hardware-software combination for 80286, 80386 and 80486 AT bus machines running OS/2 at \$12,000 with 4Mb and a 19" monochrome screen. Both new products ship in November. The company plans to offer the board in its own personal computers next year - when it has signed an OEM agreement on the machines with an unidentified manufacturer. The 6520 workstation is the result of a three-year technology agreement signed with Sun in October 1987 (UX No 152): the pact will be renewed next month. Xerox plans to offer GlobalView "on a small number of carefully-chosen Unix" machines in the future. GlobalView, derived from the environment on the original Xerox Star workstations, runs on the company's existing 6085 machines, which will be phased out over time. It took 30 months to convert the 2m lines of code to run on the Sparc under Unix. Xerox will add PostScript and Hewlett-Packard LaserJet compatibility and full colour printing services to GlobalView next year. It is also doing further development work on the Open Look Unix user interface with Sun, and says that new hardware under development at its Palo Alto Research Center will also feature in future Sun workstations.

NEXT GAMBLES EVERYTHING ON FULL LINE OF 68040 SYSTEMS

In what is likely to be the company's last chance to make an impact on the market - Canon Inc and Ross Perot can't go on bankrolling it for ever - Steve Jobs' NeXT Computer Inc has announced a successor to the NeXT Computer System, which it quietly stopped selling in May. The new systems include the 8Mb NeXTstation, with Toshiba Corp's 2.88Mb 3.5" floppy and 105Mb Winchester at \$5,000 with mono screen; the \$8,000 NeXTstation Color 16-bit, PostScript colour version of NeXTstation; NeXT cube, an \$8,000 expandable machine with flexible configuration options that can be used as a server or high-end desktop computer; and NeXTdimension, a high-end, 32-bit PostScript colour board at \$4,000. The NeXTstation and NeXTcube ship in November, the other two by March next year. The machines come with Release 2.0 of the Unix-derived Mach operating system. But NeXT is betting everything on Motorola being able to deliver 25MHz 68040s in sufficient quantities and when will it receive 15,000 from Motorola just for the initial orders? Full details, page 4.

NCR HEADS FOR \$25,000m REVENUES BY 1995 WITH NEW "BET THE COMPANY" OVERHAUL

Maureen O'Gara reports from New York

Ever since NCR Corp cleared out all its mechanical cash registers, dumped its peripheral interests such as its Appleton Papers subsidiary - just floated off with Wiggins Teape by BAT Industries Plc in the UK - and threw all its energies and ingenuity into developing and marketing computers that offered dramatically better price-performance than those of all its old-line competitors, starting with the launch of the Criterion mainframe line in 1976, the company has steadily built itself into a position where it can justly be regarded as the best-run of the traditional US mainframers. That perception has now been given its fiercest test yet, following the announcement last week of a new "bet the company" strategy comparable in scope and daring to IBM's System 360 launch way back in 1964.

Dazzling multiprocessor

The Daytoner announced a complete overhaul of its entire product line and unveiled a completely new seven-layer product strategy embracing everything from little laptops to a dazzling 240,000 MIPS multiprocessor, all based strictly on Intel iAPX-86 family chips, all object code-compatible and running MS-DOS, OS/2 or Unix. An NCR source said the massive restructuring, three years in the making, was based on a business plan intended to propel NCR from its current \$6,000m-a-year in revenues to a whopping \$25,000m by 1995. The plan has meant the entire restructuring of the company, the source said, not just the product line. Sales and management structures were found to be wanting and had to be revamped. The source said that the new product strategy had been in "concept test" for the last year and in actual test in the last three months, and claimed that it is proving a hot item with both old and new customers. At the launch last week, which focused heavily on multiprocessing as the touchstone for the 1990s, NCR claimed that its new mid-range machines completely obsolete mini-computers, beating out any DEC VAX at a quarter the price. And in NCR's view, an IBM System/390 will merely be a mid-range machine reduced to the role of data repository with 80486 machines hanging off it.

Although all currently available machines are NCR designed and manufactured, at the low end, NCR is thought to be looking very hard at the Slate stylus-driven laptop from start-up Go Corp, Foster City, California, to take on an OEM basis - Go's handwriting recognition software has already attracted the attention of IBM - as well as a stylus for handwritten input, the machine also includes a conventional keyboard. Go's machine has yet to hit the market, and NCR, among the first to cut a deal with the company, could be shipping it in February or March. At the opposite end of the spectrum is a full-blown 4,096 processor, \$200,000m high-end machine in four cabinets, the result of its alliance with Teradata Corp, Los Angeles, which won't be ready to ship until the spring of 1992. However, smaller versions will be available before then, all completely scalable. This machine, is a behemoth to contemplate. By comparison, a Cray, at a tenth the price, delivers only 50,000 MIPS. The only competitor NCR is seriously concerned about long-term is Hewlett-Packard Co, which it figures has comparable strategies and comparable capabilities.

Enabling technology

One of the key underpinnings of NCR's strategy is its total embrace of Intel, and its complete rejection of RISC technology. According to an NCR source, the company "is never ever going with RISC because there will never be enough significant software on RISC chips - ever".

The RISC market, NCR reckons, is simply not big enough, or likely to grow big enough, to attract the independent software vendors. To prove the point, the source brought up the case of MIPS Computer Systems Inc, which after three years of trying to get its technology accepted, has accumulated only 200 software vendors to write for its chip family. Another of NCR's enabling technologies is the IBM Micro Channel Architecture bus, which in high-speed 20MHz and 80MHz versions gives it the bandwidth it reckons it needs. NCR reportedly just formed an alliance with IBM, swapping its Small Computer Systems Interface disk controller technology for a Micro Channel licence. A third keystone is the recent agreement between Intel, AT&T Co and Santa Cruz Operation Inc on a binary standard for 80386 and 80486 Unix. The source claimed that NCR was behind the agreement and worked for months on it, crediting senior vice-president, General Purpose Products Group, Tom Mays with finally bringing it off. The agreement is central to NCR's strategy, the source explained, saying "the better and more embracing the standard, the better our story". NCR intends to run both Unix System V.4 and Santa Cruz Operation's SCO Unix on its machines. SCO Unix will go right up the line to the multiprocessors, which it is currently unable to support, although the source indicated that there are discussions under way with Santa Cruz that may change all that - sounds like the multiprocessing extensions to Santa Cruz Unix developed by Corollary Inc. And NCR has been heavily involved in the proposed multi-processing extensions to Unix V.4, announced by Unix International and Unix System Labs on the same day.

Tower victim

One of the victims of the overhaul is the famed Tower, NCR's highly successful Unix box, which is estimated to have an installed base of 100,000 units. With its old Motorola chip architecture, the machine can't maintain a leading edge on the price-performance curve. So NCR is scrapping the Motorola line in favour of the Intel chips for the next generation, and users will have to recompile their software to move from Unix System V.3 to System V.4. NCR figures it will have to have two Unix lines, the old and the new, at least until the end of next year. The glue that will hold all the pieces together is NCR's Systems Application Architecture-like Co-operative Computing Environment, in which elements like the Open Software Foundation's OSF/Motif, Hewlett-Packard's object-oriented NewWave environment, and a strategic alliance with Microsoft Corp for Lan Manager will all feature. The NCR source did not underestimate the risks the company is taking with its game plan. It is very much a matter of Russian Roulette. The company had a close scrape with utter ruin back in 1972 when it failed to move from mechanical to electronic cash registers. It only stayed alive because the bankers let it. It is a memory very much on NCR's mind today.

KODAK LAUNCHES SPARC-BASED PHOTOGRAPHIC SYSTEM

Eastman Kodak Co last week announced a new photographic system jointly developed with Philips NV, which uses Sun Microsystems Sparcstations. The SPARC-based system can scan 35mm negative film images and write them to compact disks. The pictures can then be played back on television with new Kodak Photo CD players made by Philips, expected to list at around £300. Available in 1992, the system is targeted not only at the publishing industry, but also at the general public. People can ask to have holiday snaps stored on compact disk - 24 images will cost £9 - as well as being developed in the normal way, meaning no more lost negatives. In addition Kodak has new image manipulation software expected in the second quarter of next year. Planned for use with Photo CDs in computers, it runs in Unix, MS-DOS, OS/2 and Macintosh environments.

IBM, MICROSOFT RECAST OS/2 RESPONSIBILITIES

IBM and Microsoft Corp have realigned responsibilities on OS/2 development, with IBM taking primary responsibility for developing 16-bit and 32-bit OS/2 on Intel chips, and Microsoft doing the planned versions for RISCs. IBM also reaffirmed its intention to reduce the entry requirements for OS/2 to 2Mb, converge LAN Manager and LAN Server and make the functions of OS/2 Extended and LAN Server available to all OS/2 users. According to a report in the New York Times, executives of the two companies met over the weekend to try to clarify their OS/2 relationship, suggesting that IBM was keen to launch the slimmed-down 2Mb version of OS/2, while Microsoft wanted nothing to do with it because it might crimp sales of the highly successful Windows 3.0. Pre-release versions of 32-bit OS/2 ship this year. IBM also licensed Windows and renewed its MS-DOS licence.

DELL US GOES RETAIL WITH SOFT WAREHOUSE

Dell Computer Corp, Austin, Texas, this week announced a deviation from its traditional mode of selling its popular range of PCs in the US. Until the exclusive agreement with Soft Warehouse Inc, Dell's entire product range has only been sold directly in the US. Under the terms of the agreement Soft Warehouse will sell Dell's 11 machines, ranging from laptops to Unix boxes, throughout its 13 superstores until 1994. Dell points out that it will continue to sell directly and that this new channel is intended for those that need to "touch and feel" before they buy. Soft Warehouse was chosen because, according to Dell, it is the US' largest superstore and the most financially respected. All systems purchased through Soft Warehouse will receive the same support as those sold directly.

INFORMIX PROMISES SECURE DATABASE TO PENTAGON B1 LEVEL

Informix Software Inc, Menlo Park, California has announced plans for a multi-level secure version of its Informix-OnLine database engine. Informix-OnLine/Secure will add security features "expected to achieve the US Department of Defense B1 security rating" to the fault-tolerant and multimedia capabilities of the standard OnLine, and will be offered for all major secure versions of Unix and across a wide range of Unix-based systems. Planned security features include mandatory access control, multiple security levels within the database, selectable auditing of security-relevant events, and close co-operation with the underlying secure Unix. It is also planned to include SQL's discretionary access controls, which enable the database owner and other designated users to decide who can read or update which sets of data. OnLine/Secure is currently scheduled to be available during the first half of next year.

APPLE JOINS OSF AND UNIX INTERNATIONAL...

Apple Computer Inc has decided to remain neutral in the Unix Wars and has joined both Unix International Inc and the Open Software Foundation in the hope of getting earliest access to emerging Unix technologies. It is thought that Apple was persuaded to join Unix International first, and then joined OSF. Apple says that its A/UX 2.0, which adds the Macintosh user interface to Unix, will comply with the X/Open Portability Guide. A/UX 2.0 enables users to have a single system on their desktop for all their daily work, including Macintosh, Unix and X Window System applications and MS-DOS and Motif programs using third-party products.

...AS NCR JOINS OPEN SOFTWARE FOUNDATION

And NCR Corp, widely credited as the prime force behind the foundation of Unix International, has joined the Open Software Foundation, according to a source at the company. The reason is that NCR is supporting the OSF/Motif interface, and plans to support the Distributed Computing Environment. The source was quick to add that NCR has taken out the lowest level of membership. The announcement is expected in the next few weeks.

BULL "MUST FIND PARTNER" - SAYS FRENCH INDUSTRY MINISTER

French industry minister Roger Fauroux, who headed St GobainPont-a-Mousson SA when the previous administration delegated that company to take strategic control of Bull SA, said yesterday in an interview with Les Echos that state-owned Bull should forge a European alliance - and that only Siemens AG and Ing C Olivetti & Co SpA were big enough to make such an alliance worthwhile; under Fauroux, Bull and Olivetti attempted a broad-brush alliance on office systems, but the relationship fell apart after the change of government; in terms of industrial logic, Olivetti would make the better partner for Bull.

DOLPHIN TRITON88 HAS OEM DEAL WITH CETIA SA

Norsk Data A/S affiliate Dolphin Server Technology A/S has won a major coup in the francophile world. In Oslo, a deal has been signed by the Cetia SA subsidiary of ThomsonCSF SA, under which the French company will take non-exclusive worldwide distribution rights for the one to four processor Triton88 high performance servers built around the Motorola 88000 chip. Cetia already builds an 88000-based workstation, the Cetia 88K, and like the Norwegian company is a member of 88Open. SGS-Thomson Microelectronics NV has second-source rights to fabricate the 88000, for military applications only.

BRITISH TELECOM GIVES £1,000m SYSTEM X ORDER TO GEC PLESSEY

British Telecommunications Plc has given GEC Plessey Telecommunications Ltd a new £1,000m supply contract for its System X exchanges between now and March 1992 - covering 3.25m lines in each of the two years. The order means 85% of Telecom's exchanges will continue to be System X. GEC Plessey is currently designing new-generation System X switches using the Motorola 88000 RISC processor and the Chorus Systemes distributed operating system (UX No 269).

DEC LATE WITH MULTI-PROCESSING RISC

Problems with its symmetrical multi-processing technology mean that DEC has only just begun shipping its DECsystem 5800 series of servers scheduled for June delivery, according to US reports. Apparently DEC has had difficulty integrating the three-processor 5830 and four-processor 5840 RISC systems with the symmetric multi-processing version of its Unixlike operating system Ultrix 4.0. Technology News says DEC is quietly advising prospective 5830 and 5840 customers to wait until next month when the DECsystem 5500 is expected to be unveiled. The 5500 is a uni-processor Ultrix server with a performance that is said to be competitive with the 5800 series.

STARDENT LAUNCHES STILETTO DESKTOPS, EXPANDS HIGH-END WITH 3000VS MODELS - STELLAR, ARDENT SOFTWARE CONVERGES

As expected, Stardent Computer Inc contributed to last Tuesday's Unix festivities by announcing a new low-end desktop series and additional high-end machines, (UX Nos 262, 292). Although the company has still not shaken off its parental apron strings - the new systems are built around technology derived from the former Stellar side of the company - it says they offer source-code compatibility with the entire Stardent range, and binary-compatibility with the 3000 "Titan" Series from the Ardent side of the marriage launched at the end of last year, (UX No 260).

On the desktop, the Stardent 500 Stiletto series is built around 32MHz versions of MIPS Computer Systems' R3000 RISC chip, each with a tightly-coupled Intel i860 RISC part acting as a vector co-processor. Each processor is rated by Stardent at 32 MIPS and 48 MFLOPS giving an overall performance of 64 MIPS and 96 MFLOPS. They run version 3 of the Application Visualisation System graphics subsystem from the Stellar side of the company which uses two i860s for three-dimensional colour pixel and polygon processing - but also support Ardent's three-dimensional graphics library Dore - Dynamic Object Rendering Environment. They are claimed to perform 190,000 three-dimensional vectors, and 40,000 100-pixel gouraud-shaded triangles operations per second. Running a version of AT&T's Unix V.3 operating system, and the PHIGS+ graphics standard, each is said to run all software currently available on the current 3000 series. Stilettos are available in one- and two-processor desktop and server configurations with Ethernet, UltraNet, NFS, TCP/IP and DECnet, starting at \$18,000 for a single-processor diskless OEM version, going to \$70,000 for a fully-configured dual-processor model. A single-processor model with 16Mb memory, 250Mb disk and 16" colour monitor comes in at around \$39,000. Stardent says more than 175 Stilettos have already been ordered by 20 of its current customers, including Picker International, which will use them as the basis of what it describes as the "world's first medical imaging supercomputer."

The Stardent 3000VS Series Visualisation Systems are essentially the Ardent-based 3000 systems running Stellar's VX graphics subsystem, using the same 32MHz MIPS R3000 part, available in one to four processor configurations, offering a top-end performance of 128MFLOPS going from \$100,000 to \$300,000. They are available as upgrades to existing 3000 system users for \$30,000. Stardent has also signed marketing agreements with a number of software houses to provide additional software on the new machines. Visix Software Inc's Looking Glass user interface is available for \$2,500 - \$500 on the Stilettos - along with UltraNetwork Technologies' UltraNet networking technology. Ingres will be offered on the 3000 from December - on the 500 in the first quarter of next year - along with Unify's database technology on the 3000.

NEW GENERATION NEXT MACHINES ADDRESS THE FAILINGS OF THE OLD

Steve Jobs sought to breathe new life into his struggling Unix workstation venture NeXT Inc today, when he unveiled a new systems family based on the Motorola 68040 microprocessor. As anticipated, the new systems include low-cost desktop and colour systems, have dozens of new applications, and provide performance matching or exceeding today's popular desktop systems at a much lower cost. NeXT also introduced Release 2.0 of its system software, which is binary compatible with Release 1.0, but with new features such as an enhanced graphical Workspace and integral support for fax, colour, DOS floppy disks and international languages. Other software that comes as standard includes the NeXTstep graphical user interface, electronic mail and Display Postscript, plus word processing and mathematical analysis applications and TCP/IP and NFS networking.

Coming in a pizza-box style configuration reminiscent of Sun's Sparcstation, which Jobs repeatedly said the new box bested, the NeXTstation is priced at an aggressive \$5,000 in single quantities. It has a 25MHz 68040 processor, 8Mb RAM (expandable to 32Mb), 105Mb hard disk (expandable to 340 Mb), 2.88 IBM compatible floppy, monitor, keyboard, mouse and two Ethernet ports. The second system is NeXT's low-cost colour entry, with integrated colour display for \$8,000. At the high end, NeXT has retained the cube configuration with the NeXTcube network server, which has greater expansion options. Basic configurations cost \$8,000, with options for a 256Mb optical disk and/or 340Mb, 660Mb or 1.4Gb hard disks. CD-ROMS are also supported, and memory can range up to 64Gb. Then comes the NeXTcube colour system, which adds an i860-based graphics co-processor board supporting 32-bit colour. Colour Postscript within NextStep 2.0 supports the display of 16 million on-screen colours.

With a slight touch of humility, Jobs admitted NeXT's past mistakes, directly addressing the failings of the original NeXT workstation - too slow, too expensive, no applications and no colour. The 68040 - despite its current lack of availability - rivals the SPARC chip in the Sparcstation 1, with a 14 to 15 MIPS performance, and according to Jobs beats Macintosh, IBM and Compaq desktop systems in both performance and price. On applications, Jobs trotted out three of the five biggest DOS software vendors - Lotus, Ashton-Tate and WordPerfect, with both Lotus and Ashton-Tate introducing new spreadsheets designed to take that software category into its second generation. Jobs said NeXT now has about 40 applications, with 100 promised for the end of the year. The all-important "compelling application" for NeXT will be something that Jobs calls "interpersonal computing", which will facilitate group interaction to accomplish common goals and business tasks, and including multi-media support (including voice annotation, fax support and video) for its electronic mail.

As for its current lack of customers, Jobs unveiled 15,000 new orders from customers such as First Boston, O'Conner & Associates, Bozell Inc and New Albion Records. Under questioning, Jobs elaborated that these were all new orders, not upgrades, and ducked the questions of the current installed base - estimated at between 5,000 and 15,000 by various industry analysts - saying only that the new orders will "substantially increase" NeXT's installed base - Philip Gill in San Francisco.

FEAR, UNCERTAINTY AND DOUBT GRIPS UNIX COMMUNITY

A strange fever has been gripping the Unix community of late, according to sources exposed to the contagion. The infecting virus is most likely a FUD mutant - a severe dose of Fear, Uncertainty and Doubt. The chief symptom is an overwhelming desire to negotiate. Never before, they say, have so many feelers been out to so many different (and nominally opposing) camps all at the same time. They hint that even the Open Software Foundation and Unix International have caught the bug, but not severely enough to induce Unity. Unfortunately, in its preliminary stages, a form of delirium sets, in causing the sufferer a lack of agenda. Hence the observer is presented with only imprecise data. However, it's claimed the only cure will be a resolution of the incompatibilities currently besetting Unix in such areas as the base operating system, graphical user interfaces, RPCs and naming procedures.

SYBASE PRODUCTS TURN IBM MVS HOST INTO NETWORK SERVER

Sybase Inc, Emeryville, California has launched three products for turning IBM MVS mainframes into network servers. Sybase2 Open Server for CICS provides access to all MVS data, applications and services; Open Gateway for DB2 offers the capabilities of Open Server for CICS plus an SQL-based gateway for turnkey access to DB2; and Net-Gateway is a network gateway that controls and monitors the communication between client computers and the IBM host. Open Server for CICS and Open Gateway for DB2 are Systems Application Architecture-compliant and support CPI-C, APPC and LU 6.2 protocols; the former is \$75,000 to \$155,000, the latter \$100,000 to \$210,000 from next quarter; Net-Gateway, \$1,260 to \$64,800.

AMDAHL LEAPFROGS IBM AND FUJITSU WITH EIGHT WAY MAINFRAMES

Amdahl Corp yesterday joined the game of leapfrog being played by the four contenders in the IBM mainframe world, claiming that the top-end models of its new 5995M series - which like Fujitsu Ltd's M-1800 tops out with an eight-way multiprocessor - are the most powerful mainframe computers ever introduced for the IBM compatible market. The company is talking in terms of topping out at 330 MIPS, where the new IBM 9021-900 is estimated at 212 MIPS. The 5995 line comprises 10 new models, six immediately available 5995A kickers for the 5990s, and four 5995M models. Six-and eight-processor M models will not ship until the second quarter of 1992, the other 5995Ms follow hard on the heels of IBM's Summit in the fourth quarter of 1991. The 5995-8650M eight-way multiprocessor is claimed to offer nearly three times the throughput of any previous Amdahl mainframe and costs a daunting \$32.1m in minimum configuration, with 512Mb of main storage and 128 channels, expansion up to 512 channels, and up to 10Gb processor storage. The 5990 kickers have a 10nS cycle time "the fastest of any system currently on the market" The 5995s all support IBM's ESA/390 architecture and the new MVS/ESA and VM/ESA releases as well as Amdahl's UTS Unix System V. Despite following Fujitsu with eight-processor models, Amdahl insists that the 5995M models are full Amdahl designs, and have less in common with their sibling machines from 46% shareholder Fujitsu than some previous Amdahl generations have done.

ACER OEMs ICL'S SPARC-BASED DRS 6000

ICL's new DRS 6000 Sparc-based Unix line is beginning to make its mark on the OEM market, and the latest deal is with Acer Corp's Acer Sertek division, which signed to distribute DRS 6000 for three years, initially in Taiwan and then across Asia as the Acer System 6000. Sun Microsystems signed a similar pact for the US in July. Acer supplies some ICL personal computer models.

ORACLE CUTS 400 US JOBS IN MOVE TO SLASH COSTS...

Oracle Corp is cutting 400 jobs in the US, 10% of its workforce there - it has 7,000 worldwide - as part of an effort to cut costs now that it has scaled back its growth expectations for this fiscal to 25% from 50%. The Oracle USA Finance and Administration group was consolidated into the Corporate Finance and Administration group and the Oracle USA field operations group has been reorganised, reducing the number of levels in the hierarchy from five to three to reduce the number of sales managers while increasing the number of sales representatives. Peter Tierney has left and all international operations are combined under Geoff Squire.

...SIGNS AGREEMENT WITH HEWLETT-PACKARD, ENCORE

Oracle Corp and Hewlett-Packard Co are to expand their relationship with agreement in principle that Hewlett will put Oracle products among the top of its Preferred Solution Provider programme and Oracle will use HP 9000 systems as reference development machines. Hewlett will consider an option to take orders for Oracle software, and offering its customers Oracle product support. Oracle has established an HP Products Division for the HP 3000 systems and will use Hewlett workstations for its development work on tools for OSF/Motif, and the two will train their sales forces for joint selling of Oracle products on HP 3000s and HP 9000s. And the database company has signed a similar agreement with Encore Computer Corp for the Multimax and future Encore symmetrical multiprocessors. Encore has formed an Information Systems Business Unit to direct worldwide sales efforts, and committed to a multimillion dollar relational database system programme.

UNISYS WOOS IBM SYSTEM 36 USERS - BUT WITH AS, NOT UNIX

Highlighting the damaging schizophrenia afflicting Unisys Corp as a result of trying to get to grips with its open systems and Unix mistress, while having a wife and two proprietary mainframe lines to support, the company has declared war on IBM in its System 36 base, offering complete 36 RPG II support at better price-performance than the AS/400 - but it runs not on the Unix machines but on the A series. The RAMP RPG Application Migration Package has an automated migration facility that converts RPG II programs, related library members and data to native A Series mainframe code to eliminate emulation overhead: programs compile and run as they do on the System 36 but up to three times faster. The special package for System 34 and 36 users includes Workstation Data Link Processors to support IBM 5250 terminals and 522X printers on the Micro A, A1, A4 and A6, which the company claims spans the B20 to B70 AS/400s. The operating environment is claimed to be so similar to the Operation Control Language environment that no operator retraining is needed. The base price for an entry-level RAMP system is \$19,900 with Micro A CPU with 12Mb memory, 280Mb disk, and 150Mb tape drive and the environment.

WYSE LAUNCHES EISA BUS PCs

Wyse Technology Inc, San Jose, California, has introduced two new EISA bus-based personal computers, the Decision 486/33E tower and Decision 386SX/16S desktop. Rated by the firm at 27.5 MIPS, the 486/33E runs a 33MHz Intel 80486 part - a 50MHz version will follow next year - comes with from 2Mb memory, nine EISA slots and floppy drive. It costs £5,615, or £7,485 with 300Mb disk and £8,355 with 660Mb disk, available in December. The 386SX/16S runs a 16MHz 386SX and with up to 8Mb memory, two expansion slots, serial and parallel ports it comes in three versions - all out next month. A diskless model is £995, with a floppy drive it is priced at £1,055, and configured with 40Mb disk it costs £1,435. Both Decisions can run MS-DOS, Xenix or OS/2.

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The weekly information newsletter for the UNIX™ community worldwide

In its multi-processing and secure Unix announcements - see front page - AT&T's Unix System Laboratories, USL, revealed new strategic partnerships with thirteen hardware and software vendors. The SVR4 ES effort is a B2-level secure version of Unix V.4, and is already in formal evaluation by the US National Computer Security Centre on an AT&T 3B2 machine. It will let vendors configure systems with varying degrees of Orange Book security ratings, ranging from C2 to B3, with an assured NCSC-granted B2 security level. No Unix system has achieved B2 clearance before. In fact, only one system, the Unix ancestor Multics, has ever passed the tests. The system will be modularised so that vendors who do not need security will not have to buy it. USL did not release an SVR4 ES pricing schedule.

The standard symmetrical multi-processing SVR4 MP - to which early access is scheduled for the first quarter of next year - will conform to X/Open's XPG3, the System V Interface Definition and device driver and device kernel interfaces at the source level, and the Application Binary Interface at the binary level says USL. Architected for 10 processors and above, it will incorporate multi-threading of the base operating system kernel as well as the input/output and Streams, RFS, NFS and TCP/IP to prevent bottlenecks. The release will be available on the Intel 80386, 80486, i860 and Motorola 88000 platforms. Companies using other chip sets such as Sun Microsystems, ICL, Pyramid Technology and AT&T Computer Systems have promised to make their systems interface-compatible. USL is supposed to have an enhanced DDI/DKI specification ready by the end of this year that will become its near-term and long-range multi-processing device driver standard.

On licensing issues, USL Europe's managing director Bob Mitze says that companies with technology included in the various implementations will receive a corresponding share of the revenue from sales. As far as the future of Unix System Laboratories is concerned, AT&T has yet to finalise the long-promised prospectus that will let it sell off minority shares in the organisation. Senior USL officers are now saying it'll be done by the end of this month or the beginning of next.

Unix System Laboratories also came in for some public criticism from Unix International boss Peter Cunningham last week, for failing to support a common user interface that would embrace Motif, Macintosh and still other unidentified graphical user interfaces - as well as Open Look. It was clear from his remarks that Unix International wants it done, but doesn't have a clue how to get there. USL president Larry Dooling effectively retorted, "which Motif?" - a jab at the product's instability and its incompatibility from one version to another. Unix International member NCR indicated it's anxious to get the support soon, but then NCR is going with Motif.

Lotus Development Corp is bundling a new spreadsheet for the NeXT computer, Improv, with the new machines and upgrades to them from the originals, for the rest of this year, thereafter it's \$700. A new DynaView feature in Improv enables users to view and compare data in different ways without manually rebuilding the spreadsheet. Adobe Systems Inc also launched Illustrator-NeXT Version for first quarter 1991, priced at \$600.

NeXT Computer Inc has finally established full-scale European operations with a president, Theo Wegbrans, from Hewlett-Packard Co, for Europe, based at NeXT UK Ltd in the UK: French and German offices are to be established by year-end.

Insignia Solutions Inc has developed a version of its SoftPC for all NeXT Inc's machines, including the new ones. The software will enable NeXT users to run most MS-DOS software as though its Unix boxes were ATs or XTs, side-by-side with NeXT step, with copy and paste between windows. Developing a version of SoftPC for NeXT is estimated to have cost Insignia between \$400,000 and \$500,000, a significant investment considering NeXT has failed to sell many boxes and has an installed base of maybe 5,000 machines; the product will sell for \$600.

The Intel Corp 80860 RISC is to get its own supporters club modelled on the 88Open and Sparc International organisations for the Motorola 88000 and Sun Microsystems Sparc, according to Electronic News: the leading lights in the effort, which may be called the Mass 860 Consortium, are said to include IBM, Alliant Computer Systems Inc, Oki Electric Industrial and Samsung Electronics alongside Intel itself, and the group is expected to fund independent software vendors to write applications for the chip, and also to develop its own high-performance compiler.

Inc C Olivetti & Co SpA, which is in the process of cutting 3,500 jobs from its 57,000-strong workforce this year, will have to cut several thousand further jobs next year, managing director Vittoria Cassoni told the Wall Street Journal; after a strong first quarter the company saw a deteriorating second quarter.

Sources at Sun Microsystems have confirmed our suspicions that OSF founder member Hitachi is in fact a secret member of Unix International, (UX No 292): but the source maintained (with understandable bias) that Fujitsu was the company to watch, saying that where Fujitsu goes, other Japanese firms follow.

NCR Corp assured the press that it had held detailed discussions with the users of its V, I and U Series systems about migration to the new 3000 Series; V systems users can take advantage of NCR's Union product, launched last year; I Series users must wait for the results of the company's Galaxy project, which will enable I Series applications to run on the new 3000 Series machines; while U Series Tower users will receive migration aids and tools to help with the move from Unix V.2 and V.3 up to V.4.

And NCR also launch new disk array subsystems for the 3000 line, offering increased data availability and better performance.

As for other Intel chips, NCR will be using the i860 in specialised implementations, but not in commercial machines: for the future it is looking at the 80586, with 4 to 5 million transistors and a rating of up to 100 MIPS, with the 50MHz 486 expected to be available by the middle of next year.

NCR pushed very hard to get the recently announced agreement for a single operating system standard for Intel architectures (UX No 297) through the door, overcoming alleged personality clashes between AT&T's Larry Dooling and Doug and Larry Michels of Santa Cruz Operation: the thing that finally turned the tide was the alignment between SCO and the Open Software Foundation (UX No 284), after which negotiations started in earnest.

Motorola has cut prices for its 88000 Risc CPU technology by up to three-quarters: the MVME131 with 16Mb RAM is \$10,500 - down from \$39,500, the dual-processor MVME188DP is down to \$10,000 from \$30,000 - again with 16Mb RAM, the MVME188SP is \$10,000, down from \$20,000 and the 20MHz MVME131 board is \$5,000, down from \$9,000.

In case anyone hasn't noticed, Zenith hasn't snared any major procurements from the US government since Bull bought it, (UX No 252): fretting that its gravy train has been derailed, it has begun restructuring management and operations at its Federal Systems Group, starting with the head of its Department of Defense business.

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UNISYS CORP IS FIRST MAJOR TO ENDORSE CHORUS OPERATING SYSTEM

Unisys Corp is expected to be the US major rumoured to be in league with the little French operating systems house Chorus Systemes, to co-develop and adopt an advanced version of the Paris-based company's Chorus/Mix product (UX No 298). The secret alliance must be a year old, and the work has already begun to move Chorus/Mix from its present V.3.2 base up to System V.4. Although Unisys itself will probably put in some bells and whistles exclusive to itself, it is believed that Chorus will be able to peddle the update on to other vendors. The Unisys-Chorus work will probably produce software that is more scalable, standards conformant and fault-tolerant than at present, making necessary bows to loosely coupled architectures and adding on-line transaction processing features. The most likely Unisys platform for the software will be the forthcoming Motorola 88000-based range currently being worked on at the old Convergent base in San Jose, with help from Unisys mainframe engineers from Pasadena. These are expected to feature multi-processing and a mainframe-like architecture. The announcement of the alliance is expected to be made on October 1st, as part of the larger Unisys announcement of its Unisys Architecture integration package.

EUROPE PRESSES COMMISSION ON SECURITY WHITE BOOK

A White Book of proposals for a set of pan-European security standards in information technology were on the agenda at last week's IT Sec meeting in Brussels. Representatives from the UK, Germany, France and Holland proposed that the German Information Security Agency's recently introduced Green Book of security standards, (UX No 291), be used as the basis of a European security standard combining "confidentiality, integrity and availability," with the requirements of commercial computer manufacturers and users. Europeans have long argued that the US government's Orange Book of security standards is tied too closely to military needs - it emphasises confidentiality - and that a security standard ought to be created which embraces the needs of civilian users. Representatives of US companies like DEC, Sun Microsystems, IBM and Trusted Information Systems, worried that such a standard will make it more difficult for them to sell into Europe were also at the meeting, although sources say they did not influence its outcome. The White Book looks likely to be a "super-set" of the US Orange Book, at a higher level of functionality - for example it will define how data can be transmitted across an insecure medium, rather than addressing particular encryption techniques. IT Sec was sponsored by the Commission of the European Communities - the four countries have forwarded forward the proposals to the Commission, hoping it will adopt the White Book as the basis of a Community-wide standard.

NEC TO TAKE STRATUS' FAULT-TOLERANT i860 LINE OEM

There have been suggestions that Stratus Computer Inc was over-exposed by its big OEM agreement with IBM, and that IBM was reducing orders under the contract - but the Marlborough, Massachusetts company has found another equally powerful partner to fill any gap left by IBM in the shape of NEC Corp. Rather than develop its own fault-tolerant line - and highlighting just how difficult it is to do that successfully, NEC has decided to take Stratus' next-generation i860 RISC-based machines under an OEM contract that gives it worldwide rights and runs to the end of the year 2000. NEC will launch the machines under its own name in the autumn of next year, and looks to sell 500 by the end of 1994. It will add Japanese language processing and write software to make the machines compatible with its own computers and telecommunications systems. Under Stratus' current arrangements with IBM, IBM handles sales to phone companies in the US, and sales to financial institutions in Japan. NEC will be using the Stratus FTX fault-tolerant implementation of Unix System V and plans to combine the machines with its Neax 61 public exchanges. However NEC will have to wait some time to get its hands on FTX - Stratus has delayed its arrival for a second time. Originally promised for April, then deferred to this quarter, (UX No 289), the firm is now saying that reliability problems have pushed a launch date back again, nearer to the end of the year. Ing C Olivetti & Co SpA takes Stratus machines OEM for Europe.

OSF/1 SCHEDULED FOR

OCTOBER 23RD ANNOUNCEMENT

Although treated as a closely guarded secret, it seems that the date the Open Software Foundation has picked to announce its vaunted long-awaited and divisive OSF/1 operating system is Tuesday, October 23rd. OSF is staging the event out of New York, a venue it hasn't used since the launch of the Foundation itself (UX No 180). Doubtless we can expect quite a to do, and for the Other Side to try and steal some of the thunder. OSF is expected to say that it will start delivering OSF/1 in November. Let's hope they've worked out how to pay the bill for such affairs, because the original launch reportedly cost \$1.5m and took a year to pay back, there were no billback schemes in place and nobody, especially Hewlett-Packard who orchestrated it all, wanted to get stuck with it. Meanwhile the OSF's architecture neutral distribution format (ANDF) project enters its testing phase this week. Results are expected to be announced in December.

OKI TO SHOW FIRST i860-BASED WORKSTATION AT UNIX SOLUTIONS

Oki Electric will start sounding out the US computer market this week to see how it takes to a brand new i860 workstation running Unix System V.4 and commercial applications. The 45 MIPS machine is one of the few units to be developed based strictly on the Intel RISC chip, originally envisaged as a co-processor, good at graphics and floating point. And Oki, despite its giant size, has never been a player on the American computer scene. As we went to press, Oki was still working out important particulars on the box, such as price, availability and target markets. Expectations were that these issues would be resolved in time for the machine's debut this week at Unix Solutions in Anaheim, California. However, there won't be any product announcements just yet. A formal launch will need far more software than currently runs on the chip - an issue that the new Mass860 group, (UX No 301), has been chartered to fix. Oki is a core member, along with Intel, IBM, Samsung and Alliant. Oki currently has 33 MHz i860 machines up and running, but these will be used as software reference points. The units to be sold will use 40 MHz parts which Oki expects to start getting from Intel this week.

HP "LOSES TOUCH WITH EMPLOYEES - PLANS RE-ORGANISATION OF WORKSTATION DIVISION DUE TO POOR PROFITS"

by Maureen O'Gara

First hand accounts out of Fort Collins, Colorado, have Hewlett-Packard severely reducing its main workstation operation there. No phase of the business will be unscathed, they say, including sales, marketing, manufacturing and research and development. Further reports indicate that certain responsibilities are being transferred to HP's Apollo Division, the company's pricey 1989 acquisition, (UX No 227), now also hurting and in need of shoring up. The fact that HP looks ready to cut its dedicated workstation sales force, including the Apollo people, by 50%, indicates just how serious things are. Sales are run independently of each of the HP divisions, and are allowed to allocate and redirect resources to where they will have maximum effect.

Poor profitability is the key to the down-sizing and consolidation. Reportedly, marketing will move to Apollo's site in Chelmsford, Massachusetts and manufacturing to its centre in Exeter, New Hampshire. Exactly what will be left in Fort Collins after the cuts are complete is still unclear. Sources say a third of the 4,000 HP employees in Fort Collins, many of them HP veterans or people moved specially in the area, could be affected. Embittered reports claim the Apollo sites are being salvaged merely to justify the Apollo acquisition which cost HP nigh on half a billion dollars. Those at Fort Collins are apparently aware that they are under the gun, having seen some attrition and what HP calls "excessing" - notice to find a new job - already in the last few months. However, an executive committee was said to be meeting in Chelmsford last week to finalise the cuts, and could be advising Fort Collins more formally soon.

Cericor phase-out

Hewlett-Packard is also reportedly phasing out the CAE business it acquired several years ago when it bought Cericor. Before swallowing Apollo, Cericor was HP's largest acquisition, and cost the company tens of millions of dollars. Apparently, the operation, headed by VP Bill Parzybok, will initially be halved to maintain the installed base, then simply allowed to wither away rather than sold off. HP's policy of bundling the ECAE software on HP hardware reportedly did not produce a solution that could compete with the likes of Mentor Graphics. Unaffected is the company's mechanical CAD unit under Tulman Schad, which however, might be moved over to Germany. Sources fear the cuts will exacerbate HP's growing morale problems, reportedly the reason for a recent tour of all company sites by company founders Dave Packard and Bill Hewlett. Insiders say Hewlett-Packard, frequently touted as a paradigm of American management and famous for its hands-on walk around management style, has lost touch with its employees. Increasing centralisation at corporate headquarters in California is blamed, and the company surveys beginning last year indicate that 25% of the people that work there could easily be enticed to go elsewhere, up significantly from the norm of only 10%. Informed of the substance of the story, Hewlett-Packard, after consultation at a senior level, said that as nothing had been publically announced, it classed the story as "speculation and rumour", and would not offer any comment.

SOLARIX BEATS SUN WITH 64-BIT MBUS IN NEW SPARC CLONES

Solarix Systems, the Fremont, California start-up, will unveil a line of Sparcstation clones this week that beats Sun to the punch in implementing the 64-bit Mbus implementation of Sun's SBus. The Solarix/4 PW+ family promises to be a personal workstation series, scalable up to 40 MIPS (UX No 294). The entry-level kit, due out in late November, is an 18 MIPS box based on a 25MHz Sparc chip from Cypress Semiconductor, planted in what Solarix calls an A-Module - a credit card-sized processor module. To move up the line from 18 MIPS to 40 MIPS will mean replacing the A-Module, according to hardware director Ken Skala. Currently, however, the company cannot provide that upward progression since its technology is dependent on higher frequency 33MHz and 40MHz Sparc chips that are not yet available. Getting its hands on a 40MHz Sparc would allow Solarix to offer a box rated at 29 MIPS, Skala said. To go all the way to 40 MIPS will mean using a superscalar implementation, wringing 40 MIPS performance out of a 40MHz chip or 80 MIPS out of a 40MHz bus. LSI Logic, together with Hyundai and Metaflow are currently working on such a project, as are separately two unidentified US semiconductor houses, but nothing concrete is expected until the second half of 1991. When superscalar technology does become available, the 64-bit Mbus architecture, which Solarix has used throughout the line in addition to the 32-bit SBus, will come into its own. Supporting multi-processors, the Mbus is an invention of the same Sun engineer that created the Sbus, and Sun itself is believed to be trying to implement it. Solarix/4 PW+ mini-tower starter kits start at \$7,000 for a diskless unit, 17" monochrome monitor and 8Mb memory. Ethernet support and a Centronics parallel port are built in. It will cost \$8000 to get a 104Mb SCSI disk and a 1.44Mb 3.5 inch floppy. Memory is expandable to 128Mb, and 19" mono and 17" colour monitors are optional. Solarix foresees announcing its first A-Module upgrade, priced between \$1,000 and \$2,000 by early December, along with a DOS 386/387 co-processor. A Sparc server will follow in the first quarter. The company intends to sell to VARs, OEMs and systems integrators: it will not go direct.

AMDAHL ADDS SECURITY TO ITS UNIX, LAUNCHES FRONT-ENDS...

Amdahl Corp last week followed up its new Summit-killers with a new version of its UTS Unix operating system, an enhanced security option and a family of front-end processors. Amdahl remains the only mainframe manufacturer in the IBM world offering native Unix on its systems: the new UTS 2.1 release supports co-existence of Unix with MVS and VM in an SNA network. It can also operate as a VM/XA guest only any 370-compatible mainframe. Like UTS 2.0, it is based on Unix System V.3.1 - V.4 is still in the works - but includes a new file system, disk striping, supports Sun Microsystems' Network Information System - formerly Yellow Pages, X-Windows, Berkeley BSD 4.3 communications sockets, and a claimed 25Mbyte-per-second data transfer rate. A UTS/MLS - Multi Level Security - option is currently undergoing B1 level security testing against the US government's Orange Book requirements and the company says it will be submitted to the authorities for the new "White Book" European security proposals as soon as they emerge - see front page. Amdahl, which is working with AT&T's Unix System Laboratories on the System V.4 ES enhanced secure version of Unix, (UX No 301), says it will move towards the AT&T version as UTS adds System V.4 features. UTS 2.1, which already has a V.4 substructure and requires customers to buy a V.4 licence from AT&T - ships first quarter next year and monthly licences go from \$4,000 to \$15,400 according to processor. Source code users must have a binary licence to UTS, which costs \$20,000 and new users must also buy an initial licence costing \$20,000. The Security extension is available on UTS 2.0 now, and 2.1 from April; it costs \$28,000 to \$52,000 plus \$1,200 to \$2,500 a month. Amdahl has also launched the Motorola 68030-based 4655 series of front-end communications controllers. The Model 100 connects either async or X25 lines, the 200 both, and the 300 large numbers of async links. They cost from \$85,000 to \$384,000 and will be the basis for Amdahl's Open Systems Interconnection strategy. It also announced European availability of the 7330 Unix-only mainframe (UX No 257).

...BUT "KILLS ITS KEY COMPUTER LABS UNIX SUPERCOMPUTER EFFORT"

Amdahl Corp has reportedly scrapped its plans to build a Unix supercomputer using the technology for which it acquired Key Computer Laboratories for \$30m. The project has been plagued by delays and the company is believed to have decided that the machine has now missed the boat for which it was designed in terms of price-performance. The clincher that sounded the death knell for the project was the company's apparent inability to persuade enough third parties with scientific and engineering applications to put them up under the implementation of Unix planned for the machine, which was to have been built using an ECL chip set fabricated by Amdahl's 46% shareholder Fujitsu Ltd. According to Electronic News, which got no immediate confirmation of the story, Amdahl's strategy now will be to transfer the people that were working on the Key project over to the 7300 line of Unix-only mainframes that are based on Fujitsu's M-760 4391-class machines. In the medium term, the paper hears, the company is weighing the possibility of transferring the input-output subsystem developed for the Key machine to off-the-shelf RISC processors, with the R-series from MIPS Computer Systems Inc and the Sparc from Sun Microsystems Inc the leading contenders. The Key machine was being designed to take from one to eight processors, and to deliver three times the scalar performance and comparable vector performance to that of the Cray Research Inc Y-MP - 300 MIPS per processor to give a whopping 2,400 MIPS in its largest configuration.

SOLBOURNE SETS OCTOBER DATE FOR LOW-END, 64-BIT SPARC CLONES

Solbourne Computer Inc will next month reveal its series of low-end workstations built around the 64-bit version of the SPARC Risc processor which it has been developing in conjunction with principal shareholder Matsushita Electric Industrial Co for some time now (UX No 195). The family will offer "the lowest cost-per-MIPS desktop SPARC workstation" in the industry, claims the Longmont, Colorado outfit. However, whilst the as-yet unnamed series will mark Solbourne's long-planned entry into the volume workstation market, (UX No 291), it will not not be short of company as a gaggle of other low-cost SPARC clone-makers have revealed themselves over the last few months. The Solbourne line - which is binary-compatible with Sun Microsystems Inc SPARC workstations - come with a new high-speed graphics accelerator, and are to be manufactured by Matsushita in Chicago.

DISKLESS IBM RS/6000 EXPECTED FIRST QUARTER 1991

US press reports confirm that IBM is readying a low-end diskless version of its RS/6000 Risc workstation to retail at around \$6,000 which will compete with Sun Microsystems Inc's SLC offering, (UX No 296). Expected in the first quarter of next year, Computer Reseller News says it will likely come with 8Mb memory, and offer around 12 MIPS performance, with built-in Ethernet and token-ring capabilities. In addition the paper says new X-terminals at \$1,500 are in the works. Rationale for the development is the fact that the smallest box in the the AIX series - the \$13,000 Model 320 - currently accounts for 60% of RS/6000 sales. At AIX World in Washington a couple of weeks ago IBM announced that the PowerServer 540 and 930 models in the series are now shipping, with 800 applications now available for the range. A further 700 will follow by the end of the year it said, with a total of over 7,000 now planned to go on the boxes.

TEKTRONIX LAUNCHES MULTI-PROCESSOR SERVERS

Confirming its move away from the low-end of the market, (UX No 287), struggling Tektronix Inc, Beaverton, Oregon, has introduced a new multi-processor server range. The XD88/700 series is aimed at visualisation applications, and supports up to four 25MHz Motorola 88100 Risc processors. The dual-processor base model XD88/720 is rated at 67 MIPS, comes with 16Mb memory, 1.2Gb disk, floppy drive, 525Mb tape and costs \$62,000. The four-processor XD88/740 is claimed to deliver 120 MIPS, comes with from 64Mb to 256Mb memory, 1.2Gb to 75Gb disk, and costs from \$102,000. Both come with 20 VME card slots, 78 SCSI ports or 24 dual-ported IPI-2 storage device ports, X-Windows, NFS and FDDI. The Unix boxes run Tektronix's TekImaging image processing software. Tektronix also says it will sell its semiconductor test systems operations and is already talking to several companies about a purchase. The sale will mean that Tektronix will lose just under half of the 800 people it employs at its systems group.

VISUAL EVOLVES X-TERMINALS TO HIGHER RESOLUTIONS

Visual Technology is following up its new \$1,000 X-terminal offering with a line of unbundled colour stations, pursuing a strategy similar to the one charted recently by rival Human Design Systems (UX No 300). The new products are compatible with most AT-style keyboards and mice and implement the 34020 chip from Texas Instruments. The entry-level Xbase/10 uses a 16MHz 68020 and 32MHz 34020, handling resolutions of 1024 x 768. The Xbase/11 supports a "megapixel" display, typically 1152 x 900 resolution. The Xbase/12 can display resolutions of 1280 x 1024. Both the 11 and 12 use a 20MHz 68020 and 40MHz 34020. All three platforms have 2Mb standard memory, expandable to 14Mb with SIMMS. They are compliant with SECwindows, Motif, Open Look and XView. Availability is November. The Xbase platforms alone range from \$2,500 to \$3,500: fully loaded they go from \$3,500 to \$6,055.

ICL "TO OFFER UNIX V.4 ON 486-BASED SERVER LINE"

ICL is expected to re-position its Intel 486-based DRS 95 system, launched back in July, as a Unix-based server coming in below its Sparc-based DRS 6000 Series. The DRS 95, which is an EISA based desktide system, uses motherboard technology from Acer Corp and is manufactured for ICL by Acer on a dedicated production line. It currently runs MS-OS/2 LAN Manager or Novell NetWare to act as a server for local area networks, and is pitched against Olivetti's CP486 and the Compaq SystemPro, with entry-level prices starting at under £10,000. The Unix version, codenamed Aurora, may be released early next year as the DRS 3000 according to UK press reports, and like the DRS 6000 will run Unix System V.4. Like NCR before it, ICL appears to be shifting to Intel-based CISC machines at the expense of its older Motorola-based DRS 400 line.

AT&T RELEASES C++ LIBRARY FOR X-WINDOWS APPLICATIONS

AT&T's Unix System Laboratories has released its C++ Object Interface Library, Release 1.0, components designed for building commercial X-Window System applications with the C++ programming language, independent from a particular graphical user interface. The Library, developed by Solbourne Computer Inc, provides a common applications programmer interface to AT&T's Open Look, but will also support other interfaces, including OSF Motif, by the first quarter of next year. Interface choice can be made at runtime. The product includes Solbourne's swm X window manager as a sample application, which has a "virtual desktop" feature that allows off-screen areas to be panned into view. It is initially available for Solbourne's OS/MP 4.0C implementation of SunOS, but later this year will run under Unix System V. Source fees are an initial \$10,000, with \$3,500 for each additional CPU.

NEW RM COBOL INCLUDES NEW PANELS FORM DESIGN SOFTWARE

Ryan McFarland has released version 5.0 of its RM/COBOL-85 implementation, available immediately. New features include Pop-up windows, the use of synchronised write operations to improve data integrity, greater program capacity for compiling large programs and support for RM/Panels, and a new forms design and screen management system for DOS and Unix systems. The new release also adds various new statements to bring it in line with X/Open specifications. Ryan McFarland claims the extensions to its ANSI X3.23-1985-compliant base facilitate development of both X/Open and IBM SAA compliant applications. Austin, Texas-based Ryan McFarland, now a member of the Liant group of companies, now claims to have over 1,000,000 products installed worldwide. RM/Panels costs \$395.

GLASNOST ABOUND IN ICL'S NEW SV291 VME RELEASE...

ICL has launched a new release of the VME mainframe operating system for its Series 39, adding multi-node partitioning, improved batch and a wide range of new networking features, and has promised that it will be compliant with Issue 3 of the X/Open Co Ltd's applications Portability Guide by the next release, planned to ship by September next year. The new release, VME SV291, adds full support for the new Series 39SX models, improved service availability, and additional facilities for software developers. The company has added the Open Systems Interconnection FTAM File Transfer, Access and Management as an alternative to its own VME File Transfer Facility for transferring data files to and from any remote system connected to the network. Also included is Connection-Less Network Service, the Open Systems standard for interconnecting computer systems on local area networks, which provides support for ISO 8473 basic data transfer facility and ISO 9542 automatic re-routing and sharing functions. And X400 electronic mail and Virtual Terminal Protocol are also included. ICL says that the new release is easier to install than its predecessors, there is an alternative screen editor, and a new VME Pathway is designed to help setting-up and day-to-day management of the system. SV291 is available now.

...AS ICL EMBRACES WINDOWS 3.0 IN OFFICEPOWER 6.50

And in a busy day for ICL software, it also has a new release of Officepower, the office automation software for Unix that it inherited from Computer Consoles Inc. ICL says that the new Version 6.50 is completely re-engineered to create an Open office integrator with broader support for personal computers as terminals by adding Powerwindows, based on Microsoft Corp's Windows 3.0, enabling users to access multiple Officepower, MS-DOS and Unix applications concurrently, and cut and paste between them. Officepower now recognises Wordperfect Corp's eponymous word processor as an Officepower object, so users can access it via the standard Officepower menu, and mail Wordperfect documents to other users of either; it has tailorable menus and soft keys that can be set at group level. A new Powerkit 6.50 adds custom interface software for efficient driving of printers at the C code level, and Graphcap to define graphical terminal types. It also adds X400 messaging, FTAM interworking and ISO 8802 Transport Level communication.

CZECH DATAFLEX USERS ASK FOR UNIX, NETWORKING

London-based DataFlex's fourth-generation language database is going down a storm in East Europe. 140 delegates attended the first Czechoslovakian DataFlex users group meeting held in Prague last week - the group asked DataFlex managing director Mike Kusmirak over to show how DataFlex can be moved to Unix from MS-DOS, and on to Intel 80386-based networks. Czech customers of DataFlex include government departments and Czech Airlines, along with car manufacturer Skoda, which Kusmirak believes has just opened one of the most fully automated production facilities in Europe.

SILICON GRAPHICS WINS SOFTWARE SUPPORT FOR 4D IRIS LINE

Silicon Graphics Inc has lined up a host of new software for its Iris three-dimensional 4D workstation and servers. Informix Software Inc will port its Wingz spreadsheet over, and incorporate additional three-dimensional graphical features into a release for the Iris range called Wingz in Motion. Other software firms announcing their support are Island Graphics, which is porting Island Write, Paint and Draw; Quality Software Products Co, moving its eXclaim spreadsheet over, and Informix, Sybase, Ingres and Interbase which will each port their databases to the platform.

SUN'S NEWSPRINT PUTS PRINTER INTELLIGENCE INTO THE SERVER

Sun Microsystems Inc reckons that its NeWSprint software for Sparc-based Unix machines lifts workstation printing out of the age of the puny personal computer, which has provided the Unix printing model up to now, and into the powerful workstation age: powerful printers for personal computers have to be intelligent, otherwise the micro grinds to a halt, but Sun reckons the Sparc is powerful enough to handle graphics printing in addition to all its other tasks. The company also added its own Sparcprinter laser printer designed for use with NeWSprint. Sun claims that NeWSprint enables any output device hooked to the Sun system, from matrix, ink jet and laser printers to colour thermal printers and plotters - to produce PostScript-compatible output quickly and cheaply. It works with printers from the likes of Canon, Epson, Fujitsu, Hewlett-Packard, Eastman Kodak, Xerox, Mitsubishi, Raster Graphics, Seiko, Talaris and Versatec. The new Sparcprinter runs at up to 12 pages a minute with 400 or 300 dots per inch resolution and more fonts, at under half the price of the Sun LaserWriter II it replaces. It links to the Sparcstation 1, 1+ or IPC via an Sbus board. NeWSprint bundles 57 brand name, scalable, outline fonts made using Sun's F3 font format and costs \$700, while the Sparcprinter with NeWSprint and board is \$2,700.

MANNESMANN "WANTS TO SELL KIENZLE COMPUTER ARM"

Now that it has its hands full building the one private digital cellular network licensed to compete with the state-owned network being built by Deutsche Bundespost Telekom, Mannesmann AG is reportedly beginning to wonder it really wants to make the investments necessary to build its Mannesmann-Kienzle GmbH computer and peripherals subsidiary into a world class player, and according to Der Spiegel magazine, has decided to put the business up for sale. According to Der Spiegel, leading contenders to buy the business are ICL, bankrolled by its new sugar-daddy Fujitsu Ltd, AT&T Co, and Siemens AG - but regulatory authorities would likely rule Siemens out now it owns Nixdorf Computer AG. It is said that the clincher in persuading the steel and pipes giant to give the computer industry best was the fact that it missed out to Siemens in the bidding to take control of Nixdorf. The barely profitable computer arm has annual sales approaching \$1,000m and employs 4,000. Mannesmann would reportedly hang on to Kienzle's taximeter and speedometer business, merging it with its Fichtel & Sachs subsidiary.

HITACHI BUYS - 68040-COMPATIBLE? - TECHNOLOGY FROM ARIX

Looks like an unexpected new twist in the battle between Hitachi Ltd and Motorola Inc - Arix Corp has agreed to license to Hitachi "certain Arix technology" in return for "substantial fees and royalties". The technology involved was not disclosed, but is almost certainly the Edge processor design which is a multi-chip fully compatible - and legitimate - superset of 68020 architecture, enabling Hitachi to make its own 68040-compatible processors or chips. Arix and Hitachi also plan closer ties.

NIXDORF ANNOUNCES NEW TARGON MINIS

Ahead of its formal incorporation into the combined Siemens Nixdorf Informationssysteme today, Monday, Nixdorf Computer has announced two new models in its Targon/31 range of Unix minicomputers built around 33MHz implementations of Motorola's 68040 microprocessor. The M55 can run up to three of the parts, is rated at 37.5 MIPS, comes with from 16Mb to 96Mb memory and up to 5.6Gb disk. The M25, running a 25MHz or 33MHz 68040, is rated at 8.5 MIPS or 12.5 MIPS, comes with 16Mb to 48Mb memory and up to 2.8Gb disk. Communications options supported include Ethernet, TCP/IP, NFS and SNA.

VITESSE CLAIMS TO TROUNCE ECL, MATCH BiCMOS WITH 0.6 MICRON GaAs

Vitesse Semiconductor Corp, Camarillo, California scored something of a coup in its campaign to prove wrong the doubters that said that Gallium Arsenide technology was too difficult to process by having Fujitsu Ltd rush to sign a second source agreement on its Fury GaAs arrays, and it is now going after ECL and BiCMOS technologies with the third generation of its H-GaAs process, in which it has shrunk the previous generation down to 0.6 micro design rules to create a process capable of reaching integration levels of over 1m GaAs transistors on a single chip. H-GaAs III, it claims, will enable microprocessors to be implemented at integration levels far in excess of next generation ECL and comparable with current CMOS and BiCMOS technologies. The basic transistor structure has been improved to achieve loaded gate delays of under 100pS while dissipating less than 200 microWatts at 1GHz clock rates. At comparable densities, BiCMOS achieves gate delays of only 250pS to 400pS and cannot support clocks above the 100MHz to 150MHz range, Vitesse reckons. H-GaAs III uses the same refractory metal self-aligned gate transistors and four layers of standard Aluminium interconnect as the previous generations and the firm says it is far less complex to fabricate than ECL or BiCMOS, taking only 13 mask levels to process a four layer metal H-GaAs III wafer. Vitesse reckons it outpaces ECL to match price-performance of BiCMOS and plans the first parts this year.

CONVEX GETS \$20m OEM ORDER FROM E-SYSTEMS FOR C-2 STORAGE SERVERS

E-Systems Inc, developing a "revolutionary" mass storage subsystem for supercomputers using Ampex Corp's 19mm helical scan digital tape recorder, has given Richardson, Texas-based Convex Computer Corp a \$20m three-year OEM agreement under which it will supply minisupercomputers and services to the Dallas company for integrating with the system. The E-Systems Modular Automated Storage System - Emass, is now a Convex C-2 minisupercomputer server with magnetic disks, robotically-controlled tape storage subsystem and operations console. Convex will develop special interfaces for use with the ER90 storage device, and its Integrated Tape Controller will provide the hardware connection to support hierarchical storing and retrieving of data by transferring it between the server's main memory and tape drives. Files will be retrieved using File Transfer Protocol or Network File System and the ER90 will be able to store 75Gb on one tape cassette, and E-Systems will use it in its robotically-controlled Emass, which is capable of storing more than 7,000Tb of data - that means 100,000 D2 helical scan cassettes; shipments are set for early 1992.

LOCUS PC-INTERFACE BUNDLED ON ALL UNIX SYSTEM V.4 REFERENCE PORTS

Locus Computing Corp's PC-Interface, which enables users to connect MS-DOS-based machines to Unix host systems either directly or as part of a local area network, will be bundled with future reference implementations of Unix System V.4 operating systems. Meanwhile, the Open Software Foundation is still considering taking this Locus product up for its Distributed Computing Environment, so it looks likely that OSF 1 and Unix System V.4 will be transparent at the personal computer interface level. Locus' MS-DOS integration technology is also bundled with versions of Unix by IBM and Santa Cruz Operation. Locus also provides OEM versions of PC-Interface to more than 40 Unix hardware vendors including Motorola, Dell, Intel, Prime, NCR and others. As a result of the bundling agreement the Locus product will be available on all Unix System V.4 reference ports including Intel 386 and 486, Motorola 88000, Intel 80860, MIPS and SPARC microprocessors. Hitherto, the Locus and AT&T agreement had only stretched to cover Intel processors.

MARKET ROUNDUP

Cambex Corp has launched a quarter-inch cartridge tape subsystem for use with IBM RS/6000 systems: the Certainty Series 6800 Model 60 tape subsystem stores up to 525Mb of data per cartridge, more than three times the capacity of the IBM Model 7207 QIC subsystem, and is available at half the price of IBM's other back-up offering, the Model 7208 8mm drive, the Waltham, Massachusetts company says; it costs \$3,455.

IBM UK is jointly to market **KPMG Peat Marwick McLintock Management Consultants' CIS/VM Clinical Information System/VM**: the system uses System/370 hardware running VM to provide a central relational database of information taken from existing hospital operational systems; IBM UK is also to participate in the development of an RS/6000-based Unix version of the system.

Tinton Falls, New Jersey-based Concurrent Computer Corp has a \$1.1m contract from **Binghamton Simulator Co** - a subcontractor to the **CAE-Link Corp** subsidiary of **CAE Industries Ltd, Toronto** - for the **CH-47D Chinook** helicopter programme: the contract calls for six Concurrent **MIPS Computer Systems Inc R-series-based 8400 RISC** real-time Unix systems and software for one of the first real-time Ada applications to a US Army aviation training - the **Flight Simulator Upgrade Programme** will incorporate the 8400 supporting a real-time C3 Ada Language environment for expanded software design, development and processing, replacing **DEC PDP-11** systems and the development confirms that **CAE** is now looking to RISCs, and that, as **Rediffusion Simulation** was saying at **Farnborough**, the latest RISCs are just about powerful enough to cancel out the overhead penalties incurred by going to Ada.

Proving its lust for life **Storage Technology Corp** continues to diversify as it announces that it has attached its 4280 cartridge subsystem to IBM's RS/6000: **StorageTek** collaborated with the **IBM European Petroleum Application Centre** in Norway to develop the device as part of a joint project to provide 18-track cartridge tape technology to the petroleum industry - the 4280 will now support RS/6000 models 320, 523, 530, 540 and 930.

Acer Inc is looking for a plant in Europe, and says it has not yet decided to buy an existing manufacturer or build on a green field site - it is looking at the UK, West Germany and Spain: it wants to be manufacturing in Europe by early 1992.

Rochester, New Hampshire-based Cabletron Systems Inc has a new enterprise network management software system called **Spectrum**: the product uses the company's "break-through" new **Inductive Modeling Technology**, which enables a single executive control server - on any local net in the connected enterprise - to deduce, correct and report problems to any number of **Spectrum** control consoles anywhere in the enterprise; it implements a "highly graphical" **X-Window** user interface to flag a bad or questionable network component "in an instant", showing its location on geographical maps, campus layouts, building plans or logical network topology maps and is claimed to steps to correct or minimise problems where appropriate; the hardware on which it runs is not mentioned, but the thing will be available early next year at from just under \$50,000.

Convex Computer Corp has developed a **Tape Library Interface** to enable **Storage Technology Corp's 4400 Automated Cartridge System** to be used with the **Convex C-2**: the interface combines block multiplexer channels and software for linking to the 4400 robotic 3480-type library of up to 96,000 cartridges.

It's tough when the design of your newspaper limits you to 10 characters for the headline on a story like **NCR Corp's** monster **Series 3000** announcement: the **New York Daily News** subs settled for "Kiss Intel".

Apple Computer Inc has again fallen behind on its development of the **System 7.0** release of its proprietary **MacOS** operating system software: beta versions to third party developers are now expected in October, with shipments sometime in the first half of next year, rather than the promised year-end.

Philips NV has sold its 15% stake in **AT&T Network Systems International** to **AT&T Co**, giving the latter 74%: now **Stet SpA** holds 20% and **Telefonica de Espana SA** the other 6%.

Hewlett-Packard Co has a \$13m contract from **Nissan Motor Co** for mechanical computeraided engineering Unix workstations: the contract includes both **HP 9000 Series 800 RISC** and **68030-based HP 9000 Model 375s** and will be added to its existing base of more than 300 HP computers software will be the **IDEAS** package from **Structural Dynamics Research Corp** to cut time and costs in new product design, analysis and testing.

Following its master VAR deal with **Access Graphics**, (**UX No 299**), **Sun Microsystems** has awarded the same status to the open systems division of **Technology plc**, **Warrington, Lancashire**.

ParcPlace Systems, **Mountain View, California**, has announced **Release 2 ObjectworksC++** development environment incorporating **AT&T's C++ Language System Release 2.1**: available on **Sun-3** and **Sun Sparcstations**, it costs \$3,000.

Information Presentation Technologies, **Calabasas, California**, has implemented its **uShare Unix-to-Mac** connectivity software on IBM's RS/6000: priced at \$1,200, **uShare** allows Unix systems to act as an **Appleshare-compatible** server.

Canadian software outfit **Keyword Office Technologies Inc's KEYpak** Unix document exchange software is now available in the UK and Ireland from **Network Connection Ltd**: **KEYpak** Unix allows documents to be exchanged in editable forms between incompatible hardware, word processors and E-Mail - available on **AT&T, Bull, DEC, Hewlett-Packard, IBM, Intel, Motorola, Sun** and **Unisys** systems, it supports 21 Unix, VMS, Mac and MS-DOS word processors, and 18 different interchange formats.

Milpitas, California-based NetFrame Systems Inc is to have its 80386 and 80486-based servers for **Novell Inc NetWare** and **OS/2 LAN Manager** sold OEM in Europe, Canada and Australia by **Ing C Olivetti & Co's Olivetti Systems & Networks** under a \$200m three-year agreement.

ASK INVESTOR CHALLENGES INGRES ACQUISITION

Florida investor James Lennane recently upped his stake in Ask Computer Systems Inc to 9.7%, and now he wants to unravel the deals to part-finance the acquisition of Ingres Corp, by selling new Ask shares representing 42% of the enlarged equity to Hewlett-Packard Co and Electronic Data Systems Corp. He also wants to put up a likeminded slate of directors to take control of the board at the annual meeting next month with a view to selling assets or the entire company, and has filed a lawsuit seeking to enjoin the proposed sale of the \$60m of Ask shares to Hewlett and EDS until the deal is submitted to and approved by Ask's stockholders. He reckons to make the sale without shareholder approval would be a violation of National Association of Securities Dealers rules. Ask rejoins sharply that it believes the rule is not applicable to the proposed transaction and that in any event, it does not believe it has any obligation to maintain the NASDAQ quote and will proceed with its plans, and defend the suit vigorously.

AT&T ADDS TWO FIBRE DISTRIBUTED DATA INTERFACE TRANSCIVERS TO ITS LINE

AT&T Co has launched two data transceivers - simultaneous transmitters and receivers - that adhere to the Fibre Distributed Data Interface standard. The FDDI standard defines electrical characteristics of fibre optic local area networks but not the physical connections or pins by which components are mounted in systems and linked to the information-processing components of a fibre system. The 1402A ODL FDDI Transceiver guarantees the developer pin array compatibility for FDDI transceivers from AT&T, Siemens and Hewlett-Packard. Use of the 1403A ODL FDDI Transceiver, with a different pin array, facilitates a design transition from employing separate or yoked transmitters and receivers to a lower-cost design on the same board now employing a unitary transceiver. In quantities of 1,000 or more, the 1402A ODL FDDI Transceiver and 1403A ODL FDDI Transceiver cost \$413 apiece.

PEGASUS BROADENS PRODUCT LINE WITH PEGASUS NINE FOR UNIX

Pegasus Nine, the latest Unix product from the Pegasus Group Plc, Kettering, Northamptonshire, is now available through Pegasus dealers. The new product, which has been under development over the last two years, is an integrated accounting system which the company hopes "will broaden the appeal of Pegasus products beyond MS-DOS", taking advantage of Unix and the Informix SQL database. Initially sales, purchase and nominal ledgers, stock control, invoicing and payroll modules will be available, with four further modules promised for early in 1991. It will run on Santa Cruz Xenix/386 and Santa Cruz Unix Intel-based systems, and in the fourth quarter IBM's RS/6000 and PS/2 machines running AIX. Other implementations and joint marketing deals are in the pipeline, said the company. Pegasus recently sold off its loss-making acquisition of 1989, the Unix distribution business Sphinx Ltd, to the Vistec Group.

INGRES COMES OUT WITH WINDOWS 4GL

Ingres Corp has released a windows-based development tool for relational database management systems, which it claims is the first to make full use of the graphical capabilities offered by windows. Windows 4GL is based on the terminal version of Ingres' applications generator. Like Oracle, Informix and others, Ingres already has a 4GL development tool which uses windows - the Ingres version is called WindowView. Ingres says its new software is superior to other windows programs because it was specifically written to take advantage of the enhanced graphical capabilities on a workstation, and is not just a terminal system. Initially, the software runs on workstations only - Sun Sparcstations, Hewlett-Packard's HP9000 series under HP-UX, IBM's RS/6000 and DEC's RISC/Unix platforms and VAX/VMS by the end of the year - but says it will be available for personal computers running Microsoft's Windows 3.0 next year.

MICROWARE HAS REAL-TIME OS-9000 FOR 80386

Microware Systems UK Ltd, the Fareham, Hampshire-based specialist in the OS-9 family of real-time operating systems, is to introduce an OS-9000 version of the operating system for the Intel iAPX-86 environment, pitching it at network servers, office automation engines and process control systems. Intelligent applications like X-ray scanners and security systems demand specific features such as real-time response, and OS-9000 includes a real-time kernel which automatically allocates memory and schedules tasks. The company developed and released OS-9000 in 1989, and it has a range of real-time system software for Motorola's 68000 16-bit and 32-bit architectures. The operating system supports resident Unix, and MS-DOS cross-development 32-bit processors. It is written in C and currently available for Motorola's 68020, 68030 and Intel's 80386. Microware is also planning to support other complex and RISC processors, including the 88000 and 8090CA. It has a suite of C cross compilers to program real-time applications for OS-9, OS-9000, VMS, Unix and MS-DOS machines. Each contains the library and definition files contained in the OS-9000 resident, and compiled programs are ROM versions, re-entrant and position independent. Objects may be downloaded for execution and testing using serial links or Ethernet TCP/IP networks, and other networking features provide for link data and OS-9000 Network File System/Remote Procedure Call.

SYBASE REPORT WORKBENCH IN BETA TEST

Sybase Inc is beta testing its Report Workbench, described as an interactive development environment for creating, processing, and maintaining reports for Sybase relational database applications, and the latest addition to Sybase's windows-based SQL Toolset for SQL development. The Report Workbench is designed for client-server architecture, and the reports it creates can be integrated with applications developed using Sybase's APT Workbench. Reports are stored in the SQL Server, and developers can design them so that they update an account balance field in the database. Other features include a visual layout editor with editing capabilities, a formatting capability, a report processing language and a runtime version. The Report Workbench supports both character and graphic workstations, and is available on Sun Microsystems equipment and VAX/VMS machines. It will be generally available in October costing between \$950 and \$82,080.

SD-SCICON, BRITISH GAS, SALFORD FORM COGSYS FOR KNOWLEDGE-BASED INDUSTRIAL AUTOMATION

SD-Scicon Plc, British Gas Plc and Salford University Business Enterprises have set up a joint venture company to market industrial automation software based on artificial intelligence technology. Cogsys is the offspring of the Government-sponsored Alvey project which was established in the early 1980s to stimulate joint industrial and academic research and development projects. RESCU, the Real-time Expert System Club of Users also sprang from the Alvey initiative, and it is from the Club's research into expert systems that Cogsys has evolved. The two main applications for Cogsys are in real-time control and plant monitoring, and it enables automation engineers to create industrial systems to run large manufacturing and process plants. It is capable of alarm analysis, data validation and reduction, and it uses historical information to maintain product quality and analyse plant performance. DEC MicroVAXs were chosen for the initial implementation, but Cogsys Ltd says that the software could be implemented for a number of environments, and Unix is of particular interest. Cogsys is headquartered at Salford Business Park, and the company hopes to distribute the product via the other members of RESCU. British Gas is the majority shareholder in the new company, and Frank Corrigan of British Gas' new business division, has been appointed as chairman.

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Mercury Computer Systems Inc of Lowell, Massachusetts has developed a vector processor module called the VA2, for Concurrent Computer Corp's 6000 and 8000 real-time Unix systems: the VA2 is a single-slot processor, based on Intel's 40MHz 80860 chip which performs 32-bit and 64-bit floating-point, vector and scalar computations at up to 40 MIPS and 80 MFLOPS; available now, the VA2 will be distributed by Concurrent; prices start at \$19,100.

The global financial services house Salomon Brothers Inc is going for standards and open systems to meet its future computer requirements: the firm is shifting aside its IBM 3090 mainframes and slinging out proprietary Prime Computer equipment in favour of a distributed system based upon AT&T Unix System V which will support 6,000 users.

Computer International, Aylesbury, Buckinghamshire, which sells X-terminals from Gipsi SA in the UK, is to begin marketing Solbourne Computer's recently introduced high-end Series 5E/900 Sparc machines, (UX No 291).

UniWare Computer GmbH and IDG World Expo are hosting a Unix-Forum exhibition and conference in Berlin on February 11 and 12, 1991, at the International Congress Centre; Unix companies from Western nations will be exhibiting side-by-side with Soviet, Hungarian, Polish and Czechoslovakian firms for the first time.

University College London is implementing what it claims will be the largest AIX installation in Europe with RS/6000s, PS/2s and software worth £470,000.

Maidstone, Kent-based System C's Sycero C program generator now supports Borland International's new Turbo C++ Professional development environment: the new version is £600 - upgrades are £30.

Spider Systems Ltd, Wokingham, Berkshire, has upgraded its SpiderAnalyzer 320-R network monitoring system to operate on 4Mb per second and 16Mb per second Token Ring networks: for XT- or AT-compatible personal computers a board kit is £9,000 - or £12,000 housed in a Compaq Portable III personal computer; an upgrade to the 320-ER SpiderAnalyzer, which monitors Ethernet and Token Ring networks simultaneously is available for £2,500.

Islington Borough Council in North London is installing two Data General AViiON Unix systems 70 supporting 70 users for office automation and database development in its education department: the deal, with Foundation Systems, Norwich, Norfolk, is worth £160,000

SCO president Larry Michels has joined the board of directors of General Automation Inc, Anaheim, California, now 49%-owned by the Sheffield-based Pick-popper Sander-son Electronics plc group.

Access Technology, Marlow, Buckinghamshire, has released a version of its 20/20 RealTime spreadsheet running under Open Look on Sun Microsystems Sparcstations.

In the US, communications specialist Walker Richer & Quinn is integrating the Wollongong Group Inc's WIN/TCP for DOS networking software into its applications that support Reflection Series emulation software following an agreement between the two signed recently: Palo Alto, California-based Wollongong has also introduced the TCP/IP-based PathWay Client NFS for DOS - with implementations for Unix, VAX/VMS and IBM/MVS - that allows files on remote hosts to be accessed using MS-DOS commands.

Systems Union's SunSystems accountancy software is now available on Altos Computers' Intel 80486-based Altos 5000 EISA-bus Unix system.

Office equipment company Lanier has chosen Unisys U6000/70 and 80 multi-processor Unix systems to link its European operations centres in Belgium, France, Spain, Germany, Italy, Switzerland and Wokingham, Berkshire.

Unisys has won a £1m contract to supply Liverpool City Council with networks of workstations to handle the administrative requirements of the UK government's local management of schools legislation: 40 Novell-based local area networks with servers and 150 personal computers will be installed in over 200 schools over the next twelve months, running school administration software from SIMS Ltd, Houghton Regis, Bedfordshire.

Isle of Man-based Real Time Systems Ltd is now distributing Whitesmith's C cross compilers for Sun Microsystems' Sun-4 and Sparcstation SLC under SunOS.

Coventry-based Simdell Ltd is implementing its Manager office information software - built upon Uniplex - on Cambridgeshire County Council's NCR Tower systems and Cardiff City Council's Bull DPX2 minis in deals worth £200,000.

Cimflex Teknowledge, Pittsburgh, Pennsylvania, has a new factory management system for Hewlett-Packard 9000 Series 800 workstations running HP-UX: with eight modules, supporting C, Oracle's SQL, OSI and TCP/IP the Delta system, including hardware additions, starts at around \$400,000 - a Sun Sparcstation version will be out before the year-end, followed by other Unix ports including one for DEC's RISC/Unix platform.

Sybase Inc, Emeryville, California, is to begin selling Unix and VMS versions of Lotus 1-2-3, along with the drivers required to interface between the spreadsheet and the Sybase SQL Server database - linking the two products was one of Lotus' main aims in taking an equity stake in Sybase last year.

San Jose, California-based Proteon Inc is using Advanced Micro Devices' AM2900 Risc processor in a new networking bridge planned to ship within the next six months: claimed to support all major and proprietary networking protocols, it will be priced between start at \$12,000 depending on configuration.

Gremlins in the 68040 mean that volume shipments of Motorola's latest part are unlikely to begin until November, delaying the introduction of new NeXT and Hewlett-Packard systems based upon the microprocessor.

Birmingham-based ACT Financial Systems' Quasar investment management system is now available on IBM's RS/6000 system.

With the continuing prosperity of its 68000 family looking very dim indeed, Motorola Inc has to win big with its 88000 RISC, and, desperate for design wins, the company has slashed the price of the 16MHz version by a whopping 67% to \$49 for 1,000-up, and has made similar cuts on the 25MHz and 33MHz versions.

Unix Systems Laboratories president Larry Dooling has cancelled his appearance this week at the Unix Solutions show in Anaheim, California. Apparently he's in Japan with AT&T Data Systems Group president Bob Kavner, and the bet is that they're out there looking for investors to help spin-out USL: a trip to Europe is scheduled in for early October. The Interface Group, which runs Unix Solutions, says the keynote will now be given by Dooling's lieutenant USL vice president Mike DeFazio.

Borland International Inc has an academic edition of its Turbo C++ compiler, available through its Scholar program for \$40.

Teradata Corp's Los Gatos subsidiary ShareBase Corp is waving around a Validation Summary report that states that ShareBase III, the company's latest relational database software release, has passed 100% of the test cases in the National Institute of Standards Testing's SQL Test Suite for the embedded C SQL interface to Level 2 of the ANSI standard: it was validated on a client-server configuration of a Sun Microsystems Inc workstation and ShareBase Server/8000 machine.

NCR Corp has passed on part of its Customer Services Division's contract to provide US-wide service to users of Sun Microsystems Inc workstations: it has given Polaris Service Inc of Hudson, Massachusetts a \$5m multi-year contract to repair circuit boards, provide spares and technical support to NCR service technicians and train NCR field maintenance personnel to diagnose and perform on-site maintenance.

OSF has had at least 39 responses to its fourth Request for Technology, the one calling for Distributed Management Environment software (UX No 294). The window on submissions is now effectively closed unless some gaping hole is discovered. This week the Foundation expects to meet with its DME special interest group, consultants and submitters in Massachusetts and emerge with preliminary evaluation criteria.

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AMDAHL "TO BECOME 21ST CORPORATE MEMBER OF X/OPEN" ...

The 21st corporate member of the X/Open Group is expected to be revealed next month, and is said to be a US mainframe supplier: with most of the bets settling on Amdahl Corp. Formed by ICL, Bull, Nixdorf, Olivetti, Siemens and later Philips back in 1984 (UX No 1), X/Open took on board US members DEC, HP, Sperry and AT&T in 1987, followed by Fujitsu, IBM, NCR, Nokia Data and Sun in 1988, Hitachi, NEC, Apollo and Prime in 1989, and in May that year, the Open Software Foundation and Unix International, in an ultimately fruitless attempt to reconcile the aims of the two organisations. Corporate members still provide the major source of funding for X/Open: the group had revenues of £7.5m last year. Amdahl was amongst the non-X/Open members taking part in discussions on the future of the CAE held in Montreal during the summer of 1989 (UX No 237), and is working with the Group on XPG3 compliance. X/Open is now actively pursuing the federal buyer to make a case for US government procurements being CAE/XPG compliant: it has opened its third US office in Washington DC, and named ex-AT&T Federal System group veteran Joe Bergmann to run it.

...AS HOUSTON 30 OPTS FOR COS OVER X/OPEN

Meanwhile, the User Alliance for Open Systems, perhaps better known as the Houston 30, appears to have decided against joining X/Open in favour of the Corporation for Open Systems (COS). US press reports say that X/Open's vendor-domination and lack of profile in the US were the main reasons for the decision, despite the group's long-standing efforts to address those issues. COS, the McLean, Virginia-based association of vendors and users, concentrates on the promotion of open systems interconnection networking standards, and offers testing software for 802.4 Token passing networks, and MAP/TOP conformance.

IBM SETS MAJOR INITIATIVES TO RESCUE MICRO CHANNEL

IBM and Intel Corp are forming a consortium to create a second generation Micro Channel code-named MCA 2++ according to *Computer Reseller News* - and in a related move, IBM is expected to announce the formation of a standards group this month to promote and evolve the Micro Channel and present it as an industry standard. All manufacturers that have been issued with Micro Channel identity numbers will be invited to join - some 700 computer manufacturers and board makers including Orchid, Interquadram and 3Com, NCR, Apricot, Bull, Olivetti and Siemens. Although there are estimated to be some 4m Micro Channel machines out there, 95% of them are IBM PS/2s, Datamation reckons, hardly the mark of an industry standard. Intel is said to have completed preliminary engineering on chips based on specifications developed by the group, but the move is seen as an effort to make up ground lost to the EISA bus consortium. The new Micro Channel is reportedly being optimised for maximum bus performance and multiple processor support, and is expected to go beyond the 160Mbps rate of the Micro Channel in the RS/6000, which IBM has been characterising as MCA 2.

SPARCSTATION-2s AND MULTI-PROCESSORS "DUE THIS MONTH"

Sun Microsystems may come out with its long-awaited Sparcstation 2 later this month - a 25 MIPS machine priced at under \$10,000 - when it is also expected to reveal its first multi-processor server product, with up to four SPARC processors.

DOWNGRADING OF UNISYS DEBT RATING CREATES CAUSE FOR CONCERN...

Break-up looms at Unisys Corp following a devastating decision by Moody's Investors Service to lower to Not Prime from Prime-3 the rating on the company's commercial paper. That means that Unisys will find it well-nigh impossible to raise short-term cash in the commercial paper market, leaving it at the mercy of its banks - and in the current climate, banks are becoming more and more leery of lending substantial sums to companies regarded as at risk. Confidence is all in business, and there is a fine line between solid solvency and collapse: in addition to the threat of a clear recession in the computer market, the decision by Moody's will make even committed customers less keen to buy from Unisys until it takes sufficient measures to convince the ratings agencies to upgrade its debt, making it harder and harder for the company to continue to generate the cash needed to service its millstone of debt - details on page 5.

...AS IT REVEALS SKETCHY DETAILS ON INTEROPERABILITY

Unisys Corp last week unveiled its Unisys Architecture set of standards and rules for multi-vendor interoperability. It consists of five sets of interfaces - services for applications and information, information management, distributed systems, systems interconnection, and systems management - and covers proprietary systems from Unisys and other vendors as well as open systems. Within this, Unisys includes three classes of software interfaces and services: "open class" such as Open Systems Interconnection, SQL, Presentation Manager and so forth; "premium class" for Unisys added-value, such as its development of transaction processing software using AT&T's Tuxedo; and "complementary class" for interoperability with other vendors, such as SNA, Burroughs BNA and Univac DCA support. The schema is networked, rather than system-based, with the mainframe as the "information hub" of the network, linking up departmental servers and desktop workstations. A key element of the new strategy is compliance with the X/Open Portability Guide and with Posix, which Unisys promises to extend to its mainframes over the next few years.

INTERLEAF LAUNCHES ITS FIRST ACTIVE DOCUMENT PRODUCTS...

Cambridge, Massachusetts-based Interleaf Inc, which in March previewed the concept of the active document (UX No 273) has now unveiled the first product that uses its new technology in the shape of Interleaf 5. An active document is defined by the company as one that can access, evaluate and act on information. A new Professional Writer provides what the company calls hyperlinks, facilities for tracking and re-using revisions, the ability to link to virtually any file, and comes with an optional set of advanced writer's tools from Houghton Mifflin. Active documents are claimed to be able to know how to run any SQL database, extract data specified by the user, and build a text and graphics catalogue that shows one set of information to customers and additional data to sales people. The Interleaf 5 products - as well as Professional Writer, Interleaf has Interleaf Engineer, Illustrator, Production, Academic and Passport for other vertical applications - come with a set of tools which enable users to personalise the interface, and Point & Type templates to make the thing easy to use for novices. Interleaf 5 products can be altered and extended by adding layered applications created by Interleaf, other software developers and technically-adept users, and these can be anything from putting the rows of a table into alphabetical order to drawing maps automatically from input geographic data. Interleaf 5 documents can be shared between all workstations on which Interleaf 5 runs - DEC, Hewlett-Packard and Apollo, IBM and Sun Microsystems, and versions for 80386-based personal computers and the Apple Macintosh are planned for next year. Interleaf has developed a specialised application of the new products for commercial aircraft documentation, including active documents that provide links to a database of industry standards, document routing and tracking, and an on-line, intelligent hypertext repair manual, and is looking at pharmaceuticals, computer-aided software engineering and car making. The products are priced on a floating licence basis where within a large group, a set number of users can be on Interleaf 5 at any time. The product provides colour output in PostScript and on-screen colour for those running X Window. The version for Unix engineering workstations will ship in the US in December, with volume in first quarter 1991. Versions for MS-DOS and VMS will ship in spring 1991, with the Mac version following in the summer; the firm did not give prices.

...AGREES LINK WITH XEROX

Xerox Corp and Interleaf Inc are to exchange their current and developing technologies and create and promote products that will enhance interconnection of Interleaf software with Xerox intelligent peripheral publishing products, in the US to start with; no financial details of the transaction were revealed.

SECOND HEWLETT JOINT VENTURE IN CHINA WILL MAKE 68040 WORKSTATIONS

Hewlett-Packard Co has now signed a definitive agreement with China's Ministry of Machinery & Electronics Industry for joint creation of and investment in a company set up to manufacture workstations and develop software in the People's Republic. Financial terms of the agreement were not disclosed. The new Huapu Information Technology Co will assemble and market Hewlett-Packard's newest line of workstations, the HP Apollo 9000 Series 400 for the Chinese domestic market. It will be based in Shanghai and is expected to begin operations by the end of the year, initially employing 70 people, with about 40 working in software development and 30 on adapting products to handle local languages, and in testing, assembly, installation and training. Apollo established a similar venture in India before it was acquired by Hewlett-Packard and there is already a China Hewlett-Packard, established in 1984 as a joint venture with China Electronics Import & Export Corp to make analytical instruments, assemble HP 3000s and run sales and service operations.

AMD UNVEILS ONE-CHIP 80286 PROCESSOR BOARD

Advanced Micro Devices Inc last week became the first company to launch an 80286 microprocessor with all the support circuitry necessary to build an AT-alike apart from the memory chips integrated with the CPU on a single chip. Aimed particularly at the portable computer market, the new part is the first of many such devices expected from various manufacturers - Intel itself is known to be working on a version of the 80386SX as part of its Genesis project for more highly integrated versions of its microprocessors. The Am286ZX, and the Am286LX - which adds power management circuitry to cut the power drawn when the processor is idling, for use in laptops - contain an AMD CMOS 80286 microprocessor and all the ancillary chips required to build a basic AT-compatible personal computer, replacing 175 parts in the original IBM AT-DRAM control logic. There are two DMA controllers, three counter-timers, a real-time clock with CMOS RAM, flexible clock generation logic an enhanced bus controller, plus support for LIM 4.0 EMS management. Designers need only add a keyboard controller and external memory devices. Available in 12MHz and 16MHz versions, the parts sample this quarter with volume in second quarter 1991 and cost between \$69 for the Am286ZX-12 to \$89 for the Am286LX-16 in 1,000-up quantities. Intel's own highly integrated 80386SX will include 80387SX maths co-processor, cache memory controller, small cache and peripheral logic, and possibly a VGA-compatible graphics circuit with the CPU on one chip. All of which makes life harder for the support chip set specialists led by Chips & Technologies Inc, which is expected to hit back with its own reverse-engineered iAPX-86 parts integrated with its own peripheral chip sets.

APPLE WANTS SONY TO BUILD IT A NOTEBOOK MAC...

After the lacklustre showing of its Macintosh Portable, Apple Computer Inc is determined not to miss the bus in the notebook computer market, and has had talks with Sony Corp which centre on Sony building a low-cost notebook version of the Macintosh for Apple. Sony has confirmed the talks, and says that the Apple top brass has concluded that the Cupertinoer does not have the miniaturisation skills necessary to design a successful lightweight notebook computer. As well as being important in the US and Europe, Apple sees such a product as vital to its success in the Japanese market. The possibility that Apple will also licence Sony to offer Macintosh-compatible machines under its own name has been scotched by Sony, which said that "if a tie-up does materialise, we will act as suppliers and produce what Apple requests; we will treat it as part of our components manufacturing business - our expansion into the computer industry is a different matter," reports Reuter.

...APPROACHES TOSHIBA FOR COLLABORATION
Sony Corp is not the only Japanese manufacturer with which Apple Computer Inc is discussing collaboration and subcontracting: according to the Nippon Keizei Shimbun and the Kyodo newswire, Apple has also approached Toshiba Corp - but these talks may be about peripherals such as optical disks for portable and other computers rather than a subcontract to manufacture Apple gear. On the Sony talks, Kyodo says that Apple is currently developing a product that ties the Macintosh to Sony's audio and video equipment.

...AS MATSUSHITA SIGNS TO MARKET TANDY NOTEBOOKS

In a major piece of role-reversal, Matsushita Electric Industrial Co is to market 16-bit notebook computers manufactured by Tandy Corp in the US under the Panasonic brand name, and may move on to 32-bit models. All Tandy's early portable computers were built for it by Kyocera Corp, but it has invested heavily in low-cost manufacturing and already supplies Matsushita with desk-top machines that are sold as Panasonics for the US market.

CINCOM'S UNIX PLUNGE WITH SUPRA SQL FOR FIVE SYSTEMS

Cincom Systems Inc, Cincinnati, Ohio, which calls itself the world's largest privately held software company, yesterday finally cemented itself to the Unix world by announcing that its Supra SQL relational database will be available on five Unix platforms in January next year. Cincom, which has been making noises about a Unix strategy since 1988, (UX No 178), also revealed MS-DOS and OS/2 support and client/server versions of the database software for DEC, IBM and Unix environments. The five platforms are IBM's RS/6000 under AIX - an OSF/1 version will follow when IBM adopts it - Sequent Computer Systems' Dynix/ptx, Pyramid's OSx, Sun Microsystems' Sun-4 series running SunOS and Intel 80386-based personal computers with Interactive Systems' Unix. Additional Unix versions of Cincom's Mantis fourth-generation applications development environment - which is already available on Hewlett-Packard's 9000 Series 800 range of Unix systems - are under development, the company said. A version of Supra exchanging data between Unix and VMS systems is currently in beta-test, and Cincom says its aim is to develop a fully-distributed edition of the database that will run across a network of multi-vendor platforms. Prices will be on a per-user basis, but none have been revealed.

COMMODORE UNIX V.4 MACHINES "OUT IN JANUARY"

All the signs are that Commodore International is now getting serious about Unix but still no actual product. In February the company established a Unix marketing group (UX No 270), and in May it was talking in terms of competition with Sun and HP-Apollo with the Amiga 3000 (UX No 280). Now it's hired its first Unix product manager and wants to start shipping the Amiga 3000UX in January. The only problem is that it doesn't yet have a released version of Unix SVR4 or much software to run on the 68030-based machine - the reason it won't be making any announcements at the forthcoming Comdex show. Instead it is aiming for UniForum. In the UK, the company showed its expandable Amiga 3500 at the Business Computer Show in Earls Court at the end of last month, and it's this machine, and a possible tower configuration, that will be targeted at the Unix market.

CHORUS AND UNISYS REVEAL CO-OPERATION

As expected (UX No 302) Chorus and Unisys went public with their technical alliance last week. Unisys cut the deal with the French company fourteen months ago, and expects to meet the first of its three major milestones in the first half of next year when it will trot out its first commercialised Chorus-based product. Unisys is being shy about exactly what its hardware will look like, but the stuff is supposed to go after the fault tolerant market as in airline reservation, health care, banking and imaging - the kind of thing Unisys currently serves with its proprietary gear. The pair are working on the V.4 implementation of Chorus' modularised Unix, and will have it ready by the first milestone, improving its parallel processing and distributed file system capability in the process. The alliance will span at least two more years. Unisys was anxious to announce now rather than hold off until it had a deliverable product in order to lend Chorus as much credibility as it could. Chorus will be trying to sell the fruits of the collaboration to as many vendors as it can, and Unisys hopes to see it adopted not only by individual companies, but with consortia such as Unix International. Chorus currently claims to have a European computer company ready for announcements.

VISUAL SEEKS PARTNER FOR RISC AND SECURE X-TERMINALS...

Following the launch of new Motorola 680X0-based colour, and sub-\$1,000 X-terminals, (UX Nos 302,300), Visual Technology Inc's president Ronald Smith disclosed that the firm is now aiming its sights on RISC-based and secure X-terminal products, and is actively seeking a hardware partner to form a strategic alliance with. Smith says the Lowell, Massachusetts outfit is currently working on developing a secure X-terminal - security will likely be offered as an add-on peripheral to the terminal itself, but Smith believes prices will remain low. He also revealed that Visual will soon begin making RISC-based X-terminals for a Japanese company, though he declined to reveal either the company or the RISC part concerned. To keep ahead of the increasingly fierce competition in the X-Window display market - 40 new models have been introduced and eight new vendors have leapt upon the bandwagon this year alone - Smith expects Visual, within a year, to be producing X-terminals with 1280 x 1024 resolutions and 24 colours running at 76Hz as standard. Visual is also reported to be working on voice-processing technology for X-terminals with US speech system specialist Cruzewell Applied Technology, and is currently putting together a series of reports in conjunction with technology consultants DMR Group with the aim of justifying a place in the market for X-terminals by comparing X-terminal-based solutions for particular applications with their corresponding workstation options.

...GETS OEM DEAL FROM STARDENT...

Visual Technology, has benefitted from its long-established OEM relationship with Kubota Corp (UX No 209,243), and won its first domestic OEM deal from Kubota sibling Stardent Computer Inc of Newton, Massachusetts. Previously a Network Computing Devices Inc customer through its Stellar side (UX No 226), Stardent will continue to offer the NCD products, while concentrating marketing efforts on the Visual range, which are expected to include the new high-resolution colour versions launched last week (UX No 302). Financial terms were not disclosed.

...WHILST SPHINX HAS CLIPPER-BASED X-STATION FOR LAUNCH AT SYSTEC

Yet another player entering the crowded X-terminal marketplace is Sphinx-Computer GmbH, Munich, with its X-Station series of colour displays - the first of the genre to use Intergraph's Clipper C300 Risc chip. Running a 33MHz version of the part and rated at 8.3 MIPS they come with between 4Mb to 32Mb memory in 17", 19" and 20" configurations with 75Hz and 70Hz refresh rates. The four models - XS 7220C-75, XS 7220C-70, XS 7217C-75 and XS 7219-70 - each have a 1280 x 1024 resolution and come with X11.3 X-Windows server software and TCP/IP. They are due to be unveiled at the Systec 90 show which takes place in Munich between 23rd and 26th October.

SUN CLAIMS OPEN LOOK WINS AT SEYBOLD CONFERENCE

Sun Microsystems has been extolling the virtues of its Open Look user interface at the Seybold Computer Publishing Show, which took place last week in San Jose, California. At the show, some 22 electronic publishing applications were being shown with Open Look, including seven new products from Alsys Corp, Electronic Book Technologies, Harris, HSD Microcomputer, Kodak, Petronics Corp and Wright Technologies. Sun highlighted its DeskSet suite of 3D personal productivity tools, which allows iconised Open Look files to be dragged over from one application to another by using the mouse. It also claimed that 35 companies were working on non-Sparc ports of the SunView toolkit, which integrates the Open Look and SunView graphical user interface, including Unix workstations from OSF members DEC, Hewlett-Packard and IBM - with software developer TGV working on a VAX/VMS version, Integrated Computer Solutions in Cambridge, Massachusetts developing a Macintosh version, and Quarterdeck Office Systems a MS-DOS version. Sun now claims a lead in the Unix electronic publishing market, with a 28% share.

JAPANESE TURN OUT IN DROVES TO HEAR RIVAL OPEN SYSTEMS CAMPS PUSH THEIR WARES

By Anita Byrnes

September 28 saw a major conference on open systems, the International Symposium for Open Systems, Tokyo 90 held in Tokyo under the sponsorship of newly incorporated Sigma Systems Inc, the successor to the Sigma Project. Co-sponsored by the Information technology Promotion Agency, IPA, and supported by the Ministry of International Trade & Industry, the conference rated attendance from 500 industry people eager to hear speakers from the Open Software Foundation, Unix International Inc, Unix System Laboratories and X/Open Co Ltd as well as from Sigma Systems. The aim of the day, according to a representative from Sigma Systems was to inform the Japanese audience about the current state of Open Systems, and no doubt indirectly to promote Sigma Systems and what appeared to be a redefinition of its role in the industry.

For users

As the president of Sigma Systems Inc, Mr Takeshi Tsujioka said in opening the day, the goals of the Sigma project when it started in 1985 were precisely those espoused today for "open systems". that is to develop a set of tools that could be used across a common development environment. The role of Sigma Systems, incorporated as a company only in April, is to further develop the products developed under the Sigma Project. A guest speaker from the Industry Ministry, Mr Tsutomu Makino, the Deputy Director General of the Machinery and Information Industries Bureau, the division that has guided the Japanese computer industry through its infancy and childhood, placed the current climate of "computing for users" in the context of the history of the development of the Japanese industry - computing for vendors - and its current problems, such as the shortage of development staff and pressure to move to regional areas. The main part of the day saw presentations from George Shaffner, chief marketing officer of X/Open Company, Thomas Bishop assistant vice-president of technology and planning from Unix International, and Joel Appelbaum, vice-president of open solutions software at Unix International, followed later by Chuck Reilly, vice-president, operations of the Open Software Foundation and Dr Rob Morel, the managing director of Pacific operations of the Open Software Foundation. George Shaffner started with an analogy comparing Open Systems and disarmament - "one similarity which I find compelling" he said is the amount of money being spent on Open systems - "100,000 billion yen in the next 10 years" is his estimate.

X/Open enjoys considerable support in Japan with the major vendors such as Fujitsu Ltd, Hitachi Ltd and NEC Corp being members of the X/Open board. George Shaffner attempted to outline some trends in the market the exponential growth of the "open systems sales" as a total of the whole (currently \$70,000m against \$500,000m); and spoke about the price paradox - the higher profit margins of proprietary systems for vendors versus the better value of open systems for users. X/Open sees the concept of interoperability as an accelerator to portability, and the alliances of user organisations that are appearing - Petroleum Open Software Corp, the Houston 30 and so forth, indicating the start of a critical mass of buying power with a voice which will accelerate the development of products and markets, resulting in a shift of the price paradox. In the panel discussion after the presentations X/Open announced that Sigma Systems is to help expand X/Open's XTRA user survey in Japan.

Thomas Bishop of Unix International covered basically two themes - current activities of Unix International and the process of product definition and licensing at Unix International and AT&T. Mr Bishop was at pains to make the audience understand that Unix System V.4 had "substantial" Distributed Computing functionality which was available today, and he went through its components - RPC, Remote Procedure Call, Network File System and Remote File Sharing, External Data Representation, XDR, and Network Information Service, Streams, Sockets, TCP/IP and application portability through X/Open's Portability Guide release 3. Joel Appelbaum also expanded on this theme of Open Distributed Computing and foresaw the appearance of object-oriented development tools such as C++, the growing importance of graphical user interfaces and the improvement of security functions.

Merger fear

Later Chuck Reilly and Dr Rob Morel gave positive, even aggressive presentations claiming that OSF/1 was the "best operating system today", and Dr Morel in particular emphasised the idea of Unix running on top of the Mach-based OSF/1, thus providing Unix server functions. "OSF/1 can unify the industry" he said, "by supporting Unix, OS/2 and MS-DOS", and making it much easier to run Unix on parallel processors such as the HyperCube. The Open Software Foundation is advocating this idea to Japanese vendors such as Fujitsu, Toshiba Corp, Oki Electric Industrial Co and NEC, asking them to do the work of converting their version of Unix to run atop the OSF/1 microkernel, citing the example of Hewlett-Packard Co, which converted HP-UX to Mach 2.5 without problem. The final panel discussion skirted around a lot of issues - questions from the audience indicated that some software vendors are still undecided about the benefits to them of open systems - especially the financial benefits. George Shaffer admitted that his "greatest fear was that Unix International and the Open Software Foundation would merge", competition being the best spur for technological advancement. Sigma Systems director of Advanced Systems and Technology Division Yoshio Goto talked about redefining Sigma's role in terms of assisting standards definition in Japan to move from "localisation" to "internationalisation", and working with X/Open on this issue. In the future, Sigma would like to establish tests and provide tools similar to X/Open branding such that compliance with these tests would also mean X/Open compliance.

GLOOM FOR UNISYS SHAREHOLDERS, BUT UNRUH REMAINS CONFIDENT

Unisys Corp has a \$1,250m revolving credit agreement with its banks that runs through to 1993, which should be enough to see it through any short-term problems in normal circumstances, but in the current climate, analysts doubt that the banks will let it ride longer than the middle of next year before starting to restrict its credit. Last week when Unisys said that it was passing the dividend on its ordinary shares - a move which will save the company \$160m a year - the price of the shares slumped 23% to \$5.375, and the word from Moody's was enough to drive the price down another 23%, off \$1.125 to \$3.875, at which price its \$10,000m of annual sales is valued at just \$620m. Although the shares put on one bit - 12.5 cents - on Wednesday, "dead cat bounce" was the laconic response. With \$4,000m of debt to be assumed - \$5,200m including preference shares - no-one is going to want to bid for the company, and the current financial worries in Tokyo mean that even a rescue from Japan looks much less likely than it would have done a few months ago. At the end of June, Mitsui & Co subscribed for \$150m of preference shares convertible into 4.6% of Unisys common at what now look like astronomic prices of \$20 and \$21 a share, and made a \$50m five-year subordinated loan to the company, but it seems unlikely that Mitsui would have done the deal if it knew then what it knows now. Unisys' problems are ultimately of its own making: it was always crazy to put two old-line mainframe companies, each with an eroding base, together and expect the result to be more successful than either had been apart, and the company's biggest weakness is that those two mainframe bases are still its biggest assets. Its best bet would probably be to sell one of the two mainframe businesses, but it is unlikely that it would find it easy to find a buyer for either, so it may have to soldier on alone, looking for ever deeper cuts and small operations that it can sell - Timeplex never mentions the fact that it is owned by Unisys on its press releases, which suggests that it may not be much longer, and Japanese interests would certainly buy the local operations.

Whilst all Unisys' closest rivals have forged ahead since the merger of Burroughs and Sperry in 1986, the two companies were doing \$10,500m annual sales then, now Unisys is losing money on sales of less than \$10,000m. The Wall Street Journal has been collecting other statistics - according to International Data Corp, Burroughs and Sperry had 8.2% of the world market for computers costing over \$1m in 1985, last year, Unisys had 4.7% in mid-range computers, IDC's figures are 7.1% in 1985, 5.3% in 1989. Turnover for each of the 78,000 employees is \$130,000 a year, against \$176,000 for the still over-staffed IBM. And Unisys acknowledges that where Sperry and Burroughs on average got 80% of their customers' data processing dollars 10 years ago, Unisys now gets less than 40%. The company's new president James Unruh remains confident, saying that the balance sheet is high-top priority and that more jobs will be cut if necessary, especially if sales stagnate.

AT&T CUTS US 3B2, 6386 PRICES

Recognising that its products were becoming uncompetitive, AT&T Computer Systems last week cut prices on its 3B2 server line, added a new 3B2 model, and cut prices up to 12% on the 6386 WorkGroup System client-server product line. The 3B2/1000 Model 70 with 22MHz CPU, 16Mb memory, two 300Mb disks and 120Mb tape is off 25% at \$44,900; the Model 80 appears in a new Package B at \$74,900 with 24MHz processor, 32Mb memory, two 600Mb disks and tape; the 3B2/522 is \$24,900 with 4Mb 22MHz CPU, 300Mb disk and 120Mb cartridge tape. New prices for the 6386 WorkGroup System range from \$1,900 for the 6386SX/EL WGS diskfree, off 10.8%, via \$12,000, off 11.6%, for the 6386E/33 WGS Model S base, to \$20,000, off 10%, for the 6386E/33 WGS Model S client-server. The 593 Laser Printer is off 11.8% at \$1,500 and memory prices for it are also cut 25% to 40%.

MICROSOFT SOCKS LOTUS, WORDPERFECT WITH WINDOWS BUNDLE

The likes of Lotus Development Corp and Wordperfect Corp were thoroughly wrong-footed by the runaway success of Microsoft Corp's Windows 3.0 and are seeing reduced business on their flagship products as a result of not having versions designed to run under Windows 3 - all of which leads them to wonder whether it is pure coincidence that they were not strongly advised to be ready for the new release and the fact that Microsoft has its own well-fancied Excel spreadsheet and Word word processor - which of course come in Windows 3 versions. And Microsoft is not about to let its advantage slip: yesterday it announced a new bundle, the Microsoft Office for Windows, which combines Excel for Windows spread sheet, Word for Windows word processor and PowerPoint for Windows presentation graphics, the Windows version of the Mac program of the same name. The bundle sells for \$1,000 against \$1,500 when bought separately and the price stands until year-end. It needs a minimum 80286 with 2Mb, EGA or Hercules graphics, hard disk - and Windows 3.0 of course.

SOFTWARE SHOULD COME OFF BEST IN RECESSION, BUT HARDWARE, SERVICES WILL BE HIT - POLL

The software market appears to be recession-proof - this is one of the findings of Price Waterhouse's IT 100 poll of 100 data processing managers into the impact of an economic recession on information technology expenditure in the UK. The poll discovered that 74% of computing budgets will not be cut in the short term, while 15% will actually increase; however, in the longer term a recession will cut around a third of data processing budgets. Computer hardware and services will be hardest hit with 35% of companies cutting back on services, 28% on hardware in the short term, the figures rising to 43% and 34% respectively if a recession persists. Whatever happens, less than one quarter of British companies will reduce their software budgets, although software projects may suffer from cuts in staffing. And two thirds of the companies polled said that they would be using information technology in mapping their cost reduction strategies.

CONCURRENT COMPUTER FAILS TO MEET PAYMENTS ON ITS BANK DEBT

Tinton Falls, New Jersey-based Concurrent Computer Corp, which was ordered by its banks last month not to pay the \$4.7m interest due on its senior subordinated notes, reports that it also failed to make the September 1990 principal and interest payments due on its senior bank debt, and says it is having on-going discussions with its banking group over the interim period until repayment terms can be established, based on the company's expected new business plan. The new chief executive, Denis Brown, said that the banks, as well as its bondholders, recognise the need to modify the company's capital structure to give it the flexibility to grow in the computer industry. Concurrent is preparing a business plan intended to address current financial issues, market and technology development, and the organisational changes required, and expects to complete it this quarter.

1776 FAULT FREEDOM SOFTWARE BOOSTS DISK ARRAY PERFORMANCE

1776, that patriotic American from Los Angeles, has come up with disk array and mirroring software that promises to let 386/486 machines improve the performance and fault tolerance of systems built with disk array controllers by some 50% to 500%. List price for the Fault-Freedom 2.3 is \$995, and the company wants to do OEM deals. A competitor to products from Veritas and Chantel, it runs on System V.3 and V.4, and will allow large databases to span two or more disks.

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DEC is reportedly already shipping its DECsystem 5500 RISC server (UX No 301), and the announcement is thought to be imminent: the machine is expected to cost around \$50,000 and to be rated at 28 MIPS.

NCR Corp pushed very hard to get the recently announced agreement for a single Unix operating system standard for Intel Corp architectures through the door, overcoming alleged personality clashes between AT&T Co's Larry Dooling and Doug and Larry Michels of Santa Cruz Operation: the thing that finally turned the tide was the alignment between Santa Cruz and the Open Software Foundation after which negotiations started in earnest.

Worldwide growth of chip sales will slow to just 1.5% in 1990, but will return to double-digit rates next year, according to a study by the Semiconductor Industry Association in San Jose: in May the trade group was forecasting a decline in 1990 US chip sales and said the world wide semiconductor market would grow to \$49,500m from \$48,800m this year; it sees sales rising 12.5% to \$55,700m in 1991, and adding another 19.5% in 1992 to reach \$66,600m.

Irvine, California-based Corollary Inc has named Unizone Inc, Tempe, Arizona its first regional distributor of its smp symmetrical multiprocessing Unix computer systems.

A research group lead by Professor Kim at the Korean Institute of Science & Technology claims to have developed the KaiCube II, a hypercube parallel processor using 68020s that it says runs some applications at half the speed of a Cray 2 - it is otherwise rated at 64MFLOPS: launch is set for 1992.

The X400 Application Program Interface Association and X/Open Co Ltd have announced new specifications for electronic mail applications intended to enable developers to write programs that operate independently of operating systems: the specs include both X400 messaging and X500 directory standards and the two groups will submit their Applications Programming Interface to the Institute of Electrical and Electronic Engineers and other bodies, hoping to get it certified.

NCR Corp's System 3000 open architecture computers and its WaveLAN wireless local area network has enticed GWB Technology Inc into an agreement under which GWB will market its Anthem banking software co-operatively with NCR on the kit in a pact worth \$40.6m over the next three years, says the Daytoner.

Doesn't Siemens AG have enough on its plate at the moment, what with staging its own anschluss on Nixdorf Computer AG and consigning to the scrapheap all the manufacturing equipment used to build the one fairly powerful mainframe that was in serial production in the former Comecon countries at VEB Kombinat Robotron's flagship Dresden plant - which looked like a UK electronics plant circa 1960 - before wheeling it modern equipment for assembly of its own machines at Robotron? Market gossip last week had Northern Telecom Ltd selling its 27% stake in STC Plc to Siemens to give it a springboard for a knockout bid that would also give it 20% of ICL - since Siemens is already in the Fujitsu Ltd camp, that aspect would not be opposed by the Nippon firm.

Bull HN Information Systems Inc has completed acquisition of Honeywell Federal Systems Inc from Honeywell Inc for \$93m: Bull's new wholly owned subsidiary has changed its corporate name to HFS Inc but will continue to be called HFSI - it has 1,600 people and did \$274m in 1989.

Mirroring its alliance with Tandy Corp for the US market, Matsushita Electric Industrial Co has signed with Siemens Nixdorf Informationssysteme AG to exchange personal computers in Europe: Siemens will sell Matsushita notebook computers under its own name, and Matsushita will sell Siemens machines under its Panasonic trade name in Europe.

Wall Street Journal last week reported that Compaq Computer Corp, which has up to now built all its computers around members of Intel Corp's iAPX-86 microprocessor family, is ready to move up-market into the Unix workstation world, and has decided to adopt a RISC microprocessor - not the Intel 80860 - but either Sun Microsystems' Sparc and MIPS Computer Systems' R-series: Compaq is understood to have been less than pleased when Intel entered the systems market with personal computers and servers, doesn't like the fact that Intel is the sole source for its microprocessors, and invested in Nexgen Microsystems Inc last year as a mark of encouragement for that company's efforts to develop a processor compatible with Intel's 80386 and 80486. However whilst Compaq acknowledges continuing talks with all three manufacturers, it says that as yet it has "no current plans to build a computer that uses a RISC as the CPU."

Shares in Beaverton, Oregon-based Sequent Computer Systems Inc were hit by the backwash of concern over Unisys Corp as traders realised that the company did 27% of its business with Unisys in the second quarter of this year, and Sequent shares slumped \$2.50 to \$13.50: Sequent responded by rushing out a statement saying that it expects to meet or exceed estimates for third-quarter 1990 revenues and earnings per share - analysts had been going for revenues of approximately \$65m and earnings of \$0.24 to \$0.26 per share; in response to concerns over Sequent's relationship with Unisys, it said its OEM business remained on target and accounted for about 28% of total revenues, with orders from Unisys at 18% of total sales.

Apple Computer Inc will spend \$25m in the US, \$40m worldwide over the next three months on an advertising blitz to give its Macintosh Classic and the other two low-end machines launched next week the best possible send-off the firm can manage: scheduled for launch on Monday October 15 base prices are \$1,300 and \$2,800.

Edinburgh Portable Compilers Ltd has joined Sparc International recently.

IBM US vice president and general manager Terry Lautenbach says that IBM will implement elements of the Open Software Foundation's Distributed Computing Environment on both its SAA and AIX environments: "we see DCE as the key to interoperability between SAA and AIX and between IBM systems and non-IBM systems - DEC, HP, you name it." IBM was a contributor to DCE.

Cray has also decided that the market for massively parallel machines has now matured sufficiently that it is worth pursuing, and has reassigned senior researcher Steve Nelson, who has been running the project to develop the C-90 successor to the Y-MP, to head investigation of massively parallel technologies with performance in the TFLOPS range now that the C-90 is ready to move into the preproduction phase.

Intel Corp has discovered that Advanced Micro Devices Inc wants to call its reverse-engineered version of the 80386 the Am386, and filed a trademark infringement suit to prevent AMD's use of the 386 designation on which it has a trademark of its own. How did it get wind of AMD's plans? "AMD product announcement documents were mistakenly delivered to an Intel employee at an hotel," it says, adding that it is not at present seeking to stop AMD launching or shipping the chip.

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OSF SETS DISTRIBUTED COMPUTING PRICES, SPILLS BEANS ON PLANS FOR OSF/1, OSF/2, INCLUDING PORT FOR SUN-3

The Open Software Foundation last week revealed pricing and licensing details for Release 1.0 of its Distributed Computing Environment - DCE - although a fully-integrated architecture will not be generally available until early next year. DCE, which is a combination of software technologies for creating and implementing distributed applications, can be licensed as separate components, and is divided into two product rafts - DCE Executive and DCE Services. Initial source code licences for three copies of the combined package, with object-code distribution rights, begin at \$60,000 - or \$15,000 without distribution rights - with an additional \$90,000 unlimited single-site licence fee for commercial users: details on page 5. At the same time OSF vice president of research and advanced development Ira Goldstein has been talking to Unigram.X about the long-awaited OSF/1 operating system, which he claims will put OSF and its customers way ahead of their rivals. Goldstein says the Foundation plans to port OSF/1 over to Sun Microsystems' Motorola-based Sun-3 workstation, which has fallen from favour with the Mountain View, California-based company in favour of its Sparc products, and Goldstein also says that there are up to ten secret members of the Foundation, many of them claimed to be "SVR4 companies". See page 4.

MIPS R3000A RISC FIXES THE DEC BYTE-ORDERING SNAG

MIPS Computer Systems Inc, Sunnyvale, California has announced a new version of its R3000 RISC microprocessor which it says solves the problem of DEC MIPS stations being incompatible with other MIPS machines because DEC changed the byte ordering, (UX No 230). The new part enables applications to run on machines configured in either big endian or little endian byte order without the need for recompilation. MIPS says the new R3000A RISC completed certification for its five semiconductor partners, which means that users are assured that parts from any of the partners - NEC Corp, LSI Logic, Siemens AG, Integrated Device Technology and Performance Semiconductor will be pin-and specification-compatible. The R3000A enhanced version of the R3000, is claimed to be the highest performance CMOS microprocessor commercially available with system performance of 33 VAX MIPS at up to 40MHz. It draws 20% less power than the E3000, has additional features for building fault-tolerant computers, and needs fewer statics for cache.

SUN TO SHED SOME LIGHT ON LONG ROAD FROM SUNOS TO V.4

The industry's itch to know how Sun will play the System V Release 4 card is going to be scratched later this week when it starts unveiling its operating system strategy. As we understand it at this point, Sun is going for a phased migration from SunOS to SVR4 that will take some time to complete. Its October 18th statement of direction is expected to be geared to the ISV community, particularly those with product already in the Sun catalogue, encouraging them to move over. It also has to get its in-house software, reportedly representing another 2,000 packages, ported over before it has anything to say to the end-user. At some point down the road, SunOS will die, but then Sun-specific bells and whistles will be added to SVR4. Solbourne Computer, the only outside Sparc vendor to license SunOS direct from Sun rather than through Interactive Systems Corp, said it was not anticipating being able to offer customers V.4 for at least a year.

PHILIPS CUTS 4,900 COMPUTER JOBS, ABANDONS PROPRIETARY KIT

Philips NV, which last month cut 4,000 jobs in its semiconductor operations, last week let the other shoe drop with the axing of a swingeing 4,900 of the 15,000 jobs in its information systems division, most of them in Europe. The company is phasing out the development, manufacturing and sale of its own computers apart from personal computers and the job cuts will be split evenly between manufacturing and sales. The company is to buy in all servers and multi-user computers from Motorola Inc and Intel Corp, and says that it acknowledges the need to put its own house in order before it can look for a partner for its computer business. By concentrating on extremely open hardware and software, it will be able to provide any partner with marketing channels for that company's products across Europe.

SOLBOURNE S4000 IS FIRST DESKTOP CHALLENGER...

Solbourne Computer Inc is keeping tight-lipped about its first serious challenge to the Sun compatible desktop market until this Thursday (18th), but Swedish trade paper Computer Sweden has already spilled the beans. It reports that, as expected (UX No 302), the new S4000 uses the 64-bit Panasonic MN10501 Sparc implementation Solbourne developed in conjunction with its parent company Matsushita Electric Industrial. Rated at 25.5 MIPS, the system will be expandable to 104Mb and cost from £7,000. The paper also expects an S-Bus SGA graphics accelerator board for 2D and 3D graphics. Up until now, Solbourne has been most successful in the server market with its multi-processor Sparc systems: the new machines are expected to give the company a 40% performance advantage and 10% price advantage over Sun's Sparcstation 1.

...AS COMPUADD

PLANS SPARCSTATIONS...

CompAdd Corp has become the first US mass marketer of personal computers to commit to entering the Unix workstation market, saying that it will come out with a line of machines built around Sun Microsystems Inc's Sparc RISC running the SunOS version of Unix. Like its Austin, Texas neighbour Dell Computer Corp, CompuAdd made its name as a mail-order vendor of low-cost MS-DOS personal computers, and the move up to low-end workstations is seen as a response to what a saturated personal computer market.

...WHILST ABS OF CANADA

MAY TAKE ON MISSION CYRUS

The company interested in taking over the remains of the troubled would-be Sparc cloner Mission Cyrus (UX Nos 288, 300) has been identified as ABS Technology Ltd, a low-profile but public Canadian micro manufacturer out of British Columbia, which is proposing to exchange its stock to cover Mission's debt, and take over everything that's left.

IEEE GUI STANDARD - BACK TO THE DRAWING BOARD

In London last week for a standards meeting hosted by the British Standards Institute, Jim Isaak, chairman of the IEEE's technical committee on operating systems, or Posix, took time out to talk to Unigram.X about the progress - or lack of it - being made towards defining a common graphical user interface, GUI, standard.

Given the fierce competition between vendors supporting the rival OSF/Motif and Open Look Unix graphical user interfaces, the search for a common GUI by the various Unix standards bodies was always going to be a red-hot political iron - and an iron that no-one has been prepared to pull from the fire yet. X/Open's user members put the adoption of standard graphical user interface technology at the top of their list of priorities earlier this year, and member companies recently exerted extreme pressure on X/Open to make a final choice - but to no avail, (UX No 289). So far, IEEE's efforts in the windowing arena have gone from hope, (UX No 294), to despair, (UX No 296), and back again, (UX No 297), embodied in the effort of committees 1201.1, 1201.2 and 1201.X. According to Isaak, 1201.2 and 1201.X are working on the human portability issues of the "look and feel" of GUIs and windowing environments, whilst 1201.1 is where most of the "toolkit" action is taking place. The group is variously reported to have adopted, then dropped, and now re-considering a virtual GUI application programming interface from Colorado-based XVT that could support both Motif and Open Look. Isaak says that the group is considering this technology as one option, but confirmed that five or six others are still being examined, (UX No 297), in addition to the Motif API and look and feel, and the Open Look look and feel plus APIs from AT&T and Sun Microsystems. Nothing is certain he says, except that neither Motif or Open Look will be selected outright because of the political situation, and that although a solution which accommodates the intrinsics X-Windows programming set is likely - any kind of merged combination of the two X-Windows-based offerings remains impractical. A final choice of technology - or more likely technologies - may be a couple of years off Isaak stresses, though a decision on how to deal with the problem, (or back to square one), will be taken within six months he says. The problems are exemplified by the US National Institute of Standards, which recently decided to adopt Intrinsics as the basis of any common GUI. This tip-toe towards a solution was met with no small amount of criticism, and as a result NIST is now unlikely to define anything at a higher level.

Services and C

On November 1st the IEEE will formally adopt new system-level interfaces for operating system services and C language bindings into Posix. The specifications - which come from the 1003.1 working group - include a new tape archiving format, file tree traversal interfaces and a proposal for internationalisation interfaces. Isaak says ISO will replicate these specifications in its own 9945-1 system interface specification expected later this year. Work on system shell and utilities specifications under the auspices of the 1003.2 group is expected to be complete within six months.

BATH UNIVERSITY, MICROWAY DROP TRANSPUTER FOR 80860 AS ACCELERATOR

Researchers at Bath University in the UK have switched personal computer accelerator boards from a Transputer-based board to an 80860 one, saying that the 80860 not only outperforms a single T800 by a factor of 10, but is better to use one 80860 than put 10 T800s together because there is no efficiency loss. The 80860 RISC processor was originally developed as a coprocessor, particularly for graphics workstations. Those already using the chip include Hewlett-Packard, IBM and Sun Microsystems. They typically employ it as an add-in board or as a graphic workhorse co-processor - it has an in-built three dimensional unit. Backing up the Unix perception, Intel has now formally released a Unix System V.4 platform reference design aimed at OEM workstation manufacturers using the 80860. But Microway, of Kingston, Surrey, dispute the Unix slant, saying that sales of its personal computer add-in boards have been around 90% in the MS-DOS market, the remaining 10% being Unix. OS/2 sales have been negligible. Microway's Number Smasher-860 personal computer add-in board was developed by the Bath University scientists while looking for a Transputer replacement. Microway reckons software for next phase of Intel's offerings for the chip will come down not from the Alliant workstation environment, but from the personal computer market.

TANDEM HOPES TO MAKE HAY IN WHAT IS NOW TO BE KNOWN AS NORTHEAST GERMANY

Tandem Computers Inc is looking hungrily eastward: the developer of fault-tolerant systems is opening a separate division to serve Berlin and the former German Democratic Republic, which has been quickly dubbed Deutschland Nordost - cynics say it should be called Duetschland Nordlost. Romin Neumeister, head of Frankfurt-based Tandem Computers GmbH enthuses to *Computerwoche* that by getting into what was East Germany, the company can begin to infiltrate further parts of Eastern Europe. Until recently Tandem had only technical representation in the former - and soon-to-be? - capital, from where it served six major customers. At the head of the Berlin business is Jo'rg Weigel, formerly responsible for major customers at the Nixdorf Computer Inc in the US. The company's eagerness to strengthen its links with the east was sparked off by two installations that were the product of joint ventures between West German Tandem customers and East German companies. First, in June, Gruner & Jahr installed an editing system for the Dresden Morgenpost based on Tandem computers. Then, at the end of August, Fuldaer Lebensmittelkette Tegut installed a NonStop CLX system for its Gotha-based subsidiary, Tegut-Konsum-Partnerschaft GmbH. This marketing support set-up has impressed companies in Frankfurt, which like the idea of the reduced financing problems. But Tandem does not intend to get complacent - it is still seeking out independent contacts and alliances.

Texas Instruments has added the 386/SXP computer to its TI Workstation series: the 386SX-based machine is for four to eight users and runs SCO Xenix and Unix as well as MS-DOS, with prices starting from \$2,960.

Wyse Technology, which bills itself as "the world's leading general purpose terminal manufacturer" has entered the X-Terminal market with the WY-X5, using a Motorola 68020 processor with up to 5Mb memory and costing from \$1,800: it is the first product to be co-developed by engineers from the Wyse systems and terminal divisions, and should be available during the first quarter of 1991 for OEMs and resellers.

SUN'S NEW SUN COBOL IS DISTRIBUTED VERSION OF MICRO FOCUS COBOL/2...

Sun Microsystems Inc has launched Sun Cobol - but underneath, it is well-known Cobol/2 from Micro Focus Plc. Sun describes its new offering as the first distributed version for client-server Unix computing: up to now, Cobol applications had to reside on or be managed by a single server, but the new version has Sun's NetISAM record manager bundled so that Cobol files and data can reside independently anywhere on a network. It is optimised for Sparc RISC microprocessors and generates native Sparc code; it is also claimed to have improved input-output performance. Single user copies of Sun Cobol start at £1,700 for the compiler with Animator; £350 for the run-time system and £250 for Micro Focus' Forms-2. It will be ready by the end of the month. Informix Software Inc, Menlo Park, said its ESQL/Cobol will be available for Sun Cobol, enabling programmers to embed ANSI standard SQL statements in their Cobol applications.

...AND HEWLETT-PACKARD OFFERS OPENVIEW FOR SUN

Hewlett-Packard Co has introduced a new version of its HP Open View Network Management server software for Sun Microsystems Inc workstations, the first version for a non-Hewlett computer. The network manager is part of the company's NewWave Computing strategy designed to facilitate the building of networks that make computing resources easier to find, share, use and manage. The company also announced that existing HP-UX-based network- and systems-management applications can now be integrated without additional programming; OpenView now manages multivendor Simple Network Management Protocol devices without additional programming; the HP LANProbe system is integrated under OpenView Network Management Server software; SNMP data is put up on MS-DOS machines and there is an SNMP-based agent for Apollo systems; and Windows 3.0 is now supported in OpenView Windows. The OpenView Network Management Server end-user software for Sun is \$7,000.

MOTOROLA TURNS TO INTERACTIVE FOR UNIX NETWORKING

Motorola Inc's Computer Group has turned to Santa Monica, California-based Interactive Systems Corp for networking technology and integration services for its Unix System V products, taking a licence to Interactive's portable Unix Internet protocols, including Streams TCP, Simple Network Management Protocol and the Portable Streams Environment. Under the \$1.4m agreement, Interactive will also provide Motorola with custom software integration services for three years and will prototype and integrate evolving Open Systems Interconnection networking technologies as well as existing TCP/IP networking, for Unix System V.3 and V.4 on Motorola's Delta Series and MultiPersonal Computers.

ETHICS: SOFTWARE BUSINESS PRACTICES COUNCIL FORMED

A Software Business Practices Council formed by AICorp Inc; Ashton-Tate Corp; Banyan Systems Inc; Chipcom Corp; Cognos Inc; Datamedia Corp; DEC; Hewlett-Packard Co; Ingres Corp; Intec Controls Corp; Integral; Interleaf Inc; Lotus Development Corp; Multiview Inc; Price Waterhouse; Ross Systems Inc; and Sybase Inc has as its mission restoration of the reputation of the software industry in the areas of advertising of vapourware, public relations, marketing, product comparisons and financial reporting. Notable absentees are Oracle Corp, which dismisses it as a marketing ploy designed to capitalise on its own earnings restatement, and Computer Associates International Inc, which was all set to join but decided it belonged to enough clubs.

SWEDISH CDEVO CHOOSES C++ AND XVT FOR OBJECT ACCOUNTS

The forthcoming Swedish Unix show, which takes place in Stockholm between November 14-16th, will see the premier of an object-oriented accounting system developed in C++ by Swedish company CDEVO. The system is based on object accounting, giving users the ability to define projects, departments, products etc. as objects. Object accounts can be compiled to a central accounting system, giving the user free choice of where costs and earnings are to be shown. Using client/server architecture, windows and a built in security system, the product uses an application programming interface from XVT Software Inc (UX No 293), making possible the simultaneous introduction on MS-DOS with MS-Windows, Unix with Motif, Mac-OS, OS/2 Presentation Manager and ASCII terminals.

DEC SPONSORS FIRST PROJECT ATHENA NETWORK IN EUROPE

The Royal Institution of Technology in Stockholm will get the first European installation of the Athena network system, developed at MIT with joint sponsorship from DEC and IBM. The Swedish Athena project will be named Bifrost (after the bridge between the god's world of Asgard and Midgard the world of men in Nordic mythology). The installation, sponsored by DEC, will at first comprise the Electronics section of the institute. It will run on the 60 VAXstations and DECstations installed at the section. All the 2,000 students, faculty and researchers are expected to become users. Some adaption, such as national language character sets for Sweden and the rest of Europe, will be needed before the installation can become fully operational. If the installation is successful, the RIT will install the Athena software at all locations, and will attempt to become the European competence centre for the Athena system. The installation, which according to the Athena project charter is free, should be finished by November this year.

ICL'S NEW 486 SERVER TURNS UP IN THE US

Reports that ICL was planning a 486-based server line running Unix V.4 (UX No 302) have turned out to be true: the machines have turned up launched by ICL's US office in Irvine, California. The DRS 3000 line will be marketed to "strategic OEM customers". It uses the EISA bus, has a range of disk storage and expansion capabilities, and supports up to 32 users. Prices start from \$30,000, with an entry level system including 8Mb RAM, 330Mb hard disk and 150Mb tape unit. Designed as a joint venture between ICL in Bracknell, UK and Irvine, California (the old Computer Consoles Inc division), the new range is unlikely to be seen in Europe before the new year. At the same time, ICL US launched the DRS 95 for DOS and PC LAN use, introduced in Europe back in July.

HDS SIGNS OEM DEAL WITH DELTA FOR FIRST TEMPESTED X-STATIONS

Human Design Systems Inc, of King of Prussia in Pennsylvania, has entered into a joint venture with Delta Data Systems, Columbia, Maryland, to produce the first Tempested X-Terminals based on the HDS ViewStation Plus line. The multi-million dollar OEM contract will result in colour and monochrome versions of the terminals, apparently chosen by Delta because its modularity allowed the company to use its own keyboards, monitors and mouse, reducing cost and development time. Delta rates the products at 30,000 XSTONES, which it says is three times the performance of competitive products. They will be sold under the Delta Data label, and will comply to government Tempest regulations that are designed to reduce emissions from the terminal in secure environments.

OPEN SOFTWARE FOUNDATION TO SILENCE SCEPTICS WITH OSF/1 NEXT WEEK

Maureen O'Gara reports

Despite serious past doubts shared by those both inside and outside Open Software Foundations (UX No 279), the Foundation will next week unveil a base operating system that incorporates all the features originally promised, according to OSF vice president of research and advanced development Ira Goldstein. Goldstein, interviewed by Unigram.X at Executive InterOp last week in San Jose, California, claims the long-awaited OSF/1, due to start shipping to vendors in November, will put OSF and its clients way ahead of their rivals, AT&T Unix System Labs and the Unix International crowd, because of advanced features like multithreading, security and multiprocessing not yet available in the competitive AT&T operating system SVR4.

Comparing OSF/1 to SVR4, Goldstein flippantly called his operating system "System V.5," trying to dramatise the gulf he maintains exists between them while claiming the leadership position for OSF/1. According to Goldstein, the war between SVR4 and OSF/1 is far from over despite the fact that SVR4 beat OSF/1 to market, has been acclaimed the winner in certain circles, and cost OSF founder members such as Siemens and Philips who have subsequently rallied to the SVR4 cause. Goldstein says SVR4 was rushed out long before its time because of the threat of OSF/1 and, as a result, is still buggy, unfinished, relatively unmarketable and not shipping in any real volume to users.

"Ten secret members"

Goldstein says OSF just tested the software from UHC, a little Texas start-up that claims to be the first with SVR4 for 386/486 machines (UX No 300) and - without specifying what qualifying tests it failed - maintained it did cut the mustard. If the beauties of straight OSF/1 don't bring the opposition into the OSF camp, Goldstein is convinced its Distributed Computing Environment technology will as it did with NCR, the UI founder which recently joined OSF at the lowest level of membership (UX No 301). Goldstein said there are as many as 10 secret members of OSF now, implying that a generous portion of them are "SVR4 companies" intent on adopting DCE while the rest are shy government agencies more comfortable under cover. DCE is also working wonders with the Japanese Golstein claimed, although publicly at least almost all of Japan Inc has solidly backed SVR4.

OSF/1 on the Sun-3

In fact, Goldstein predicted every major SVR4 player with the exception of Sun Microsystems will eventually ship DCE, though not necessarily on the OSF/1 platform it is optimized to work on. OSF has apparently made the Sun set a priority. Plans are to port OSF/1 to Sun platforms beginning with the 68000-based Sun 3 in the first half of '91 and then to the Sparc chip. OSF wants to migrate SunOS users to OSF/1, believing that the technical community that has taken the Sun 3 in particular to its heart prefer the Mach engine of OSF/1 over SVR4. These customers would be supported by third parties such as DEC while OSF also feels it will win business among the Sparc cloners.

OSF/2

Further plans involve the development of what Goldstein calls OSF/2, a highly modularized microkernel-based version of OSF/1 he hopes to commercialize and make the next generation of the Foundation's system software (UX No 282). OSF/2, previously described as a research project, has been on the drawing board almost as long as OSF/1. OSF/2 has not been the subject of an official OSF Request for Technology (RFT) but Goldstein is canvassing outside for technology (UX No 298).

He is looking at the microkernel work done by Carnegie Mellon, Chorus Systemes and the Amoeba project. Although Chorus is the only commercialized microkernel-based system currently available, Goldstein is leaning towards using Carnegie's version and will probably present it at a design review by the foundation's OSF/2 special interest group (SIG) in February. Chorus is not sufficiently modularized for Goldstein's taste and although he will allow Chorus to prove it can do a better job than the academics, OSF will probably wind up using Carnegie's kernel and take some ideas from Chorus and Amoeba. Goldstein says the Carnegie Mach 3 kernel now available is free of AT&T code - and hence of AT&T royalties - a top priority to OSF (UX No 282). The Foundation's goal in producing OSF/2 is to put out an operating system that is as free of A&T code as possible.

What Goldstein foresees sitting on top of the microkernel are various task-oriented modules such as a file server, pipes or naming which vendors may mix and match as they chose. Goldstein is not certain that the commercial version of OSF/2 that will be obtainable directly from the foundation can be purged of all AT&T commands and libraries but he says other developers such as the Free Software Foundation will put out modules that are, claiming that he is creating in the process a whole competitive system software industry. OSF will attempt to reduce AT&T code to a bare minimum but even if a single line comes from AT&T, he notes, the licensee will be required to pay the whole AT&T license fee. In such an event, he foresees considerable pressure coming to bear on AT&T's pricing structure. The first module OSF will attempt to produce next year will likely be a file server, initially a single server because it's easier than a multi-server. The basis will probably be the Andrew File System from Transarc. The second phase of OSF/2 development will seek to put SVR4 and alternately OSF/1 on the microkernel. Phase three would expand that work to include OS/2 and VMS. Goldstein added that DEC is also working on its own to put Ultrix 4 on a microkernel.

Other sources last week suggested that OSF/1 will initially be available on Intel 80386 and Motorola 680X0 platforms, along with DEC's MIPS Computer Systems-based DECstation 3100: the same source reckons that OSF/1 is backwards-compatible with the DEC machine, which if so, should allow DEC to bring an OSF/1 platform to market far ahead of other vendors.

And the Foundation has confirmed that October 23 is indeed the day on which it will unveil OSF/1, (UX No 302), with a simultaneous worldwide announcement being made in New York and Nice, France.

Meanwhile Paul Wahl, OSF's Director of European Operations says that the total number of responses to its Distributed Management Environment RFT, (UX No 283), has exceeded forty, and that a members meeting in Europe scheduled for early November will discuss ways to evaluate the various submissions.

OSF DELIVERS DISTRIBUTED COMPUTING ENVIRONMENT IN TWO PARTS

OSF last week revealed pricing and licensing terms for its distributed computing environment - DCE - splitting the architecture into two packages. DCE Executive is essentially a combination of tools and basic system services for creating distributed applications, and includes the Hewlett-Packard/Apollo/DEC-derived remote procedure call, Sun Microsystems' Network File System, DEC's DECdts timing service and Concert Multithreaded Architecture - threads - for parallelism, and hooks for connecting to directory and security services. The single object-code licence fee for DCE Executive ranges from \$75 each for up to 500 copies, to \$10 for over 500,000 copies. DCE Service comprises the fundamental distributed services which allow applications to run over a network. Available in object form and priced separately, they include the DECdns directory service from DEC - \$400, the Kerberos security service from Massachusetts of Technology with Hewlett-Packard extensions - \$400, Transarc Corp's AFS distributed file system - \$500, Siemens' X.500 directory service - \$250, and the Microsoft/Hewlett-Packard-derived personal computer integration service - LAN Manager/X - which is \$800. Universities can get a single site source and object-code licence for the whole package - excluding LAN Manager/X - for \$5,000 - see page 1 for source-code prices. OSF's final choice of DCE technology provoked a storm of controversy when it was announced back in May, (UX No 280), because it incorporates the Hewlett-Packard/Apollo Network Computing System-derived Remote Procedure Call, which is incompatible with the more widely used Sun Microsystems Open Network Computing RPC. In response to DCE, Sun revealed a distributed computing roadmap which outlines the future development of ONC, (UX No 280), incorporating many of the services available in DCE - it says that integration of these features is far advanced, and that additional charges will be made only where it has to bring in products from other manufacturers.

INTEL SET WITH INTEGRATED 80386SX

Intel Corp is expected to launch its forthcoming highly integrated variant of the 80386SX, aimed at the portable computer market, any day now. The company is expected to introduce a two-chip set, one integrating the 80386SX core with memory subsystem control, AT bus logic control, cache control and support for the LIM 4.0 expanded memory standard, the other part being an input-output device integrating most of the AT support chips, power management functions and memory refresh logic. Only a handful of other devices, plus memory, will be needed to build an 80386SX box.

IBM FINALLY LAUNCHES PS/2 DISKLESS WORKSTATION

Launch by IBM of a diskless workstation version of the PS/2 has been "imminent" for a couple of years now, and it finally arrived last week in the shape of the extortionately-priced PS/2 Model 55 LS, a 16MHz 80386SX machine that costs \$3,500 without a disk drive or screen. It comes in Token-Ring and Ethernet versions - fitted with either a 16/4 Token-Ring Network Adaptor/A or an Adaptor/A for Ethernet. If you later decide diskless was a mistake, you can add a 1.44Mb floppy and a 30Mb or 60Mb Winchester. It is supported as a client to either PC LAN Program or OS/2 LAN Server using Remote Program Load in a Token-Ring network. Software support in an Ethernet network is provided by MS-DOS as a client to third party network operating systems using Remote Program Load, and OS/2 LAN Server will support Remote Program Load of OS/2 in a Token-Ring network and both MS-DOS and OS/2 in an Ethernet. The Token-Ring version - 8555-LT0 is out now, the 8555-LE0 Ethernet version follows next month at \$3,000; 2Mb is standard, 16Mb is supported and it has two slots. The floppy costs just \$30, the 30Mb disk is \$700, 60Mb is \$1,000. The Adaptor/A for Ethernet is also new and is \$575, next month.

SAROS MEZZANINE AT THE HEART OF NCR CO-OPERATION

NCR last week launched Co-operation, its first software implementation, based on its Open Co-operative Computing Architecture. According to NCR, Co-operation integrates users, applications, information and networks using 54 different - mainly third party - software modules. Core element is a new object-oriented software integration product called Mezzanine from Saros Corp of Bellevue, Washington, which Soros describes as a file management system, and looks for \$70m from its deal with NCR. Co-operation will be made available on NCR's new Intel-based System 3000 line but will also be offered on other Intel-based MS-DOS, OS/2 and Unix machines. NCR says that Co-operation has been developed over the last two to three years using three basic concepts: object-oriented technology; client-server technology; and open systems. The 54 modules are divided into four broad areas: information access services, giving users transparent access to other systems within the organisation; user services, which includes the user interface and various tools such as diary and scheduler intended to improve productivity; application services - described as the "heart and soul of Co-operation", allowing users to integrate existing applications and rapidly develop new ones; and network services, providing local and wide area options. NCR claims that the new product is more than an office product but admits that getting the message across is going to be a hard marketing campaign and in readiness for this has instigated training courses throughout the company that are on "an unprecedented scale in the history of the company". Most of the products are well-known in their own right - Open Desktop as the graphical operating environment, and Hewlett-Packard Co's New Wave environment, but NCR declined to identify the products included in Co-operation. The OS/2 server version is set for early customer installation during November, with general customer availability in March 1991. The Unix System V.4 server version installation supporting MS-DOS clients will be available mid-1991. A 12-user configuration is around £12,000, 24-user, £20,000.

HEWLETT-PACKARD CREATES SEPARATE WORKSTATION, VECTRA ARMS

Following the revelation of plans to re-organise its workstation division, (UX No 302), Hewlett-Packard Co is also reported to have circulated a memo advising its staff that its top eight senior managers are coming up for retirement in the foreseeable future, and there are fears of staff cuts throughout its Computer Systems Division. As a first step in a radical restructuring of its business, the company announced that it was splitting the US computer business in two, and combining manufacturing and sales in each of the two new units. The two are the Computer Systems Organisation for workstations and multi-user systems, and the Computer Products Organisation for the company's personal computer, retail printer and OEM disk drive businesses. A new test and measurement organisation was also formed to lead activities of its Electronic Instruments Group and Microwave and Communications Group. Management was bolstered with the creation of a chief executive office made up of president John Young and Dean Morton, executive vice-president and chief operating officer. Executive vice-president Lewis Platt heads the workstation arm and Richard Hackborn, a vice-president, will head the low-end computer and peripherals business. The international organisation is unaffected by the US changes.

**LACK OF SILICON IS HOLDING BACK
FUTUREBUS+ DEVELOPMENT SAYS REPORT -
BUT IS BULLISH ABOUT THE FUTURE**

A variety of bus standards now exist to describe the ways in which computer boards and systems communicate, covering 8, 16, and 32-bit wide interactions, though they are usually orientated towards a specific processors or applications. Futurebus+ is the result of a ten-year effort to go beyond 32 bits and define a non-proprietary, scalable standard - up to 256 bits - which is independent of any particular technology. Indeed by the end of 1990 a set of Futurebus+ specifications fully ratified by the IEEE should be available to the industry.

A report by Oxford-based Elsevier Advanced Technology, (UX No 300), is bullish about the prospects for Futurebus+ for two reasons. Firstly its high performance - achieved through multi-processing and a backplane throughput speed reckoned to go from 80Mb to 3,000Mb per-second - and secondly its open systems features, claimed to be far in advance of any competing bus system. Furthermore, Futurebus+ proponents argue, the specification is "future-proof", and can grow to accommodate changes. They claim for example, that a workstation built with Futurebus+ technology in 1993 could potentially be upgraded with the latest processor in say 1997, without having to scrap large parts of the system. Industry-specific subsets - or profiles - of Futurebus+ can be created covering different hardware and operating environments so that various implementations will conform to the standard. Profiles for DEC - which is the most advanced of major vendors with Futurebus+ development - VMEbus and workstation manufacturers, as well as for the military and telecommunications industries are now being created, (UX Nos 300, 270).

However widespread adoption of Futurebus+ is being held back by the the lack of protocol and management silicon says the report, a shortfall which will it does not expect to be made up until the end of next year. Futurebus+ interface elements are also expensive, consume a lot of board space and there is a lack of multi-processing Unix software available.

Nevertheless the report confidently predicts that Futurebus+ will become the highest selling bus architecture by the end of the decade, when it will account for an estimated \$2.3 billion of computer systems sales. The 50 or so companies and 15 universities currently working on Futurebus+ technology are estimated to have invested something in the region of \$40m so far, which is expected to generate \$200m of activity by 1992. Military and mainframe applications of Futurebus+ technology will emerge by this time, says the report, followed by workstation and telecommunications implementations sometime later.

Although the camps which support other bus standards - such as VME and Multibus II - have declared support for Futurebus+, the report is highly sceptical of at least some of their intentions. "Intel appears to be strongly promoting Multibus II as a Futurebus+ substitute, and has made a number of moves recently calculated to attack the 1990-1995 market for Futurebus+," it claims. Mainframes will lead the way in the use of commercial Futurebus+ technology - the report expects input/output controllers, concentrators and cluster servers that work with mainframes to be announced over the next year. In particular it reckons DEC Europe - as opposed to DEC USA - will announce a 64-bit Futurebus+ implementation of a VAX cluster controller or similar to aid throughput between machines, said to be the first of five mainframe peripheral and networking projects that will come out of DEC UK and Ireland.

**FRENCH UNIX MARKET "IS GROWING
AT THREE TIMES THE RATE OF
MARKET AS A WHOLE" - REPORT**

While the information systems market in France grew by a mediocre 9% during the course of 1989, the market for Unix systems increased by 27% over the same period, according to the "Unix en France, les annees 1990" study published by Pierre Audoin Conseil and reported in Processeurs magazine. The report is the result of a survey conducted for the fourth consecutive year by Cedric Thomas with some 310 respondents, including users, manufacturers, and value added resellers - both in France and abroad. According to Cedric Thomas, Unix gained a point in value in the sale of equipment between 1988 and 1989, representing 8% of sales two years ago and 9% last year, and could reach 18% by 1994. Cedric Thomas estimates that the average annual growth of Unix systems in France, measured by installed base, will be 23% over the period from 1989 to 1994, compared with a growth of 7% in the total computer market. In 1989, he says, 33,000 Unix machines were shipped in France, an increase of 49% compared with the 22,100 shipped year before; at this rate he expects that by 1994 the number should grow to around 130,000 Unix systems. According to Cedric Thomas, the important thing to watch is not so much Unix, but Posix. He says the debate about the importance of Unix is closed now - Unix is a standard recognised by more than nine out of ten users - 69% consider it a standard now, and 24% consider it as a standard of the future. But, he says, for some large organisations replacing hodge-podges of incompatible machines, Unix is no longer the only operating system being considered as a common replacement. And some organisations will major on co-existence of Unix with their existing operating systems. According to the study, in 1989, multi-user systems accounted for 42% of Unix installations, and workstations 40%. The remaining 18% comprised 15% microcomputers, 2% for minicomputers, and 1% for superminis. For Cedric Thomas, the development of the Unix market in France depends on the pattern of growth of the market as a whole, and there could be a price war between manufacturers - Unix is the system most suitable for down-sizing. There are currently about 50 significant Unix system vendors in France, the leading five being Sun Microsystems, Bull SA, Hewlett-Packard Co and its Apollo arm, and Altos Computer Systems - these accounted for 49% of orders in 1989, against 47% the year before. Cedric Thomas reckons the spoils will go increasingly to the strong, and that these five will increase their market share further - with IBM and DEC perhaps joining them to the near exclusion of the host of small Unix system firms.

Data General Corp has won back on appeal the \$127m seven-year pact for a US-wide network of AViiON Unix machines for the water resources arm of the US Department of the Interior's Geological Survey.

The Swedish Air Traffic Authority had chosen Data General's Avion workstation for the development of administrative applications for Sweden's largest airport, Stockholm Arlanda: application development will be done in Ingres 4GL.

Age Inc, of San Diego, California, is now shipping its enhanced, high resolution X-Window server for SCO Unix, SCO Open DeskTop and Interactive Unix V: the Age X XoftWare servers allow 386 or 486-based Unix-based PCs with Texas Instruments TMS340-based graphics accelerators into X-Terminals.

US COMPANIES "NOT DOING ENOUGH TO WIN PAN-EUROPEAN BUSINESS AFTER 1992"

Mark John reports

The phrase "advent of 1992" has long since been stripped of any significance by its inclusion in the bumph of the innumerable firms intent on impressing the world with their Europeanness, real or imaginary. In Brussels, however, even some of the most sceptical observers are slowly coming round to the view that the single European market will indeed become more than just a slogan, and that those who omit to make provisions for its arrival do so at their peril. Many large US information technology companies, perhaps spurred on by some vague paranoia about a nascent "Fortress Europe", have been quick to establish a high-profile presence on the Old Continent ready for any rich pickings that might be had after the all-important December 31, 1992 - among the new hopefuls that have flocked to the Zaventem, Brussels' own Silicon Valley, are such notables as IBM, Unisys, DEC, Prime Computer and Tandem. But sources close to the European Commission suggest they may find their entrance into Europe less fruitful than they imagine. The problem is not any latent anti-American sentiment at the Commission - the involvement of major US firms in the Esprit project militates against that explanation - but simple laxity and shyness on the part of the new arrivals in Europe. It isn't enough just to set up a division in Brussels, Paris, Amsterdam or Munich and wait for the business to roll in: to have any chance in the bidding for any of the big public sector contracts in the 12 Community countries, a company should first introduce itself to the Commission - a letter will do - to be instructed straight from the horse's mouth on how to get its bearings in the labyrinth of European public procurement procedures. According to these same sources, US firms have been somewhat coy when it comes to making that first contact with European bureaucracy, which means not only that they are fair game to the legion of consultancies willing to give an infinite amount of advice on How To Get Ahead In Brussels - but also that when the really big pan-European projects come up for tender in 1993, the chances are that they will go straight into the hands of the usual band of well-established European players.

APTEC TAKES THE UNIX PLUNGE WITH SUN-HOSTED SUBSYSTEMS

Aptec Systems Inc, Portland, Oregon, is joining the rush to Unix and has announced a version of its high-speed input/output subsystem hosted by Sun Microsystems' workstations. The 100Mb per-second IOC-100U and 200Mb per-second IOC-200U, used to connect peripheral devices and networks to large computer systems, were previously only available for VAX/VMS systems. The IOC subsystems are built around Motorola 68020 and 68030 parts, run WinRiver Systems' VxWorks real-time kernel, and support VMEbus interfaces, the 50Mb per-second HiPPI interface, a CEC-20 Eurocard chassis, Openbus interfaces and multiprocessing. The IOC-200U, with up to 3.5Gb memory and eleven slots starts at £100,000, the IOC-100U comes with up to 256Mb memory, nine slots and costs £60,000. Aptec has around 350 installations, 90% of them in the US where they are mainly used in the defence industry. In addition to the Sun platform, Aptec says a version is under development for Silicon Graphics workstations.

MASSIVELY PARALLEL WAVETRACER MACHINE ARRIVES IN THE UK

A three-dimensional parallel computer developed by Wavetracer Inc, based in Acton, Massachusetts, is being distributed in the UK and rest of Europe by the Bramley, Basingstoke distributor, Computer General Ltd. The DTC, Data Transporter Computer, has three dimensional single instruction multiple data architecture with two and three dimensional unfolding capability. DTC Model 4 has 4,096 processors, while Models 8 and 16 have 8,192 and 16,384 respectively. The processors are implemented on CMOS gate arrays from Toshiba Corp. Each processor has 256 bytes of local high-speed static memory, adding up to a total of 1Mb on the Model 4, 2Mb on the 8, 4Mb on the 16. There is also extended memory storage of 8Kb or 32Kb per processor, which adds up to 512Kb in the largest configuration. The Model 4 has a 256Mbyte-per-second data input output capacity, Model 8 has a throughput of 512Mbytes-per-second and model 16 provides 1,024Mbytes-per-second. The DTC interfaces with any SCSI system, and uses 16MHz front-end processors with 8Mb data memory. It uses the host's Unix system, and appears as a window in the workstation environment. The company has also introduced several software tools for the new system, including the multi-C programming language. This is an extension to ANSI C that supports bit-length arithmetic and provides a syntax for manipulating variables. It executes data-parallel expressions and an extended set of data types allows large arrays of data to be manipulated as a single unit. The language is host independent since a translator produces host C code that varies with the host computer, and both computers may be controlled through a single program. The Data Transporter Computer is £80,000 to £360,000, the C compiler is £25,000.

HOLLAND'S UNIFACE TAKES ITS APPLICATIONS GENERATOR TO THE US

Dutch applications generator supplier Uniface BV has opened a US headquarters and brought in ex-Ingres vice-president Mike Wilson to run it. Uniface is based in Amsterdam and does most of its business in Europe, turning over around \$40m a year. It already has an East Coast distributor in New Jersey and although US sales represent a very small percentage of turnover, Alan Hochman, vice-president of marketing reckons the time is right to focus on the US to try and build a bigger user base. Wilson was vice-president for North American sales, service and support at Ingres and he arrived before the official takeover by Ask. Hochman says the decision to bring in Wilson, rather than promote internally, was made because the company wanted "local people" who know the US market. Part of that strategy involved pinching Anu Schkula from Uniface's main competitor, Unify, to head the US marketing operations. Schkula was originally going to work for Steve Jobs at NeXT Computer, but Uniface managed to entice him away. The US office will be based in Alameda in California and will be manned at the management level entirely by Americans, although Uniface has sent out European technical teams. The North American expansion is part of the Uniface's strategy to develop third party agreements with software houses. As part of that strategy it also plans to open a centre in the Far East.

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In yet another blow to the fortunes of Motorola's 88000 RISC part, Tektronix has thrown in the towel on its Motorola-based workstation operation - which never really got off the ground - and is looking to sell it within sixty days. If no buyer is forthcoming it will shut up shop for good. The firm will soldier on with its X-terminal and graphics terminal ranges: 88000 manufacturers such as Data General and Motorola Inc could bid for the business. Tektronix was one of the earliest to commit to the 88000 back in March 1988, (UX No 270).

The prospectus AT&T has been putting together to entice select corporations to buy a minority piece of Unix System Laboratories has finally been finished. However, we doubt it's been circulated yet. That means that Dooling and Kavner didn't leave any paper behind them on their recent trip to Japan trolling for investors (UX No 302).

At last week's Interop 90 exhibition in San Jose, Legato Systems Inc signed an agreement with Sequent Computer Systems to implement the Legato Net-Worker network backup and recovery product on Sequent's Symmetry line of multi-processors: the products will surface on the Sequent machines late in 1991.

Arcaid Design Systems, Edinburgh, has launched an X-Windows version of its computer-aided design system for the construction industry: X-Board is a WYSIWYG-based, on-screen representation of a drawing board for Sun Microsystems workstations running on X-terminals.

Preston-based Meta Design Automation Ltd has signed as a UK dealer for the Freedom of Press Professional range of products from Custom Applications Inc of Massachusetts: the products give Postscript compatibility to 50 or so non-Postscript devices, such as HP Laser Jets, colour thermal printers and dot matrix printers, and Meta will supply them to Silicon Graphics and Sun Sparc users in the UK.

Correction: the Open Software Foundation has passed us a note from Hitachi Ltd in Japan, saying that it "is definitely not a member of Unix International".

NCR Corp is setting up a computer training centre in conjunction with Tsinghua University, Beijing: the centre will focus on Unix, databases and communications - Tsinghua has over \$300,000 worth of Tower systems and software donated by NCR.

Sequent Computer Systems claims that in an audited Unix-based TP1 benchmark test, an 80386-based 22-processor Symmetry system running the Oracle V6 relational database achieved 205 transactions per second: Sequent says 80486-based systems will be out next year.

Dover Harbour Board's new £2m Fast-Freight system will be using Stratus XA 2000 Model 120 and Model 130 systems to process an estimated 750,000 export freight vehicles a year by 1993 - software for FastFreight is being developed by Sema Group plc: Dover is the busiest roll-on/roll-off ferry port in the world.

UK user interface specialist, Visionware Ltd of Leeds will begin shipping version 6.01 of its PC-Connect software, which uses Microsoft Windows running on a personal computer as the user interface for the host Unix system: prices start at £990 for the run-time version, or £2,000 for the development system.

Although MIPS Computer Systems Inc blames the loss it expects to report for the quarter just ended on shortage of R6000 chips for its top-end RC6280 machine - the news saw a savage 32% slump in the share price to \$9.25, there are growing fears of a rapidly deteriorating market for Unix workstations, which has seen a 40% fall in Sun Microsystems Inc shares over the past two weeks, taking them down to \$17.625: Sun is doing nothing to counter the fears, saying it has set an immediate hiring freeze, cut corporate travel and cancelled non-essential expenses.

San Diego-based Cipher Data Products Inc has adapted its two most advanced nine-track reel-to-reel tape drives for use with the full range of Sun Microsystem Inc computers: the F880ES has embedded SCSI and is a Phase Encoded drive with recording densities of 1600 bpi and the M995 is a low-profile Group Encoded Recording drive with a choice of ANSI/IBM 1600/6250 recording densities in an 8.75" drive; end-user pricing ranges from \$5,000 for the F880ES to \$9,750 for M995.

Mentor Graphics Corp is rejoicing at progress at the Esprit project's Eurochip for VLSI Design Action programme: it has been asked to supply about 500 design workstations to Eurochip member universities by the end of the year on undisclosed terms: getting workstations will be the Rutherford Appleton Laboratory in the UK; CMP, France; Technical University of Denmark; the German National Research Centre for Computer Science (GMD); and the Interuniversity Microelectronics Centre, Belgium; the European Community has allocated \$17m to train an additional 3,000 university students in VLSI design each year.

Japanese computer buyers were reportedly cool to wards the new NeXT Computer Inc machines launched last month, says Computerworld Japan: the low price went down well, but while the new Japanese operating environment should help, more marketing and more applications were seen as critical to success.

Intergraph Corp says that systems built around its new C400 Clipper Risc chip will not be unveiled until next year, (UX No 300): they will likely first be seen running the OSF/1 operating system, as the Huntsville, Alabama company says this will become its sole operating system platform.

And Intergraph, which recently won a \$40m deal with the Sandia National Laboratories for a CAD/CAM system with 500 workstations, has also won a £500,000 order from Chevron Petroleum Company Ltd in the UK, and has appointed Trevor Postlethwaite as head of a new European operation focusing on electronic design applications.

San Jose-based Quark Inc is doing a version of its QuarkXPress/PC electronic publishing software for NeXT and the IBM PS/2 for delivery next year under MS-DOS; it will later do a version for OS/2 and for the RS/6000.

Those thinking that the story that Intel Corp found out about Advanced Micro Devices Inc's plans to call its reverse-engineered 80386 the Am386 when product announcement papers were erroneously delivered to an Intel employee at an hotel sounded pretty tall (UX No 303) ain't heard nothing yet: according to Intel, an AMD employee called Mike Webb was staying at the same hotel as an Intel employee called - Mike Webb; they'd both checked out when the papers arrived, and they were forwarded to the wrong Webb - or could it be the same Mike Webb on the payroll of both companies? Now Intel Corp is suing to have Advanced Micro Devices change the name of its Am386 part and be barred from using the product designations 386 and 80386 - we are assured however that there is no truth in the rumour that Advanced Micro and its Mike Webb plan to launch a counter suit asking the court to order Intel's Mike Webb to change his name.

Pointing out that DEC reversed the byte ordering of the MIPS RISC processor to the same as its VAX line, in the process highjacking binary compatibility with other MIPS implementations, Sun Microsystems habitually reverses the order of the MIPS name to SPIM, whatever that's meant to mean, when referring to it: but look out Sun, according to Convex founder Steve Wallach, MIPS has been playing the same game, and reversing the order of the Sparc name gives a fair idea of what it thinks of the rival RISC.

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IBM TO SET DATES ON PS/2 AND RS/6000 PORTS OF OSF/1...

The IBM rumour mill says Old Blue will demonstrate OSF/1 on the PS/2 next week at Unix Expo in New York, a mere week after the operating system is announced on Tuesday this week - it probably won't be called OSF/1 officially though. The same source also says IBM will name the day on which it will announce the date the system becomes available, and we also hear that IBM is targeting January 1992 as the date it wants the OSF/1 port to the RS/6000 finished, (UX No 278). This certainly won't be pure OSF/1, rather a melange of OSF/1 and AIX. Aside from IBM, demonstrations of OSF/1 expected to be run at the OSF/1 launch (details on page 2) include Bull on the DPX2 200 Series with Wingz. DEC's Jean-Claude Monney, who is responsible for DEC's European OSF and X/Open efforts, confirmed that OSF/1 is indeed backwards-compatible with the DECstation 3100, (UX No 304), a fact that will give DEC a "certain advantage" over its competitors: he said that an OSF/1 version of Ultrix will be shown at forthcoming Unix shows in New York and London.

...AND ARGUES OVER OS/2 VERSUS AIX

There are also reports of a tussle inside IBM over how to add OS/2 functionality to the RS/6000 - and talk at last week's OS/2 Show in London confirmed this. The dilemma is whether to put OS/2 on top of AIX or allow it to run as a separate operating system for efficiency's sake. In addition, the same quarter claims that Microsoft, which still has contractual rights to portable OS/2 on non-Intel machines, is toying with the idea of licensing it to Sony Microsystems which in turn has notions of putting it on the Mips Computer Systems Risc chip - a rumour we've heard before but without the Microsoft/Sony connection.

SUN REVEALS MULTI-PROCESSOR SPARC PROJECT

Sun Microsystems Inc is reported to be working on a Sparc-based symmetric multi-processor system that could be out by the end of next year. Confirmation of the long-suspected project came last week when Sun unveiled the third phase of its four-prong migration to Unix SVR4. Sun's presentation of what its version of SVR4 will contain by the time it becomes an end-user offering in late 1991 clearly specified support for symmetric multi-processing and when questioned on this point, an area the current Sun product line does not address, Sun staffers admitted that such a box is in the works. Donna Novitsky, group marketing manager for the Sun System Software Group, and Stephen Bourne, director of systems architecture with the same unit, both claimed Sun is still undecided as to whether it will adopt wholesale Unix System Labs' recently-announced plans to develop a multi-processing SVR4 MP version of Unix, (UX No 301), or how it will use the AT&T code. Other options are to do the work in-house or borrow from the tweaking already done by Solbourne Computer, the Sparc-compatible company whose SunOS-based line until now has been strictly composed of multi-processors, (UX No 304). However statements subscribed to by Sun when USL made its SVR4 MP announcement last month indicate that it is doing its own multi-processing work, promised to be compatible with the AT&T version. SVR4 details - page 3

OPUS SPARC KIT ENCOURAGES PACIFIC RIM CLONES

The industry could this week be treated to a raft of Sparc workstation announcements from Pacific Rim manufacturers using Cupertino, California-based Opus Systems Inc's instant Sun clone kit which is unveiled this week. The Opuskit combines LSI Logic's Sparc chip set with SunOS software and all the accoutrements needed to get the prospective Sun Sparcstation-compatible builder on the road. Opus is also offering complete Sparc boxes for OEM customers, and a Sparc board for turning personal computers into Unix workstations - details on page 3. In particular there are understood to be four personal computer manufacturers that have been working with the Opus technology for some time and are about to reveal Sparc boxes. The four are thought to be Tatung, (UX No 294), Goldstar, (UX No 298), and Hyundai plus one mystery ticket, and although these companies are planning significant changes in the basic Opus machine some time in the future, the first systems they will put out will reportedly be plain vanilla Opus issue, clones of Sun Microsystems' Sparcstation 1+ that are more expandable than the original and priced under \$10,000. Eleven other companies, perhaps including TriGem, (UX No 296), have so far signed up for the standard Opuskit, but Opus and LSI Logic are said to have had promising discussions with as many as 50 separate companies to date. Indeed a source inside Opus said "if anybody announces a box using an LSI chip, he's our customer." Many of the firms are expected to have their kit at the forthcoming Comdex show in Las Vegas and some maybe promising immediate delivery. Opus, which will receive royalties on each unit its cloners sell, has also set up a commercial unit to cultivate OEM and distribution channels for its clients. Details on page 3.

X/OPEN PREVIEW XPG4 -

MORE TO FOLLOW BY YEAR-END

Marking a change in the way that it delivers the specifications for its Portability Guide, standards body X/Open has released advanced details about some of the technology guidelines that will, and are likely to be included in the next - XPG4 - release of its Common Applications Environment, giving developers and manufacturers a chance to track X/Open's open systems environment in their technology. There are three early release categories ranging from the low-level, through preliminary stages which acknowledge and address emerging technology, to fully drafted specifications which will be included in XPG4 as they stand now. At the lowest level the group has published a comparison study of OSI profiles, trends and developments. There are two preliminary technology investigation documents. The first is an XA specification for distributed transaction processing, the second describes a byte stream file transfer mechanism which provides a command line interface to the OSI File Transfer Access and Management service, based on the widely used "ftp" commands. Drafted specifications to be included in XPG4 are protocols for integrating personal computers into an XPG-compliant network - PC NFS - and an extension to the XPG3 indexed sequential access method which includes transaction management facilities. X/Open intends to release advanced specifications on a regular basis, and said more details will be available before the end of the year.

...AS AMDAHL, FIVE MORE USERS JOIN UP

And Amdahl Corp has duly announced that it has become a full corporate member of X/Open (UX No 303). At the same time, X/Open has added five major US and European corporations and government agencies to its user council: they are Boeing Computer Services, the US Department of Agriculture-Farmers' Home Administration, the US Treasury Department, the Swedish Telecom Group and the Union Bank of Switzerland.

ARIX AND PHITECH UNVEIL VOICE SYSTEM FOR FINANCIAL MARKETS

Arix Corp, San Jose, California, and Phitech Inc, San Francisco, California, one of its systems integrators, last week showed off a real-time voice processing system built upon an Arix platform that'll be used by Unibridge Inc, Indianapolis, Indiana, an investment information clearing house, to launch a new audiotext 900-number service supplying callers with stock quotes, stock ratings, trading alerts and analyst opinions. The voice-processing technology gives customers access to the database of financial information via digitized voice prompts and menus. Unibridge hopes to snare a share of the 10 million calls a day that US investors make to their brokers. The system will be at the Unix Expo show in New York next week.

PHILIPS-SIGNETICS, TEXAS TEAM ON FUTUREBUS+ CHIP FAMILY

The acceptance of the high-speed Futurebus+ is said to be crimped by lack of chips, so it is good news that Philips Components-Signetics and Texas Instruments Inc have joined forces to implement the functions needed to support all the features and performance of the Futurebus+ standard, including support for packet mode and cache-coherent transactions. The two companies will source a broad range of transceivers, controllers and data path circuits to create a family of chips supporting the entire Futurebus+ cost-performance spectrum for applications ranging from workstations to supercomputers, and both will manufacture and market the entire family, as FB2000 by Signetics, and as TFB2000 by Texas.

TELECOMPUTING, ICL SET TP+ FOR DRS 6000 UNIX BOX

ICL and Telecomputing Plc have finally put all their differences behind them, and the Oxford software house has joined forces with ICL's Manufacturing & Commercial Division to implement the TP+ transaction processing monitor for ICL's DRS 6000 Unix machine as part of a joint strategy to enable ME29, 2900 users not planning to go to Series 39, and System 25 users to migrate to Unix. Telecomputing also offers a Convex applications software conversion service.

VISUAL USES DIAL-GUARD SMART TECHNOLOGY FOR SECURE X-TERMINALS

The secure X-terminal that Westboro, Massachusetts-based Visual Technology Inc was reported to be working on, (UX No 303), is being developed in conjunction with Dial-Guard: the two are working to integrate Dial-Guard's smart card and data encryption security technology into Visual's X Display Stations. To get into one of the protected terminals the user signs on and inserts a smart card into the Dial-Guard Authenticator which keeps a list of approved users. Visual will offer the secure option on its full range of X Display Stations and character terminals next year. Foster City, California-based Dial-Guard has a large security installation at the Bank of Bermuda, and has an OEM deal with Bull HN Information Systems Inc. Visual has also announced release 3.0 of its XDS X-Windows software for the X Display Station line, providing full compatibility with MIT's X11 R4 X-Windows implementation. Upgrades are available now priced at \$395.

- OSF INSIGHT -

As might be predicted, the Open Software Foundation's debut of OSF/1 tomorrow (October 23rd) is going to be awash in founder members, but it won't be quite such a star studded event as those who turned out for the original OSF launch two and a half years ago. Our spys expect IBM to be represented by President Jack Kuehler, Groupe Bull by executive VP/corporate strategy and planning Michel Bloch, Hitachi by senior executive and corporate VP Takeo Miura, Hewlett/Packard/Apollo by COO Dean Morton, Siemens/Nixdorf by executive VP Hartwig Rogge and DEC by either VP Dominic LaCava or Bill Strecker.

Notably absent is Philips whose receivables are in such a state it probably can't afford the airfare and has gone over to the enemy SVR4 camp anyway.

The schedule starts with an executive breakfast at 8:00am, and when festivities really begin at 10, OSF chief David Tory will make the opening remarks. Then each of the founders will readdress their previously made statements on OSF/1 and reiterate backing for the organisation, followed by a Q and A session. Then comes a ten minute video, followed by demonstrations (see front page).

The event takes place on the 106th floor of the New York World Trade Center, and will be relayed by satellite to a concurrent event at the Acropolis in Nice France, which is also host to the EUUG's Open Systems Show.

But a damper on the proceedings comes from Julie Rodwin, a senior research analyst with the Gartner Group, who says "this is a non-event unless they offer a roll-out - and one that's somehow reflective of real-time". And other sources would like to know how many briefcases there belonging to companies with foreign sounding names will contain the prospectus for the AT&T Unix System Laboratories' private placement, rubbing up against their OSF/1 tapes.

CREDENCE TO BUY TEK TEST

Fremont, California-based Credence Systems Corp is to buy the Tektronix Inc Semiconductor Test Systems Division, which employs 200; terms of the pact remain confidential. Tektronix last week put its Motorola-based workstation operation up for sale, (UX No 304).

OKI PLANS LONDON RESEARCH LAB

Oki Electric Industrial Co is to set up a research laboratory in London by 1991, which will develop multifunction terminals incorporating the processing power of personal computers, a facsimile capability, and a printer. Oki believes this project will create the terminal of the future. The move follows its acquisition of Technitron, now renamed Oki Systems, and its decision to start production of facsimile machines at its plant in Scotland. In January this year, the company established a research and development centre in San Jose.

SEQUENT PROMISES 80486 BY MID-1991

Sequent Computer Systems Inc is set to announce its long-awaited Intel 80486-based Symmetry platform in January 1991, with volume shipments scheduled for the second half of the year. It is unclear whether Sequent will reveal new machines based on the chip, but existing customers of its range of 80386-based uni-processor and multi-processor Symmetry systems will be able to upgrade to the 80486 part as soon as deliveries begin. Those using Sequent's Dynix Unix operating system will be offered an upgrade to its Dynix/ptx environment, but customers who wish to continue with the basic Dynix on 80486 systems will be able to do so. Sequent, whose Dynix/ptx multi-processing Unix implementation has been chosen by AT&T's Unix System Labs as the prime development platform for SVR4 ES/MP - its secure, multi-processing version of Unix V.4, (UX No 301) - says that AT&T needed to go ahead with an interim multi-processing effort - SVR4 MP - before the ES/MP release, because early multi-processing Unix boxes from the likes of NCR Corp will need a multi-processing Unix implementation some time before ES/MP is ready. SVR4 MP will conform to the existing Unix V.4 Application Programming Interface, however SVR4 ES/MP will define a new API altogether. Speaking to Unigram.X last week, Neal Waddington, Sequent's vice president of marketing, revealed that although the finished product will not contain the whole Dynix/ptx kernel, it is certain to incorporate "a large part of it."

...SORTS OUT SIEMENS RELATIONSHIP

Sequent, which still supplies its National Semiconductor NS32000-based Balance processor boards to Siemens AG - Siemens adds the cabinets and calls them the MX 500 range - met the Munchener last week to thrash out their future relationship. Siemens, which recently plumped for AT&T's Unix V.4 in preference to OSF/1, (UX No 294), has previously indicated that it will replace the National Semiconductor NS32323 chip which Sequent supplies, with the Intel 80486, (UX No 288). Sequent is aiming to meet this requirement with its Symmetry series, and is also keen to get its Dynix/ptx Unix software on to Siemens boxes. Waddington nevertheless believes that the future of Nixdorf's Pyramid-derived mid-range Targon systems, which clash with the MX 500, is assured for sometime to come. Sequent remains one of the few players in the industry which has yet to reveal a preference for any particular Risc chip, and although Waddington acknowledges that the firm has been looking at all the Risc options, including the Intel 80860 which is widely reckoned to be hard to work with, he maintains that there is "no long-term advantage to Risc", and that Sequent will not do a Risc implementation "unless there is a compelling reason to do so." On other issues Waddington, like a growing number of other industry-watchers, expects IBM to do an implementation of OS/2 on its RS/6000 AIX series in an attempt to rescue the operating systems from oblivion. Sequent, which is bullish about its financial performance for the whole year, is this week expected to report third quarter figures of around \$67m, with earnings at around \$0.25 per share.

SUN REVEALS SunOS-TO-UNIX V.4 MIGRATION PLATFORM

As anticipated, (UX No 304), Sun deliniated its migration to SVR4 last week with a software developers program it's blessed with the tag SunOS/SVR4 Development and Test platform. Sun's embrace of source compatibility with SVR4 will only be for its Sparc boxes, the Sparcstation 1, 1+ and IPC. Its older Motorola-based line with an installed base of between 150,000 and 180,000 machines worldwide will not move up although they will be able to integrate into SVR4 networks and Sun's Open Network Computing. The platform Sun announced last week for availability in December is a suite of products that will help ISV's run native mode on what will be called SunOS/SVR4 when the end-user product goes on the market late next year. The suite is priced at \$5,900 - discountable - and includes a SunOS 4.1 CD-ROM development platform, verification applications and a binary compatibility package, a transition tool to let end users run existing software while migrating to SVR4. The price also includes documentation, 12 months support and upgrades.

OPUS LAUNCHES SPARC BUILDING KIT, WORKSTATIONS AND PC ADD-ON BOARD

Opus Systems Inc, Cupertino, California, will today reveal a whole raft of products for OEMs and developers based upon Sun Microsystems' Sparc Risc technology, including a promised Sparc workstation manufacturing kit, (UX No 279), its own Sparc-based systems and a personal computer add-in board. The Opuskit is a combined hardware and software package for building workstations compatible with Sun Microsystems' Sparcstation. Hardware includes a motherboard with a 25MHz/18 MIPS or 40MHz/29 MIPS version of LSI Logic's SparKIT processor chip set, a bare printed circuit board, film, schematics, assembly plans, FAB drawings, gerber tape and a bill of materials. It supports up to either 32Mb or 64Mb RAM - depending on processor - Sbus expansion slots, Ethernet, SCSI and two serial ports. The binary software tape comes with SunOS 4.1, Sun View 1.8, C compiler, NFS, TCP/IP and all SunOS utilities. Out now, the Opuskit starts at \$25,000. It is also available as the Opusengine - just the motherboard and software - at \$8,000. Existing personal computers can be transformed into Sparc systems with the Series Personal Mainframe 500 kit - a Sparc board with 8Mb RAM, SunOS, Sun View, NFS, TCP/IP, Ethernet, SCSI, and a 19" monochrome screen. Occupying two slots in AT-based personal computers, the 500PM can run both SunOS and MS-DOS - the latter on the host Intel processor as a window under SunView - and starts at \$6,000. Opus is also offering its own complete Sparcstation-compatible workstations and servers as the Personal Mainframe 5000 series. Initial offering is the 5120PM workstation which has the same basic system and software configuration as the Opuskit, plus 3 Sbus expansion slots, 3.5" floppy drive, 19" colour or monochrome display, keyboard and optional internal hard disk - it costs \$9,000. Inspired by the success of the personal computer - and encouraged by Sun - Sparc kit-builders like Opus and LSI Logic are trying to stimulate the growth of a similar mass market of compatible, low-cost Sparc boxes by providing standard hardware and software building blocks.

NCR CORP SAYS ITS SYSTEM 3000 UNIX V.4 IS OSIREADY...

NCR Corp is clearly going to trickle out the details of its System 3000 Unix-on-Intel-with-everything announcement over several weeks, and the company has now announced Open Systems Interconnection communications software for System 3000, claiming it to be the first implementation of OSI across an entire range of systems - users can implement the seven layers of the Reference Model across their entire enterprise, from a single workstation to a top end enterprise-level processing system, the company claims. NCR says that the core of the software provides compatibility with OSI layers two to seven as a standard feature of its Unix System V.4 for the System 3300, 3400, and 3500 at no extra cost. Users can add X400 Message Handling System, X500, Directory Services, File Transfer Access and Management, Virtual Terminal, and the X400-based NCRMail application later. The company has trademarked the term OSiReady for the concept. The announcement is part of what NCR is calling Open Network System, which also includes a full suite of SNA and TCP/IP software for the System 3000. The OSiReady version of System V.4 ships first quarter 1991, and licences for OSI application services go from \$800 to \$44,700.

...AS DATA GENERAL BRINGS OSI TO THE AViiON
Data General has introduced a range of OSI software for its Motorola 88000-based AViiON platform. OSI/Platform is a programming interface allowing users to develop applications that access OSI transport service from layers two through to seven, including X.25 for wide-area connectivity. OSI/Platform costs from \$550 to \$1,550 depending on configuration, the X.25 option is priced from \$350 to \$1,500. File Transfer Access and Management and virtual terminal remote login protocols are available on top of OSI/Platform priced from \$1,000 and \$800 respectively.

AT&T REPACKAGES RHAPSODY AND SIGNS UP CONSULTANTS FOR CUSTOMERS

AT&T Computer Systems has signed up the DMR Group Inc, KPMG Peat Marwick and The Constell Group Inc to provide consultancy services for customers using its Rhapsody "business orchestration" integrated office software. It also announced with new pricing arrangements for the suite which is now available in Rhapsody Base and Rhapsody Complete hardware/software server solutions. Rhapsody Base includes a 33MHz, Intel 80386-based Workgroup Unix server with 8Mb RAM, 600Mb disk, 120Mb tape streamer, StarLAN 10 network hardware, StarGroup LAN manager server software, 9600 baud modem, PMX/StarMail, a 20-user Rhapsody package including Windows 3.0, documentation, installation and support - it costs \$57,000. Rhapsody Complete includes the same Base hardware and software plus Meeting Manager and Task Manager business orchestration applications. It is priced at \$100,000. On the client side, a single-user system for use with either Rhapsody Base or Complete, which includes a 12MHz, 80286-based MS-DOS Workgroup system with 4Mb RAM, 40Mb disk, colour monitor, client networking hardware and software, Rhapsody client software, PMX/StarMail and third-party word processing and spreadsheet applications costs \$7,300. A 20-user software-only version of Rhapsody Base server starts at \$35,500, Rhapsody Complete is \$78,500 and Rhapsody Client is priced at \$3,000.

AMD WINS ARBITRATION, SEEKS \$500M FROM INTEL...

The arbitrator in the dispute between Advanced Micro Devices and Intel over whether Intel has the right to stop AMD participating in the technology exchange deal for iAPX chips has clearly ruled in AMD's favour. The arbitrator Judge Phelps found that Intel made a secret decision in 1984 to frustrate, in its entirety, the 1982 Technology Agreement between the two companies. A hearing on the remedies, including damages for this basic breach of the agreement and several other significant breaches, will begin on November 15, 1990. The decision also made clear that consideration of transfer to AMD of rights to Intel's 80386 microprocessor will be part of the remedies module, negating Intel's contention that the arbitrator had ruled out such a transfer in an earlier decision which concluded that he could grant a monetary award. At the November hearing AMD will demand technology rights to the 80386 chip as well as more than \$500m in compensation for lost sales and market share. Furthermore, Judge Phelps said that Intel's failure to transfer the 8087 math co-processor could be characterised as "extortion". He said that Intel gave AMD updates on 286 technology which were "deliberately incomplete, deliberately indecipherable and deliberately unusable" and this justified AMD's decision to reverse engineer the 80286 E-step. Furthermore, Phelps said AMD has a complete right to the 80286, so Intel cannot to rescind its acceptance of AMD's 7910 modem.

...AS INTEL ADDS 16-BIT BUS EMBEDDED, FASTER VERSIONS OF 80960...

Intel Corp has introduced low-end 16-bit bus versions in its 80960 line of RISC microprocessors designed for embedded applications. For use in systems where price is critical, the 80960 SA is for input-output and image processing applications such as disk control and network interfacing in Micro Channel and EISA bus machines; laser printers; and high-end facsimile machines. The 80960 SB variant includes a floating point unit for applications where a lot of sums must be done. The company also announced a 40MHz version of the 80960 CA. The 16-bit parts are sampling now, and the 40MHz 80960 is out now, but no prices were given.

...AND LSI LOGIC OFFERS RISC FOR EMBEDDED APPLICATIONS BASED ON MIPS R3000

LSI Logic Corp last week entered the embedded RISC microprocessor market with launch of the LR33000, based on the MIPS Computer Systems Inc R3000 RISC. Already using the device are laser printer maker QMS Inc in Mobile, Alabama; Electronics for Imaging in San Bruno, California; Tandem Computers' Array Technology division in Boulder, Colorado; and Dataco A/S, Copenhagen, Denmark, and 16 other unidentified companies. The LR33000 was designed using LSI's LCB007 one-micron cell-based HCMOS technology. The R3000-like core, implemented as a megacell and available on part of the LCB007 library, enables custom versions to be developed in minimal time, LSI says. The company stresses that the part was designed from the ground up for embedded control and offers it in 25MHz, 33MHz and 40MHz clock versions. The 25MHz version samples in December at \$100 for 1,000-up quantities.

SOLBOURNE'S 64-BIT S4000 BETTERS SPARCSTATION 1 PERFORMANCE BY 40%

Solbourne Computer looks set to offer Sun its biggest challenge yet with its first serious move to win business from desktop workstation users. As anticipated, Solbourne's new S4000 desktop Sparc workstation uses the new Panasonic MN10501 64-bit implementation of the Sparc (UX No 304), which integrates integer, floating point unit, memory management and cache on a 0.8 micron CMOS chip with 1 million transistors. The chip is the result of Solbourne's long-term development project with Matsushita (UX No 158, 195). Matsushita plans to use it in products of its own, but there are no current plans to license it to other Sparc developers at present. The integration gives the S4000 a claimed 40% performance and 9% price advantage over the Sparcstation 1. Solbourne is claiming 25.5 MIPS and 12 SPECmarks for a machine which has a base price of \$9,000 US, £7,300 in the UK for a 19" mono configuration with 8Mb memory and three available SBus slots. And Solbourne also offers large expansion capabilities of up to 104Mb main memory (compared to 40Mb maximum on the Sun). Solbourne has also introduced an SBus graphics accelerator card to boost 2D and 3D graphics performance, integrating X and PEX (PHIGS extension to X) primitives in microcode. Shipments begin next month, with quantity by January. In Europe, early customers include the UK's Sussex University and RacTech GmbH in Germany, with 50 systems each.

INGRES CLAIMS IT "HAS EVERYTHING NEEDED FOR DISTRIBUTED DB2-IMS-Rdb DATABASE"

Alameda, California-based Ingres Corp reckons it has taken a step even beyond the chimeric distributed database by introducing access products that it claims enables databases - hierarchical as well relational - from different vendors to operate as a single database. The company says it has gateways for IBM's IMS, DB2 and SQL/DS, and DEC's RMS and Rdb. The access products do the work of locating data, determining the quickest way to get to data, and keeping data stored in multiple locations up-to-date. As well as the five gateways, the new family includes an enhanced version of the Ingres/Star distributed database manager and Ingres/Net communications server. The Ingres distributed database architecture is designed to make any combination of local and remote relational and non-relational databases appear to a client application as a single, local database. Multi-node pricing for Ingres Gateways range from \$2,500 to \$150,000 for Rdb or RMS, \$50,000 to \$400,000 for DB2, IMS or SQL/DS. Ingres/Star and Ingres/Net are 30% and 15% of the Ingres base product price; all out now.

MOTOROLA GOES AFTER MIPS AND SUN MARKET WITH 88110

Motorola Inc's price-slashing on the 88000 RISC a couple of weeks back presaged the unveiling of the next generation of the part, called the 88110 and which combines the 88100 CPU and 88200 floating point unit on one chip, (UX No 300). The 88110 has multiple integer, floating point and graphics execution units and an internal 80-bit wide internal data path. It should be available in the first half of next year: look for Data General Corp to be among the first to grab it, for use in new models in its AViiON line.

DEC UNVEILS APPLICATIONDEC, NEW SERVERS SET FOR UNIX EXPO LAUNCH

Although the machine has already appeared at shows, DEC formally launched its 80486 Unix server with Corollary Inc's symmetric multiprocessing extensions to Santa Cruz Operation Inc Unix last week, (UX No 299). The applicationDEC 433MP for up to 128 users is aimed exclusively at the US market, where it becomes available in the first quarter of next year, and is not expected to be released in the UK. Using from one-to-six 33MHz versions of the 80486, a basic one-processor configuration comes with 8Mb memory, 209Mb disk, 3.5" floppy drive, nine CPU and memory slots, seven ISA-bus slots - the backplane supports EISA-bus add-ons - SCO Unix System V multi-user licence, TCP/IP, NFS and costs \$18,400. A four-processor system with 64Mb memory, 5Gb disk and 300Mb tape is priced at \$110,570. And following the release of Mips Computer Systems' R3000A Risc part last week, (UX No 304), DEC is expected to unveil new DECsystem servers based on the part at next week's Unix Expo show in New York. At the launch, scheduled for the first morning of the premier Unix event, DEC will likely reveal the top-end DECsystem 5500 and low-end 5100, both using the R300A part, (UX No 301). With 8Mb to 128Mb memory and up to 4Gb disk, the 5100 will be priced at around \$15,000, whilst the 5500, supporting up to 28Gb disk will come in at the \$50,000 mark.

ASK COMPUTER GETS CLOSER TO DEC ON PROCESS MANUFACTURING

Ask Computer Systems last week announced a closer relationship with DEC at Birmingham's CIM '90 show in the UK, with the two companies agreeing to merge software resources to create a shop floor and management package for the process manufacturing market, which it says has been traditionally underserved. The product will consist of an internationalised version of Ask's recently launched Manman/Process system with DEC's PMS process manufacturing software and ProScheduler scheduling system. ProScheduler, based around a stand-alone workstation, will be integrated with the Ask software by the first quarter of next year, while PMS integration will be in the third quarter. The DEC systems are currently based around the Rdb database, while Ask uses Ingres. An open systems re-write of the system is planned for three or four years' time. DEC has won its main process business from Unilever, but says it is also close to tying up a deal with Mars. The process industry is one of the fastest growing areas of manufacturing, currently expanding at some 30%.

WANG INTRODUCES OPEN/SERVER PRODUCT LINE

Wang Laboratories Inc has been talking more about its Open/Architecture framework, and last week introduced a range of Open/Server products to run on its Intel-based VS series computers. The products included PC software and local area networks from Banyan Systems, Microsoft Corp, 3Com Corp, IBM, and others. Wang also extended its OEM agreement with Novell Inc for the NetWare product line, signed a new agreement with Proteon Inc for the ProNET token ring twisted pair networking range and announced third party agreements with Netwise Inc, Graphic Software Systems, M/H Group, Easel Corporation and Oracle Corp.

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At Unix International's press event on the first day of next week's Unix Expo show, the AT&T supporters club is expected to reveal details about its distributed computing platform in response to OSF's Distributed Computing Environment.

And Unix International says more than 200 MS-DOS and proprietary software developers have begun porting applications across to Unix V.4 in response to its ISV programme launched back at the time of the European Unix Show, (UX No 288).

Interactive Systems Corp will this Tuesday (23rd) detail its arrangements with parent company Kodak to market the Photo CD technology which Kodak developed with Philips and launched recently on the Sun Sparcstation. (UX No 301)

US press reports suggest that DEC will unveil its software plans for the integration of VMS and Ultrix this autumn, and that it is also working on adding RISC benefits to its VAX/VMS range. The plans could result in Ultrix being able to run concurrently with VMS.

London-based ProMicro Ltd is to begin selling the ASA Silicon Compiler, a modular computer-aided design tool for application specific integrated circuits - ASICs - following a deal with silicon compiler specialist Sagantec Europe BV, part of the Sagantec Holding NV group, Eindhoven, Holland: it runs on Sun Microsystems and Apollo workstations, and DEC VAX/VMS systems.

ICL and Softlab Ltd have signed an agreement under which Maestro II becomes the first Unix-based multi-user computer aided software engineering tool to be integrated into ICL's Case Partners Programme: it is to be implemented for the DRS 6000 series and targeted at ICL's large accounts; ICL says this pact is a step to linking Maestro II with its Data Dictionary System; the German firm's product has been heavily promoted by Philips NV.

Unisys Corp is shipping Santa Cruz Operation Inc's SCO Unix System V/386 3.2.2 on its PW/2 500 and 800 Personal Workstation Series, and claims that it is now the Santa Cruz firm's largest OEM customer.

Previously confined to personal computer environments, Roy, Utah-based Iomega Corp's, Bernoulli hard shell floppy disk technology is now available for Unix systems: the Iomega driver for SCO Unix V/386 3.2 and AT&T Unix V/386 3.2 has three driver modules and two utilities that will support all Iomega disks.

The first Sparcstation to roll off Sun Microsystems' new Linithgow manufacturing plant in Scotland, (UX No 300), has gone to Edinburgh architect Philip Cocker & Partners, which is using the box to design work for the £135m refurbishment of the 10,000-bed Hotel Ismailova in Moscow.

Oxford Molecular - the first company set up by Oxford University's technology transfer unit - has ported its molecular modelling software to Sun's Sparc platform.

And Sun has introduced QuickCheck software for its Sparc-based servers and workstations, which it claims, allows users to get back on-line faster after a system crash - it costs £400: Sun also says its 911Mb IPI disk drive is now available for the Sparcserver 470 in addition to the 490, and is reduced in price by 21% to £9,550.

Fort Lauderdale, Florida-based Encore Computer Corp is implementing Retix Systems' parallel, multi-threaded OSI protocol suite - including ISO transport services, File Transfer Access and Management and X.400 message services - on its Multimax 500 series, where it is expected before the end of the year, and on the 88000-based 90 series of symmetric multi-processing systems from the Gould side of the company for the second quarter of 1991.

AT&T's Unix System Labs has released version 2 of its security auditing tool Detector, which is aimed at identifying potential security problems in a Unix environment: source code licences start at \$5,000 for an initial CPU - \$3,000 on additional processors.

Unisys says its Mapper and Ally fourth-generation environments are now available on AT&T 3B2 and NCR Tower systems - in addition Mapper now also runs under OS/2 on personal computers.

Tartan Labs Inc, Monroeville, Pennsylvania, has signed up Shipton-under-Wychwood, Oxfordshire-based Thronbrook Ltd to distribute its embedded and real-time Ada compilers and tools in the UK and Ireland.

Brocom Computers Ltd, Bromley, Kent, has launched a new range of monitors for its QC series of multi-user systems capable of running both MS-DOS and Unix environments within different windows on the screen: the M terminals use Broncom's Multi-VGA card providing both colour and VGA personal computer graphics on a screen - a four-user Intel 80386-based QC with 100Mb disk and Multi-VGA costs £4,915.

Jarogate Ltd, Surbiton, Surrey, has launched the Sprite XMi series of 80386 and 80486-based multi-user Unix systems: the entry-level XMi80 comes with a 25MHz version of either Intel part, 4Mb memory, 80Mb disk, 100Mb tape streamer, an eight-port controller board, Ethernet, TCP/IP and Jarogate's PC NFS software - prices start at £10,000.

Control Data Corp has adopted Lynx Real-Time Systems Inc's real-time Unix kernel to do a Posix 1003.1-compliant Unix implementation for its MIPS Computer Systems Inc RISC-based 4000 series, the 4360 and 4680. Aimed at simulation, data acquisition, telemetry and military work, it answers a single interrupt in under 19 microseconds and costs £5,776 on the 4360, £9,625 on 4680.

Companies and industry lobbies can shout all they like about how many millions of applications are being written for their particular environment but competitors know they have to start worrying when an environment has attracted so many applications that third parties decide it's worthwhile offering tools that facilitate the raiding of that applications base for other environments - and that is the tribute that has just been paid to Sun Microsystems Inc's Open Look graphical user interface by Santa Cruz, California-based TGV Inc: TGV has unveiled an XView for VMS development toolkit designed to facilitate the migration of windows-based applications written for Sun's Unix machines to DEC's VAX/VMS operating system; XView for VMS is a server-based, object-oriented toolkit designed for the X Window System and DECwindows, has architecture identical to SunView and uses the Open Look interface and window manager; out in December, it needs VMS 5.2 up; no price.

Regarding the recent speculation over Compaq Computer Corp's Risc preferences, (UX No 303), at last week's press bash in New York for the launch of its latest 386SX notebook personal computer, Compaq president Ron Canion told Unigram.X that reports that the company is on the verge of deciding which Risc chip to use were the figment of the imagination of a New York Times reporter: although Compaq is watching what happens to Risc, it is currently married to Intel, he said.

It is reckoned that legal complexities, and the knock-on effects of the extended "Unity" talks between Unix International, AT&T and OSF earlier this year, will push AT&T's plans to sell off equity in its Unix Systems Labs into next year.

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OSF/1 IS NOW AVAILABLE - DEC WILL BE FIRST TO MARKET

The Open Software Foundation's OSF/1 operating system environment was launched last week in New York, Nice and Tokyo, with OSF member companies - except Philips - making their strongest commitments yet to use the new technology, with DEC promising an advanced development version to its customers by early next year. Although the Foundation spent little time talking about the technology itself - its base technology choices have, after all, been well documented during the two-and-a-half year development - OSF president and CEO David Tory did emphasise that OSF/1, and its evolution over the next few years to a micro-kernel version, would support new developments in applications software this decade. OSF/1 was billed as only one element of the OSF/1 environment, with the Distributed Computing Environment and OSF/Motif graphical user interface as equally important elements. Where the OSF launch differed from Unix International's System V Release 4 last January was that there was no indication of support from software vendors - Informix Corp was almost alone in saying that Wingz, Informix and Informix On-line would be ported over. And the Foundation was also vague on just how much support it would be giving ISVs to port applications and prove their conformance to the OSF/1 standard. Full details, page 5.

IBM KEEPS PRESSURE UP WITH FASTER RS/6000s AT UNIX EXPO...

IBM is set to crank up the power of its RS/6000 line at Unix Expo this Wednesday with a 25% boost - which sounds like an increase in the clock speed of the chipset, currently set at 20MHz for the 320 models, 25MHz for the 520 and 530 and 30MHz for the 41 MIPS PowerServer 540 - which became available last month. Reports in the Wall Street Journal suggest that the machines will be rated at around 55 MIPS, and will come in both workstation and server configurations. Low-end RS/6000s are expected next year (UX No 302). The move shows a new determination by IBM to keep up with the competition. Workstation leader Sun Microsystems is expected to come out with its next generation Sparcstation 2, rated around 27 MIPS, on November 5th.

...AND IS READY WITH LONG-DELAYED 80486 PS/2 90s and 95s

In the UK, the RS/6000s are likely to appear a day earlier, along with the long-expected PS/2 Models 90 and 95. According to US sources from Austin, the Model 90s will use a 25MHz 486, four 32-bit MCA slots, up to 32Mb memory, and 16-bit XGA display adaptor on the motherboard. Hard disk options include 160Mb or 320Mb drives interfaced with the 32-bit bus master SCSI card announced last year. The Model 95 is a high-end uniprocessor server, and will come with 33MHz or 25MHz 80486.

BILL JOY - SUN "WILL BE UNIX MULTI-PROCESSOR LEADER" BY 1993

Speaking at Esther Dyson's first East-West High-Tech Forum in Budapest last week, Bill Joy, Sun Microsystems' vice-president of research and development confirmed that the company is working on symmetric multi-processing Sparc desktops and servers, (UX No 305) - and promised boxes "by the end of calendar 1991". In typically ebullient fashion, Joy predicts Sun will be the first company to sell 100,000 multi-processing machines, "and we'll do it by the end of 1992," he added. Sun's entry into the world of parallel technology has been delayed up to now "for business reasons", Joy said. First boxes are likely to ship with a single processor and space for others, though it is still unclear where the multi-processing Unix operating system software will come from. Joy also revealed details of a pet project he is working on that could lead to the creation of a 1,000 MIPS, multi-processing Sparc machine by 1995. Code-named the 3000M - 1,000 MIPS, 1,000Mb and 1,000 MFLOPS - Joy reckons it that it would take a three-year development effort to do such a system - staffed from next year - but has yet to convince the rest of the Sun team of its viability. Joy envisages the 3000M using up to eight 200 MIPS Sparc CPUs, 2Gb memory and 64-bit DRAM parts.

UNIX INDUSTRY GATHERS FOR UNIX EXPO

The Unix industry will be gathering this week at New York's major Unix Expo trade show, which starts this Wednesday at the Jacob K Javits centre in Manhattan. News of the announcements set for the show are scattered through this and previous issues, the main one's on the hardware front being IBM's new RS/6000 (see this page) and DEC's application DEC servers (UX No 305). Network Computing Devices is set to reveal a new low-end \$1,495 X-terminal; a little pricier than Visual's, but it runs X server: it'll have a 15" monochrome monitor and be available in early December. Storage specialist Epoch Systems is expected to reveal a new deal with Sun. Sparc announcements and previews (see page 4) will be split between Unix Expo and Comdex/Fall (November 12-16, Las Vegas), although Sparc International is releasing an Applications Conformance Toolkit to speed and streamline development of binary-compatible Sparc-compliant software. Also on the software front, look out for Revision 2 of Looking Glass from Visix Software, and a software vendors initiative from IXI (see page 3), plus announcements from Unix International (see page 2).

DEC "MAY LICENCE VMS"

DEC has revealed that it is considering licensing the RISC technology it is developing for its VAX line, and that it may also license its proprietary VMS operating system. The news came at a meeting in London to announce X/Open branding and Posix compliance for VMS. In fact, Posix compliance is at such a low level that it doesn't count for much in terms of application portability, but it does mean that VMS now meets one criterion of eligibility for those juicy defence contracts - Posix conformant VMS will ship next year. Compliance to X/Open standards counts for more, but here DEC said VMS would not be XPG 3-compliant for another two years. DEC also said it was considering implementing the Open Software Foundation Distributed Computing Environment in VMS.

DATA GENERAL'S AV 100 IS \$4,000

Data General Corp last week added the AV 100 graphics workstation to its AViiON RISC Unix line, claiming that at \$4,000 (UK £3,100), it offers the best price-performance ratio of any RISC-based desktop in the industry. Rated at 17 MIPS, the 88000 RISC-based AV 100 is claimed to be more powerful and \$1,000 less expensive than its closest RISC rival, Sun Microsystems' SLC, which runs at 12.5 MIPS. The AV 100 uses a 16MHz Motorola 88100 and the price includes 8Mb memory, 20" monochrome monitor, SCSI and Ethernet interfaces and two serial ports. It takes up to 16Mb memory and up to 4Gb of external disk.

BUDAPEST: EAST MEETS WEST AT ESTHER DYSON'S HIGH-TECH FORUM

by William Fellows

At last week's East-West High-Tech Forum in Budapest, Interactive Systems' Gary Williams revealed that its Unix V.4 operating system product will be announced early in 1991, with shipments to begin by the year-end. In an effort to boost its fortunes, Interactive - which competes head-on with the likes of Santa Cruz Operation for a share of the Unix market - is also to begin diversifying business beyond its traditional operating system software base into applications, the first batch of which will be imaging software derived from its Eastman-Kodak parent, to be launched next year.

With two distributors in Poland, and one each in Hungary and Czechoslovakia, Sun Microsystems' country manager for the USSR and Poland, Mirek Wierzbowski, says the company has done \$2m worth of business in the first three months of operations over there. Sun co-founder Bill Joy and Wierzbowski will be speaking at this week's Unix show in Moscow, where they hope to sign up Soviet distributors. Sun is now able to export its basic Sparc machines into the East European countries - providing they contain none of the high-performance graphics add-on technology - and is keen to break into the Soviet market where Sun 3-60 clones are already reported to be in use. Moscow's Unix show - the first Unix-only affair to be held in the USSR - is expected to attract several hundred delegates, where Western and Soviet Unix companies will be exhibiting side-by-side.

Richard Handyside, managing director of Autodesk UK Ltd, says that a new version of its AutoCAD software will be unveiled later this year, which will include a bundled Lisp compiler developed by engineers at its Moscow-based joint-venture company Parallel, headed-up by Spartak Chebataryof. Handyside said that after four years of operation Autodesk is now making a profit out of its Soviet venture, though it is still investing in its other East European concerns. Russian, Polish, and Czech language versions of AutoCAD are now available - a Hungarian edition will be available within the next few months - Handyside says the firm needs to sell around 500 copies to cover the cost of developing each local-language version.

Bull International SA manager, Gerard Bloch-Morhange, says that although the French company, which recorded sales of \$90m in Eastern Europe during 1989 - sales that are forecast to rise to \$120m this year - is profitable at the moment, its East European operation will fall into the red in future. This will be due largely to its joint-venture with the computing arm of Hungarian electronics conglomerate Videoton, (UX No 271) - to which Bull is committing up to \$200m - the size of which the French company is looking to reduce drastically. Morhange says that up to 50% of the 2,000 or so employees currently employed in the Videoton arm of the operation will have to be laid-off. Videoton's vice-president, Csaba Barath, said that whilst the company previously had "a very comfortable market in the East European countries", the combination of the opening-up of borders, the collapse of the Comecon market, high manufacturing costs and obsolete products have completely reversed this picture. Barath is emphatic about the company's moral obligation to its employees, and although redundancy is now theoretically an option for East European firms, the Western practice of slashing jobs in their thousands simply will not wash. The future for the 16,000-strong Videoton as a whole is increasingly uncertain - Barath himself does not know what is going to happen - although the Hungarian government is known to be considering the wholesale privatisation of the Videoton group.

Value-added reseller, distributor and software developer Computer Aided Technology, CAT Ltd, the Moscow-based joint venture set up in June by US firm Merisel, the National Economic Society of the USSR and the Soviet Diplomatic Corp's administration service - headed by Mikhail Krasnov, says its first service and support centre is now open business in Moscow. A second will be launched in Leningrad later this month, with others to follow in Kiev, Novosibirsk, Sverdlovsk, Krasnoyarsk and other major Russian cities.

Retail computer outfit Computerland says it will be opening a new shop in Budapest in January, and has a further two stores which will come on stream in Poland soon. Its Moscow operation - which is said to have a virtual monopoly on sales of IBM kit in the USSR - is now reported to be cracking the \$1m-a-month barrier.

Dell Computer, Wordstar International, Interactive Systems, Cimline and Prime Computer are amongst a roll of firms now actively seeking partners for setting up distribution operations across Eastern Europe, as well as hunting Soviet and East European software to market in the West.

Magnificent 7 Software's president Maxim Khomyakov says that a system management application - Deal Driver - is now available from the Moscow-based company: Khomyakov is looking for venture capital backing for his firm.

Sofia, Bulgaria-based Interprogramma - a joint Bulgarian-Soviet institute - is looking for Western distributors for its range of CAD/CAM, database, expert system, office automation, communications and software engineering software which runs on IBM, DEC and personal computer hardware: in addition the outfit, with 200 employees, is looking for Western hardware and software to distribute in Eastern Europe.

The Moscow-based Soviet Unix Users Group has joined the Usenet Unix information dissemination network as a high level networking domain. The initial link was established between the Finnish Unix Users Group and a Unix system at the Institute of Cybernetics in Tallinn, Estonia, USSR, according to Institute researcher Leonid Tomberg. In the Soviet Union there are more than 30 computers exchanging electronic mail using standard Unix protocols. Most are in Moscow, although nodes exist in Leningrad, Vilnius and Novosibirsk.

The Soviet Union, desperate for revenue, has announced new taxes on private computer imports, the Teleputing Hotline reports: import prices in US dollars are converted into roubles using the "official" exchange rate - currently 0.64 roubles to the dollar and then multiplied by eight; exempt are state-owned importers, re-exporters, companies intending to sell equipment locally for hard currency, and joint ventures' registered assets.

323 FIRMS TO RELEASE V.4 PRODUCTS BY YEAR-END

Kicking off the next round of skirmishing between Unix International and the Open Software Foundation, UI this week will play up the fact that SVR4 is actually shipping in volume despite insinuations from OSF and its hangers-on to the contrary. UI has polled the marketplace and will publish a list of 323 vendors who either are, or will be shipping SVR4 products by the end of the year. The audit includes all of UI's principal members, 75% of its general members and a number of firms outside the pale. Geographically they break down into 144 US companies, 158 European companies and 21 Asian firms described by UI as the bulk of the Asia/Pacific open systems vendors. UI reckons it has more than two-thirds of the major players worldwide and a strong following among the ISVs who are porting their software over to System V.4. The salvo, which attempts to draw attention to the fact that it will still be some time before any OSF/1 implementation reaches a paying end-user, implies that the AT&T/UI camp has effectively won the battle of the operating systems.

KODAK'S PHOTO CD TECHNOLOGY SIGNALS POTENTIAL BONANZA FOR INTERACTIVE AND SUN

The computer press sort of dozed through Kodak's September 18th announcement of a consumer product that stores 35mm photographs on compact disks (UX No 301). But last week Kodak started fleshing out its business strategy proving that we should have been more awake the first time through. One of the questions it helps answer is why it ever bought Interactive Systems (UX No 305). Well, Kodak, it seems, has stumbled on to what it thinks is a new market niche, desktop colour imaging, which it estimates will be worth \$5B in five years. One of the immediate beneficiaries of this windfall will be Sun Microsystems whose hardware Kodak intends installing in all its photofinishing shops worldwide. Sun was picked because of the speed of the S-bus, which Kodak says its photofinishers need to process the thousands of pictures they do in a day. That of course is the consumer end. But Kodak is also aiming at putting its cost-efficient editable pictures, four times the resolution of high-definition TV, and a key ingredient of multimedia on Unix, DOS Windows, Mac and OS/2-driven computers. Making it work is the job of the C-based software Interactive has helped develop. Last week the pair announced a Photo CD development toolkit, directed at ISVs and VARs, and a Photo CD Accessory for computer users. Both are due in mid 1991. Kodak will also put its device-independent specification for keeping colour consistent, PhotoYCC, in the public domain looking to make it a standard. Kodak's technology won enthusiastic support from Sun, NeXT, IBM, Hewlett-Packard, Olivetti, Aldus, Apple, Autodesk and Oracle among others. Adobe chairman John Warnock told the press corps in New York the development was more significant than his own Postscript.

ICL PAYS £10m FOR DATABOLIN INFORMATION SYSTEMS, SWEDEN

The Fujitsu Ltd influence is working already at ICL, which has begun to increase the rate of its acquisitions even before it comes under formal control of the Japanese company. Yesterday, ICL announced that it was paying about £10m for Databolin Information Systems AB, a Swedish applications developer that has subsidiaries in Finland, Norway and Denmark. The Databolin name will be retained by the company, which will become a division of ICL Sweden. Formerly a subsidiary of Databolin AB, it has 277 staff and 1,500 customers and its key products are the Master manufacturing and Gourmet wholesalers' suites. They run under Unix and proprietary operating systems and ICL plans to do Unix V.4 versions for RS/6000.

EUUG - NOW EUROPEAN - PLANS JOINT OPEN FORUM SHOW WITH UNIFORM

The 15-year old European Unix User Group announced a name change to EurOpen at its conference and exhibition in Nice last week - a move that it says reflects its progressive expansion to encompass open systems. EurOpen chairman Michel Gien presides over a federation that includes some 20 national user groups throughout Europe and beyond. It has historically had predominantly technical and academic interests, rather than commercial concerns, and at its Summer conference in London, provided the platform for AT&T's Bell Labs to introduce its Plan 9 operating system environment (UX No 291). However, the Group has struck up a deal with the US UniForum Association, with which it plans to organise the international Open Forum Show in Amsterdam, scheduled for October 1992.

IXI LISTS PARTNERS IN NEW DESKTOP MANAGER SOFTWARE INITIATIVE

Among the highly competitive desktop management people, which is to say between Visix and IXI, it's very much a situation of tit for tat. So this week IXI will unveil its X.desktop Software Initiative which bears many of the earmarks that distinguished the Visix Software Partners (VSP) program when it was started back at Xhibition. The idea is to make sure the major software applications work more closely with the desktop manager. IXI's partners - if we can use that term - include a few more than Visix might have, namely, Altered Image, Applix, Ashton-Tate, Crosswind Technologies, Empress, FourGen, Frame, Informix, Ingres, Island Graphics, Lotus, Oracle, Quadratron, Uniplex and WordPerfect. The program is divided into two phases: phase one preconfigures IXI's X.desktop to let a user go directly into these applications from their icons rather than have the user do the configuring. Phase two calls for tighter integration, and will allow X.desktop to do some of the tasks the applications usually do themselves like finding files and printing. In IXI's case, the ISVs should be able to do most of the integration themselves. IXI says most of the technology needed is already available in its current 2.0 release. However, it will be in full flower in release 3.0, set to debut next quarter at Uniform. 3.0 will reportedly include new object-oriented technology that IXI is submitting to the Open Software Foundation for consideration as part of its latest Request for Technology covering the Distributed Management Environment. It will allow ISVs to write software that interacts with the desktop through intelligent "drop" action behavior, IXI says.

...AS DEC SIGNS UP FOR VISIX LOOKING GLASS

Visix Software has bagged its first "elephant", signing up DEC to a three-year license to resell its desktop manager Looking Glass through DEC's sales force and resellers worldwide. The software, which will become available as soon as the deal is announced later this week at Unix Expo, will run on all of DEC's Ultrix products. "Elephants" is the rather endearing way Visix has of referring to that handful of potential OEMs - such as IBM, HP and Sun - whose capture would be of great moment because of their sheer size. DEC, however, might be the only elephant Visix ever gets to snare. IBM has already been pouched by Visix rival IXI and is using IXI's X.desktop on its AIX-run PS/2s and the RS/6000. Sun already has something of its own resembling a desktop manager and HP is going its own way too with New Wave and HP Vue.

SILICON GRAPHICS USES R3000A RISC IN NEW IRIS 4D

Silicon Graphics last week announced the latest addition to its Personal Iris range of Unix-based graphics workstations. The 4D/35 uses the latest CPU from MIPS - the R3000A. Silicon Graphics claims that the new machine triples the floating point performance of the existing Iris workstations and outperforms all other general purpose workstations on the market today. Running at 35MHz, the new machine is rated at 33 MIPS, 6 MFLOPS and has a SPECmark rating of 23. Silicon Graphics has developed five new ASICs for the new machine: a processor interface controller; a high performance input-output controller; an interrupt controller; DRAM module interface; and a cache parity debug controller. The 4D/35 has 64Kb instruction cache, 64Kb data cache and up to 128Mb for main memory. Input-output is handled in burst mode. A Motorola signal processor controls four user serial lines capable of running at up to 2.5Mbits per second and provides input-output for analogue and digital stereo sound. The new 4D/35 is available as an upgrade to existing Iris users. Out in January 1991, it's £16,000 and Silicon Graphics is making a general purpose compute server version available for £8,330.

LSI REVEALS 11 100% COMPATIBLE SPARCSTATION CLONERS - AS SUN OPENS UP ITS SPARCSTATION 1

Sun Microsystems and LSI Logic, one of the Sparc-making chip houses, last week clinched a deal making the guts of the original, formerly proprietary Sparcstation 1 available to cloners. LSI then turned and immediately identified 11 companies, predominantly PacRim manufacturers, who have been working with the design and are soon to reveal 100%-compatible Sparcstation clones. The firms named were: Hyundai of Korea; Tatung, Chicony Electronic, DTK Computer, Sampo and Twinhead International, all of Taiwan; DCM Data Products of India; Intelecsis of Mexico; CompuAdd, Northgate and Research Development Innovations of the US. The 20MHz/12.5MIPS SparKit-20 manufacturing kits LSI is supplying them to build their boxes come from Opus Systems, a fact LSI is not anxious to broadcast. Opus, which also has its own workstation effort, last week announced other higher performance 25MHz and 40MHz instant Sun clone kits and promised a raft of customers would soon come to light (UX No 305) but discreetly failed to mention its work on the SparKit-20 prior to LSI's revelation of the Sun deal. LSI declined to describe exactly what the clones would look like or when they would arrive, but indicated that CompuAdd and Northgate, for instance, would bring in desktop models priced at \$5000-\$6000, boxes that are comparably powered to Cisc-based machines costing \$15,000 to \$20,000.

Sparcstation 2 on November 5th

Sun's logic in licensing the technology, poohpoohed as "old" and "obsolete" by some, is to jumpstart its followers, hurry them to market and indirectly lay claim to a significant share of the desktop. Sun itself is pretty much through with this technology and is focusing on a new high end. Next week, on November 5, it is scheduled to unveil "Calvin," its 27 MIPS Sparcstation 2. The worldwide SparKit-20 deal is exclusive to LSI as opposed to other Sparc makers because LSI developed the original ASIC devices for Sun. The SparKit-20 packages the ASICs and the original chipset together with LSI's own integer unit and optional floating point. Time-to-market is the immediate goal for the cloners, but later they will be able to trade up to LSI's Opus-built 25-MHz/18-MIPS SparKit-25, due in quantity the end of this quarter and the 40-MHz/29-MIPS SparKit-40 chipsets, which won't appear in volume until late first quarter. There is also a 80-MIPS Sparc, using windowed dataflow techniques as opposed to superscalar technology, that LSI expects to sample in the first half. LSI's US domestic pricing on SparKIT-20s, including SunOS binaries, is \$1000 in 5000-piece quantities, with the floating point \$150 extra.

RDI has high hopes for Solbourne laptop OEM deal

Rumour has it that Research Development Innovation (RDI), the tiny California start-up with Brite Lite, the breakthrough battery-run Sparc laptop that runs Unix, DOS and Mac programs (UX No 296), may get its first major OEM deal from Solbourne, the original Sparc cloner. The match-maker, we hear, is TriGem, Solbourne's sole Korean distributor and the company that'll be making the RDI's machine. If the deal does come off - and we won't know until next month at Comdex when Brite Lite gets its first public airing - it could put pressure on Sun to make a move in the laptop arena. Although it has no history of going outside for hardware, Sun is believed to be interested in the box, and sources say that senior engineering staff at Sun have been lined up for demonstrations. RDI, meanwhile, already has a packet of mixed user/reseller orders from firms like GE, EDS, Boeing, ICL, General Dynamics and Grumman, which is apparently bidding it in a \$500M US Army's procurement that could be worth \$150M to RDI. Deliveries of the first 200 machines begin in December, followed by 500 in January and 2000 in February. RDI's original notion had been to follow up its Sparc achievement with a MIPS version (UX No 297). But that idea might get scrubbed in favour of a NeXT laptop.

Tatung previews Sbus desktop Sparc due at Comdex

Tatung last week was the first of an expected slew of Pacific Rim companies ready to jump on the Sun bandwagon to announce a Sparc box built around the newly revealed Opus/LSI instant Sun clone kit (UX No 305). US subsidiary Tatung Science & Technology said its entry-level colour S-bus desktop, to be previewed at Unix Expo and formally introduced at Comdex in November, will sell for \$6995 list. The Taiwanese firm, which expects to sell 6000 units in the next 12 months, will take the box through its traditional OEM, VAR and systems integrator channels. The new model TWS5020 is one of three projected family members that will include a 40MHz unit once those chips become available in volume and in '92 another one spec'd to perform at 80 MIPS and built, as Solatrix is also doing (UX No 302), using superscalar chip technology. The current diskless workstation features a Tatung-made 19" colour monitor and three S-bus slots. It reportedly yields 12.5 MIPS and 1.4 MFlops. Main memory is 8Mb, expandable to 64Mb. There's a standard 1.44Mb floppy and two optional 208Mb hard drives. It supports both Open Look and Motif. A limited number of evaluation units will be available next month. Volume shipments begin first quarter when the company also expects to have a 17" monochrome model. Tatung expects sales growth of 80% to 100% over the next three to four years. The Opus effort is one of at least three Sparc projects Tatung currently has in the works. Its first, an ERSO-derived VME-bus machine, was first shown publicly last November at Comdex but has yet to be formally launched. Tatung Science president Kam Chan said the machine has now been repositioned as a server rather than a desktop and will come out next year. Tatung is also the co-developer of Mars Microsystems' AT-based Sparc clone (UX No 294).

DCM pitches Superstation into Indian market

New Delhi, India-based DCM Data Products is using the SparcKit to develop a Sparcstation - initially for the Indian marketplace - dubbed the DCM Superstation. Due for release in the first quarter of next year, DCM's box will be competing against those from the likes of HP/Apollo, Intergraph and Sun Microsystems in what marketing manager Vikrant Tower says is a burgeoning Unix workstation market in India. Although no pricing details have been fixed, Tower says that multi-processor Intel 80486 and 80860 Risc systems are also in the works for next year. DCM, which also manufactures personal computers and superminis, says it is now working with Microsoft and Texas Instruments on new software applications. DCM has US offices in Fort Worth, Texas, and Los Angeles, California.

OPEN SOFTWARE FOUNDER'S DAY

New implementation of Unix will "support the applications of the 1990s and beyond"

by John Abbott

After a prolonged two and a half year gestation period, the Open Software Foundation last Tuesday released its OSF/1 alternative Unix operating environment, including just about all the features it originally promised - namely symmetric multi-processing, networking, B-1 level security and advanced internationalisation. Unlike Unix from AT&T Co, it says, OSF/1 "is designed to support the applications of the 1990s and beyond". As is well documented, the core technologies include a command set and libraries from IBM's AIX 3.1, the Mach kernel from Carnegie Mellon University, Encore Computer Corp's symmetrical processing, SecureWare's SMP+ security, Mentat's Streams networking and the Berkeley 4.4 virtual file system. The Mach kernel will enable workloads to be distributed among multiple processors and is said to be easier to maintain - it also offers support for dynamic system configuration, logical volume management and disk mirroring, with features required for the NCSC B-1 security classification. The initial release is available on three reference machines: the Intel 302 (80386), DECstation 3100 (MIPS R Series) and Encore's Multimax (NS32000), with three additional vendor-contributed implementations on the tap for the Hewlett-Packard Apollo DN2500 (68030), Intergraph 6000 (Clipper) and an unidentified 80860-based system. The Foundation says the operating system as it stands will provide "a clear migration path to upwardly-compatible micro-kernel-based environments of the future" - namely OSF/2. Subsequent Foundation releases will take place every 12 to 18 months, culminating in the micro-kernel version. Prices are \$50,000 for full distribution rights, \$25,000 for source but no distribution rights, \$5,000 for Universities, and \$65 per copy object code user fees.

DEC out front as the seven sponsor members

outline their plans to implement OSF/1

With Foundation sponsors covering around 70% of the world's mid-range systems market, IBM officials were speculating privately about the date when OSF/1 shipments would overtake those of AT&T's System V Release 4 in the mid-range, while generally admitting that AT&T had an upper hand with low-end systems. But typically, IBM would still not commit itself to dates in its statement of support, saying only that it plans to incorporate OSF/1 into all of its AIX implementations - 370, PS/2, RS/6000 - and re-iterated its May announcement that it will integrate the Foundation's DCE Distributed Computing Environment into its AIX and Systems Application Architecture families. IBM's president of the Advanced Workstations Division Nick Donofrio said he expected that OSF/1 would "achieve the same level of industry and user support as an operating environment that OSF/Motif has drawn from its graphical user interface capabilities". DEC, on the other hand, is likely to be the first to bring OSF/1 to the general market with plans for an advanced development kit of the operating system for end users, software vendors and academic institutions on the DECstation, enabling them to "adjust their own investments" in preparation for DEC's move to its next major release of Ultrix, based on OSF/1 and due out in 1991. Hewlett-Packard Co and Hitachi Ltd are also promising OSF/1 launches next year, with Hewlett waiting for a new generation of Precision Architecture RISC workstations as the initial machine. Migration to other Hewlett families, and the integration of DCE technology, will take place over the next three years. This will include support for DCE and OSF/Motif on its proprietary HP 3000 line. Hitachi promises to put OSF/1 on its M Series line by the fourth quarter of 1991, followed by its other families. And without giving firm dates, Groupe Bull executive vice-president Michel Bloch said that his company would "progressively integrate OSF/1" into its open software environment, starting from next year, and said that DCE support would also spread to its proprietary GCOS hardware. Perhaps the most vague was Siemens Nixdorf Informationssysteme AG, which sought to excuse its recent defection to AT&T's System V.4 by saying that it "picks the best solution at the time we need solutions". Board member Hartwig Rogge said that his company would "use this operating system technology for its Unix/Sinix systems as soon as possible", and saying that it would be integrating technology from both camps - which for all the details could simply mean OSF/Motif on top of System V.4.

Encore leads non-sponsor announcements

Non-sponsors chiming in with support for the new operating system included Encore Computer Corp, which carried out much of the work on parallelising the Mach-based OSF/1 kernel. Like DEC, Encore plans to release an "advanced technology research product" based on OSF/1 for its Multimax product line early in 1991. The Multimax version is the reference symmetrical multi-processing implementation of OSF/1. Intel Corp said it had "actively participated" in work on the 80386-80486 reference implementation and expected it to be made available by multiple vendors. And two software development companies - Gradient Technologies Inc of Hudson, Massachusetts and Simfact of San Diego, California made announcements. Gradient says it is working on a set of "shrink-wrapped" Distributed Computing Environment products for desktop systems, and has submitted technology for the Distributed Management Request for Technology. Simfact Associates says it is working on wide and local area network communications, Kerberos network security and "third generation office system applications using the DCE.

Distributed Computing kit early in 1991

Aside from its OSF/1 announcements, the Foundation said that it would release a developers kit for the DCE Distributed Computing Environment early next year, in place of its normal "snapshot" early release procedure. The kit, including remote procedure call, local directory naming services, time services and threads, will allow a wider set of developers to begin work on DCE software than the normal early access schedules. The specifications of DCE were released five months ago, and full release is slated for mid-1991, with the addition of global - X500 - naming, and distributed file, security and MS-DOS integration services. A source code licence will cost \$5,000.

ORACLE ENHANCES THROUGHPUT WITH MULTI-CLIENT SERVER

Oracle Corp has added a Multi-Client Server option for Version 6.0 of the Oracle relational database management system, initially for Unix systems. Oracle says it provides enhanced support for transaction processing applications with very large user configurations of 250 or more users without degrading transaction processing performance, modifying the client-server architecture to enable multiple client processes to attach to one or more server processes. The new architecture substitutes Oracle's current architecture, in which there is a one-to-one correlation between each client process and server process, thus reducing the process switching overhead and ensuring that Oracle-based systems maintain high throughput as customers add users and enabling the Oracle kernel to support much larger user configurations - up to three times as many users on a Sun machine. It is free to existing users, but needs a new SQL Net TCP/IP driver, at from \$3,750 for 32 users to \$26,100 for more than 256 users; both will be available in first quarter 1991.

unigram·x

The weekly information newsletter for the UNIX™ community worldwide

OSF has farmed out all development of Motif 1.2, the next iteration of the graphical user interface due out next year, to founder-member and Motif parent Hewlett-Packard: according to OSF VP Ira Goldstein they came to contractual terms on the deal without bringing in any lawyers.

OSF sponsor Siemens Nixdorf executive VP Hartwig Rogge maintained a staunchly Teutonic "no comment" stance when taken aside and questioned by a couple of reporters about the possibility Siemens might buy into OSF rival, AT&T Unix System Laboratories. Needless to say that kind of stance is always highly suspect.

Klaus Luft, who was chairman of Nixdorf when it hit the skids, has had to leave his home in the little West German village of Paderborn, a classic company town, and go into hiding because of tyre slashings and death threats.

Sun Microsystems has taken a worldwide corporate license to Fulcrum Technologies' Ful/Text retrieval system so internally it can develop next-generation applications across its entire range of workstations.

Stratus Computers Inc has restructured into four divisions - Telecommunications, North American, International, and Corporate Operations.

Motorola is reported to be working on a new multi-processor computer in its 88000-based Delta series for release next year: the compute server, with four 88000s is reckoned to go up to 200 MIPS, and will eventually move to incorporate the new 88110 chip set.

A Businessweek cover story on Apple's latest corporate strategy has 30 of the company's engineers working on a Motorola Risc project under the code-name Jaguar: the magazine, quoting Apple employees, says Jaguar will take another two years to finish and will include extensive video technology and the ability to connect to TVs and VCRs.

At Unix Expo this week ModComp will announce a new mode in its Tri-Dimensional 9700 series of real-time Unix boxes based on AT&T's Systems V.3. The Tri-D 9740 uses a 50MHz 68030 and runs at 10 MIPS. It offers graphic windowing capabilities such as X-Windows 11.4 and its own Real/Vu environment which supports OSF/Motif 1.1. A variety of configurations from a desktop to a 20-slot metre-high cabinet will be available in December with prices starting at \$66,000. The box can handle 1Gb of disk and 40Mb internal memory.

Sun Microsystems Inc reports that it shipped 38,600 computers during its fiscal first quarter to September, up 36% from the same period a year ago, and that 50% of its business was done outside the US; the company says that although orders and sales were in balance during the first quarter, operating results were not at levels it had expected, and that it is assessing the effect of both Sun-specific and external issues and taking a cautious approach to the current quarter - including freezing headcount levels and curtailing expenses.

It's quite clear that IBM intends to adapt the world of open systems to its own ethos rather than allowing it to change its corporate culture one jot: at the Open Software Foundation launch, while DEC said it would ship a merged Ultrix/OSF/1 product within the next year, Hewlett-Packard Co said it would make it the operating system for the RISC workstations it will ship next year, Bull SA said it would progressively integrate OSF/1 into its Bull open software environment starting next year, and Hitachi Ltd said it would develop and market a mainframe equipped with OSF/1 by the fourth quarter of 1991, and would progressively install OSF/1 on Hitachi's other computer systems, and Siemens Nixdorf Information Systems Inc said it had already implemented OSF/1 on its workstations, IBM "proclaimed its support" for OSF/1, it made no firm commitment whatsoever to ship it on any thing in any given timeframe, and talked copiously about what it had done, highlighting its adoption of Motif - which has been adopted by about two thirds of the industry.

How did others see the Open Software Foundation launch? In a very negative piece heralding the event, last week's edition of Businessweek highlighted the allegation that the only thing keeping the Foundation alive is copious cash from its sponsors, and suggests that only two of the founders, DEC and Bull, are really making full-hearted commitments to the operating system; and as for the Wall Street Journal, it was unequivocal - "While the announcement moves Unix technology forward, its main effect should be to ensure that the fight over control of the increasingly popular operating system remains a draw; that draw, by dividing the market, should continue to curb opportunities for companies selling systems that use Unix," the paper declared.

The Open Software Foundation says it will create a new seat on its board of directors to represent the end-user community: the choice should be announced by year-end.

And the Foundation says the 1,000th source code licence for OSF/Motif has been sold: Motif is available from 62 companies on 120 hardware systems and 43 operating systems, and some 250 Motif-based applications are said to be available now, with 300 more expected by year-end.

Unix seems to be taking over the VM mantle at IBM as the operating system that always draws the short straw when development resources are stretched: the company announced yesterday that the planned availability of Double Byte Character Set support for AIX/370 Unix, announced on August 15, 1989 has been put back until February 28, 1991.

Ing C Olivetti & Co SpA is not for sale and is not looking for an alliance with a European partner, although a deal with Philips is not ruled out once Philips Information Systems is in shape, Carlo de Benedetti told analysts in Milan. The chairman and largest shareholder also warned that employee cuts next year would exceed the 3,000 cutback in 1990.

ICL North America has unveiled a new suite of specialist tools for automating law offices as an add-on for its OfficePower office automation package. The PowerPractice suite includes four modules: the PowerFind legal document manager for text search and retrievals; PowerSend automatic facsimile transmission; PowerFinance financial control and PowerCase case management tool. Further applications are in the pipeline. The software runs on the ICL Unix range including the Sparc-based DRS 6000 Series, and costs in the range of \$6,000 per workstation in the 50 to 100 user range.

Hewlett-Packard Co says that the dual-processor RISC-based HP9000 Model 870S/200, introduced in January with delivery promised for the end of this year, has been put back by about six months. The HP-UX machine, rated at 90 to 95 MIPS, should now be ready by the end of first quarter 1991, and the company reportedly denies that the delay had anything to do with problems associated with multi-processing Unix - the company simply didn't have enough engineers available to get the thing out on the planned timescale.

When DEC chief Ken Olsen dismissed Unix as snake oil, we assume he was likening it to those balms sold by charlatans that are claimed to cure everything from corns to cancer, but Hewlett-Packard Co has clearly taken the jibe as a badge of honour: we hear that it has code-named its next generation RISC workstation Snake, which must be because it is the one on which it plans to energise with the oil of OSF/1 Unix.

UNIX'90

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IBM KEEPS RS/6000 COMPETITIVE WITH FASTER CHIP

IBM looks like living up to its promise to double the performance of the RS/6000 range every 12 to 16 months by moving in ahead of time with the first boost to its high performance workstation and server line - a move that impressed watchers at Unix Expo of IBM's seriousness more than any amount of the rather vague commitment statements it has been making of late. It has launched the high-end RS/6000 Powerstation-550 and Powerserver-550S, which use a 41MHz version of the Rios RISC in place of the 25MHz version. It achieves 56 MIPS, 23MFLOPS and a SPECmark rating of 54.3. IBM says the reason the new version of the Power Risc chip clocks at 41.6MHz, is that the part is timed at 24 nanoseconds - which translates to a wavelength of 41.6 MHz. In the US, IBM says the RS/6000 520, 530 and 540 models are now on one month availability, whilst the top end models will begin shipping around the middle of this month with a two-month delivery date from receipt of customer orders. The 540 models can be field upgraded, and the machine ships on March 29 in the US. US prices go from \$135,322 for the PowerServer 550, to \$136,967 for the PowerStation 550 with additional graphics capabilities.

...CLARIFIES OSF/1 STRATEGY IN THE US

On Halloween at last week's Unix Expo show in New York, IBM's Donna Van Fleet, Director of AIX Systems out in Austin, Texas, treated Unigram.X - without a trick - to a vision of the company's plans for its AIX operating system environment. Despite the declaration of Frank Kales, the director of AIX and Personal Systems for IBM Europe, in London last week that AIX will always exist, and his inability to say whether IBM's AIX version of OSF/1 will be compatible at a binary level with any other vendor's OSF/1 implementation, Fleet confirmed that all of the company's AIX platforms will converge around the OSF/1 operating system over time. The AIX kernel will gradually be replaced by the OSF/1 kernel, though the operating system itself will continue to be called AIX, and surrounding software subsystems will remain intact. The initial port - involving 1 million lines of code and euphemistically described as a "non-trivial job" - is now being undertaken for AIX 390, and the work will be used as the basis for the other platforms. A PS/2 version is being demonstrated now, (UX No 305), and an RS/6000 edition will follow, "when it makes sense." That, of course, will be when the RS/6000 line is extended to include multi-processors, which the OSF/1 kernel supports - the reason why work on the 3090 version has now taken precedence. Of course IBM may soon experience conflict between the 3090 range and the RS/6000s, but in the meantime maintains that the 3090's I/O capabilities are a major distinguishing mark from the RS/6000 line, even as the gap in compute performance narrows fast.

...AIX DATABASE BASED ON OS/2 EE TO TIE IN WITH SAA

Fleet says there are no plans to port OS/2 onto the RS/6000, although the OSF/1 version of AIX will offer the same functionality via similar database, graphical user interface, communications, local area network and language subsystems. She did however confirm that IBM is working on a database for AIX, and revealed that it is based closely upon the dBase II-like OS/2 Extended Edition database manager - which would tie in the world of AIX more closely with IBM's SAA strategy. The development work is being carried out on OS/2 platforms, and was selected for AIX because it is, said Fleet, "robust and secure". The reason it's not yet on the market, she said, was that IBM was putting more resources into distributed database - a task which Fleet said was "very hard from a performance, integrity and security point of view".

FUJITSU PREPARES ITS OWN SPARC LINE

Although Fujitsu Ltd should now have access to fully-developed Sparc machines via its newly acquired ICL sibling, the Tokyo firm - which also fabricates Sun Microsystems' Risc part for the Asian and Pacific markets - has decided to do its own thing, and is currently readying a range of Sparc-based systems, from desktops upwards, for release on to the international marketplace. Fujitsu executives over in New York for the Unix Expo show said that the systems, using SunOS from Interactive Systems Corp, will likely be announced at one of the big US Unix shows next year, and that a business plan is now being prepared.

UNISYS AND AT&T TO COLLABORATE ON ALLY/TUXEDO

Unisys Corp has struck an agreement with AT&T's Unix System Labs to bundle its Ally fourth generation language with AT&T's Tuxedo on-line transaction processing system for Unix. The two are to jointly market the system on Unisys hardware and Sparc-based workstations from Sun Microsystems, although Ally also runs on NCR Towers and AT&T 3B machines. The move is designed to speed up the implementation of Tuxedo-based OLTP software applications. Ally has a client-server architecture and works with multiple Unix-based relational database products. Work, which is being carried out by the Ally Software Inc subsidiary of Unisys, is expected to be completed by the first quarter of next year. The two companies were demonstrating a distributed banking application written in Ally at Unix Expo last week.

APPLE JOINS OBJECT MANAGEMENT GROUP

The Object Management Group has announced that Apple Computer has become a new corporate member and that it will also assume a seat on the group's board of directors. Apple and the other 80 group members are developing standards and guidelines for implementing object oriented systems and programming. As a corporate member, Apple has one vote on the technical committee and can also sponsor technology specifications. Its board of director status means that Apple will oversee group policies and activities and approve proposals. Apple, a pioneer in object technology, brings the group increased credibility.

UNISYS CORP SHOWS FIRST 68040 CONVERGENT SYSTEMS

Despite the well-documented problems that Motorola is having with its 68040 processor - and some vendors at Unix Expo were painting a blacker picture than ever on just how near completion the chip actually is - Unisys Corp is confident that it will begin receiving good parts from the foundries in volume either this week or next, enabling it to start shipping its new S/4040 system by the end of the month. The S/4040 - initially with one 68040 running at 25MHz - is the first in what will be a line of multi-processors systems due to be rolled out over the next twelve months. The S/4040 emanates from the former Convergent side of Unisys' operation, and is rated by the firm at 20 MIPS. It comes with 64Mb RAM, up to 1Gb disk, two SCSI ports and runs the CTIX, Convergent's System V.3.2-compatible Unixlike. Prices go from a base of \$16,000 up to a fully-configured \$40,000 option.

DEC UNVEILS SECOND GENERATION ULTRIX MIPSTATIONS

As predicted (UX No 305) DEC followed up its announcements of X/Open branding and Posix compliance for VMS and three new VAX systems with that of new DECsystem servers. The DECsystem 5100 is the new entry-level Unix-based MIPS Computer Systems Inc R3000 RISC system which will directly replace the DECsystem 3100. The DECsystem 5500, also using the R3000, has a claimed MIPS rating of 28.2 and a SPECmark of 21.5. The 5500 replaces the DECsystem 5400 and is said to have 50% more power for the same price. Of the existent DECsystems the 5800, announced July 1989, is the only survivor. DEC has a trade-in arrangement for current users of the previous entry-level system - the 3100 and 5400 users will be offered an upgrade system to the 5500 for £18,500. Shipping now, the 3100 costs £9,200 with 8Mb memory, 209Mb disk and four terminal lines. The 5500 is £47,500 and comes with 32Mb memory, 660Mb disk and 300Mb tape - it will be available in December. In addition DEC announced price cuts on its DECstation 2100 and 3100 workstations of up to 30%. The 2100 now starts at £3,494 and the 3100 at £7,000. DEC also announced Ultrix Services for Personal Computers, which will enable DECsystems or VAXes to be used as servers over TCP/IP or DECnet networks for personal computers running under MS-DOS or OS/2.

PYRAMID ADDS TO LOW-END SYSTEMS WITH 40% MORE POWER

Pyramid Technology has boosted the power of its lower-end office and departmental MIServer line for a "nominal increase" in system price. The new systems - MIS-1T, MIS-2T and MIS-4T are claimed to be 40% more powerful than the existing models, and follow the launch earlier this year of the MIS-12T (UX No 293). Better performance comes from the addition of Pyramid's 1Mb MegaCache, which improves on-line transaction processing speed with a better system cache hit rate. MegaCache provides 512Kb of data and 512Kb instruction cache for each processor. Pyramid has also expanded main memory on the 4T and 12T models to 512Mb, using 128Mb memory arrays based on 4Mbit DRAM technology.

MOTOROLA ANNOUNCES NEW SERVERS, SVR4 IMPLEMENTATION, WINDOWS AND PARTNERS

Motorola Computer saved up a whole batch of announcements for Unix Expo. First it is set to unveil a new range of multi-processing servers - the DeltaServer range - in the first quarter of next year. Based upon the new version of the \$5000 - the 88110 - they will be compatible with the company's existing Cisc and Risc-based DeltaSeries, with the top-end model rated at 100 MIPS, according to the company. They will include FDDI and wireless in-building network - WIN - technology. Initially they will run Motorola's Unix V.3 implementation, but will migrate to a multi-processing version of V.4 following a deal Motorola has struck with Unisys and other 88000 system manufacturers to create a reference port for AT&T's SVR4 MP multi-processing operating system technology. When it becomes available next year, Motorola also plans to move the environment on to its other Unix platforms, and will add the enhanced security - Unix SVR4 ES - features which it has been developing in conjunction with AT&T and Amdahl, when they are released. Motorola says it will also develop a version of SVR4 ES/MP - announced by AT&T at the same time - for its platforms. A new windowing environment for Motorola's existing Unix platforms - DeltaWindows - has also been announced, which is a combination of OSF/Motif and Visix's Looking Glass desktop manager. Available now on the 88000-based Delta Series 8000, and from March 1991 on the 68030-based Series 3000, DeltaWindows costs \$1,390, and includes a Looking Glass licence. Additionally Motorola has signed up Interactive Systems Corp and Retix Corp to port their respective TCP/IP and OSI technology to its existing OS environments.

NEC UK ENTERS THE 80386, 80486 UNIX MARKET

NEC UK has finally launched into the multi-user computer market with its Unix-based personal computer, aimed at the local area network server and multi-user host markets. It has opted for Santa Cruz Operation Unix indicating that the server market is perhaps the most important to it. Called the BusinessMate the product comes in 80386 and 80486 models, running at 33MHz and 25MHz respectively. Both are floor standing and use the EISA bus, with five 8-bit, 16-bit and 32-bit expansion slots and two full length AT slots. The BusinessMate 386/33E supports 32 ANSI terminals, comes with up to 32Mb of memory, and has 64Kb static RAM cache as standard. With 300Mb hard disk it costs £11,000, with the 100Mb version selling at £7,500. The BusinessMate 486/25E can support 64 terminals, has up to 64Mb of memory and can have up to 128Kb cache. It costs £20,000 with 16Mb of memory and a 1.2Gb hard disk. Meanwhile, NEC Corp reports that its UX/V (4.0) version of Unix System V.4 has become the first implementation from a Japanese company to conform to the X/Open Portability Guide Version 3 - it will start shipping next month.

HEWLETT-PACKARD NOW SUPPORTS MS-DOS CO-PROCESSOR UNDER HP-UX TOO

Hewlett-Packard Co has extended Apollo Computer Inc's pre-existing agreement with Applied Reasoning Corp, the Cambridge, Massachusetts maker of MS-DOS co-processor boards, and is now offering the PC-Elevator 386 DOS co-processor for the HP Apollo 9000 Series 400 workstations under HP-UX as well as the Apollo Domain operating system. The co-processor enables users to run MS-DOS applications under a Unix system and work with the applications in a scalable OSF/Motif window. It supports all MS-DOS graphics standards and applications such as HP New-Wave, AutoCAD, Microsoft Excel, Intergraph MicroStation and Aldus PageMaker can access workstation graphics systems directly for increased performance and resolution. MS-DOS applications can also use the workstation keyboard, mouse, floppy disks, hard disks and network communications. It has a 1Mb 80386 CPU and integration software, and costs \$2,000 from January, direct from Applied Reasoning. Apollo originally announced it for its Domain workstations back in March 1989, having previously offered only software emulation of MS-DOS.

DELL IS LATEST V.4 CONVERT AS UNIX LICENCEES APPROACH 2 MILLION

Dell Computer Corp became the latest convert to Unix System V.4 at Unix Expo last week, promising to ship its enhanced version in late November. Dell, which has built up a pool of its own Unix system software developers under ex-IBMer Glen Henry, claims its version of V.4 is a "robust development environment with increased Xenix compatibility". It also includes X11 Release 4, OSF/Motif and X.desktop graphics, Merge from Locus, plus Dell-added network and device drivers. The announcement came as Unix International and AT&T's Unix System Labs gave a progress report on the industry uptake of V.4 at the beginning of the show. Unix International president and CEO Peter Cunningham claimed that, one year after the launch, 323 companies are now shipping V.4 products - these include 22 hardware vendors, the rest being application software and system component companies, responsible for around 750 applications that should be shipping by the end of November. Over half of the companies are from Europe, and 21 are from Japan. And Cunningham also said that 200 independent software vendors had taken advantage of Unix International's ISV program, and begun the task of porting packages over to V.4. AT&T's Mike DeFazio said that next year would see advances in distributed computing, multi-processing, OSI networking and security that would make SVR4 "the most secure operating system of any vintage". OSI, he said, would not be implemented just as "a native network framework, not just as a vehicle for communications to other systems". Unix International's prime concern was to convince that V.4 is now a real market, not just the domain of a few pioneers. NCR Corp claims to have shipped some 200 of its new System 3000 computers to software developers since the launch in September - but sales to the general market still await the full maturity of the technology. Even so, Cunningham was bullish enough to remark that, although it took some 18 years for the Unix operating system to achieve 1 million licenses, it was looking as if the two million milestone would be achieved in 18 months.

...AS OSF MEMBERS - AND OTHERS - SHOW THEIR WARES

Meanwhile, the polarisation between the two camps at Unix Expo was more pronounced than ever, with companies proclaiming their allegiances with prominent flags over the booths. On the OSF side, demonstrations of OSF/1 were evident on the Groupe Bull, DEC, IBM and Siemens-Nixdorf stands, with the Distributed Computing Environment shown by DEC, HP and IBM. The Motif interface was being shown on over 60 booths at the show. The Foundation appears to be considerably less insular about the operating system wars than Unix International - while Peter Cunningham was confidently proclaiming that the battle had already been won, pointing to 750 V.4 products claimed to be shipping already, Tory said that one of the reference ports for the Distributed Computing Environment was to be a V.4 platform, acknowledging the fact that the V.4 base will be an important revenue stream for products such as DCE, Motif, and the forthcoming Distributed Management Environment. But Tory said that this "shouldn't detract from the central importance of OSF/1", the migration to which is "a long term strategic commitment," and Unix System Labs now "has to come to terms with the fact that it is in a competitive situation".

EPOCH STRIKES RISC DEALS WITH SUN, HP AND MIPS

Storage specialists Epoch Systems Inc of Westborough, Massachusetts, used Unix Expo to sign up for joint marketing agreements with three RISC-based hardware manufacturers - Sun Microsystems, MIPS and Hewlett-Packard - for a new storage management system for distributed applications. Renaissance, claimed to be the first product to address the storage management needs of client/server architecture systems, includes a set of distributed applications that allow information stored on magnetic disks at workstation and server level to be automatically managed, backed-up and archived. Renaissance uses Sun's Open Network Computing remote procedure call technology, and the company is working on further distributed computing products using the same technology. The first application under the Renaissance tag is Infinite Storage, for managing the magnetic disk space on networked workstations and servers. Cost is from \$1,500 to \$15,000.

-----UNIX EXPO - IN BRIEF-----

From the Unigram.X team in New York

NCR Corp, one of the members of Unix International that has acknowledged the existence of the Open Software Foundation by joining up, nevertheless says it has no intention of going ahead with a port of OSF/1, but will take any OSF technology it likes.

OSF has a members meeting this week at which it will thrash out its Open Road plan for the future of the OSF/1 environment and conduct the first review of the 42 submissions - in 20 technology areas - to its Distributed Management RFT.

An Oki source claims Intel could wind up distributing Oki's 80860 box - now dubbed the Okistation 7300, (UX No 302). Oki figures to have volume shipments started by the middle of next year, but the Japanese headquarters has yet to sign off on the business plan, and has made no firm commitment yet to peddle the things in the US.

IBM is supposed to have a PS/2 at Comdex next week using a Motorola 88000 Risc part to run graphics: they can't use an Intel 80860 yet because it has no drivers for AIX.

Turns out the design for the Mars Microsystem AT-bus, Sparc-compatible machines, (UX No 294), was done by a little-known Maryland company called Orange Systems.

The AT&T Unix System Labs booth at Unix Expo last week was harbouring a strange animal: Open Look, running on a Hewlett-Packard Series 9000 box. The implementation, compliments of Meillo Consulting, takes advantage of Hewlett's superior native language support and is meant for the Asian market since it can handle Korean, Japanese and other multi-byte character sets. They figure to get 300-400 installations next year.

Putting OS/2 on the Mips Computer Systems chip is true enough - but our rumour-mongering friends at IBM were misled in thinking Sony is going to be the middleman (UX No 304).

AT&T and Sun Microsystems are extending their SVR4 co-development contract so Sun will maintain what its got in there.

At press time, it seemed that Sun Microsystems may have made a decision over whether or not to OEM the RDI Brite Lite Sparc-based laptop: the test will be whether or not the machine appears on the Sun stand at Comdex.

Early indications concerning Sun Microsystems' policy over its ongoing System V.4 development suggest that Sun is currently less than willing to license the technology to the growing band of Sparc-clonemakers through Sparc International, hoping to keep it as value-added: although its early days, such a move could be a stumbling block to Sparc developers - but with V.4 implementations already emerging from the likes of ICL, dependence on the Sun operating system software may not be so crucial in the future.

Apple Computer Inc, which has so far been seen as something of a reluctant Unix player, last week began its first A/UX-only advertising campaign in the US trade press. Apple, whose A/UX Unix implementation is at the System V.2.2 level has not publically committed to either Unix V.4 or OSF/1 operating system technology - it recently joined both Unix International and the Open Software Foundation - but can be regarded as being firmly in the AT&T camp - according to sources.

As expected, Network Computing Devices launched its new 15" monochrome X-terminal at Unix Expo, with a list price of \$1,500. The NCD15b lowers the entry price for NCD's products from a previous low of \$2,295 for the NCD19b 19" model, launched in July.

Meanwhile, NCR Corp revealed what it says is the industry's first X-Station to run the Motif interface locally on a network. Facilities include automatic configuration of setup parameters using a host-based data file, automatic network name and address facilities and SNMP network management. NCR predicting that over one million X-terminals will be shipped over the next three years.

HOW GOES THE OTHER SIDE OF OPEN SYSTEM

by Philip Gill

Paul Ely, the former HP and Convergent Technologies executive, once said (only half-jokingly) the reason he loved standards was because there are so many of them. Nowhere was that truism ever more apparent than at the recent InterOp '90 internetworking and interoperability conference held at the San Jose (California) Convention Center, October 8th - 12th. With twice as many exhibitors this year, this show's once narrow and solitary focus on TCP/IP - hence the emphasis on internetworking, as in the "Internet" - has fanned out considerably, to encompass not just that de facto standard, but also the half dozen or more de jure internetworking standards now at various stages of development inside the appropriate international standards bodies. Booths were overflowing with products based on an alphabet soup of standards, all of which carry considerable weight. 22 computer networking companies showed Open Systems Interconnect-based (OSI) products of one form or another, including X.4090 e-mail, X.500 Directory Services, and FTAM products. Unisys, for example, had one of the most complete, offering all three plus its own SNMP-compatible network management products. By the way, the Simple Network Management Protocol (SNMP) was also a big winner this year, with 46 companies showing their respective, competing network management products. SNMP is a new standard for network management in the TCP/IP world.

SNMP bandwagon

Interestingly, the popularity of SNMP was one of this year's surprises, as last year vendor after vendor pledged SNMP support as an interim network management standard until the OSI/Network Management (OSI/NM) standard could become fully formed. But SNMP's rapid build-up may usurp OSI/NM. So many vendors have caught the SNMP bandwagon and have invested in bringing out SNMP-based network management products, that observers were wondering aloud last week that broad acceptance of OSI/NM looks a far off possibility. Among the controversial standards is the Open Network Computing/Network File System (ONC/NFS) standard - controversial if only because the Open Software Foundation (OSF) executives made it clear early in the week that they have ganged up on Sun to exclude any and all of its technology from the OSF. No matter that there are almost one million NFS nodes out there. Twelve vendors, including OSF co-founders IBM and DEC, joined with Sun, Apple, Sequent, Auspex and Concurrent to demonstrate ONC/NFS environments encompassing UNIX, DOS and VMS systems. For those not up on other current and emerging internetworking and interoperability standards, other joint demonstrations included the Switched Multi-Megabit Data Service (SMDS) standard, a high-speed, high-capacity broadband packet service protocol backed by the RBOCs; the Fibre Distributed Data Interface (FDDI) which was demonstrated by 37 companies; the Point-to-Point Protocol (PPP), an emerging serial-line networking protocol standard demonstrated by six vendors; Integrated Services Digital Network (ISDN), supported by a demonstration from eight vendors; and the IEEE's 10Base-Tom, a supplemental standard to the IEEE's 802.3i-1990.

OIL COMPANIES TO SPECIFY USER INTERFACES

The Petrotechnical Open Software Corporation, formed by a group of rebel Unix oil companies unhappy about the continuing Unix International/Open Software Foundation schism, (UX No 283), will next month embark on a three-year, \$15m programme to specify user interface technology and data models, according to founding member Dan Turner, director of information systems at BP Exploration Inc, Houston. The specifications will be turned over to group members - including Chevron Corp, Exxon Corp, Shell Oil Co, Texaco and British Petroleum Co Plc - to use as guidelines for the development of open systems. The specifications are likely to be aligned closely to X/Open's Portability Guide and the OSF/Motif graphical user interface. The group will be formally introducing itself to the world next month, when a full roll-call of members will be revealed.

MODCOMP READY WITH 50MHz 68030 MODEL FOR REAL-TIME TRI-Ds

At Unix Expo last week AEG AG's Fort Lauderdale, Florida-based Modular Computer Systems Inc, ModComp, announced a new model in its Tri-Dimensional 9700 series of real-time Unix machines, which run its Real/IX real-time implementation of AT&T's Unix System V.3. The Tri-D 9740 uses a 50MHz 68030 and runs at 10 MIPS. It offers graphic windowing capabilities such as X Window 11.4 and its own Real/Vu environment which supports OSF/Motif 1.1. A variety of configurations from a desktop to a 20-slot three foot high cabinet will be available in December with prices starting at \$66,000. It will take 1Gb of disk and 40Mb internal memory.

SEQUOIA, AT&T MAKE FAULT-TOLERANT TOPIX B1 SECURE

Sequoia Systems Inc, the Marlborough, Massachusetts developer of fault-tolerant Unix systems that has not looked back since it caught the eye of Hewlett-Packard Co and won a major OEM agreement for its machines, claims that it now has the first multi-level security option for Unix available on a multiprocessor fault-tolerant computer. It is offering the option, called Secure Topix, "in response to the increasing demand for data security in transaction processing environments". The multi-level security enhancement was developed in conjunction with AT&T Bell Laboratories Security Systems, and fully complies with AT&T's Unix System V.3, the company claims. Sequoia sites can fine-tune access by setting up to 255 different security classification levels and up to 1,024 categories, with a system limit of 60,000 different labels. Once objects, such as a files, directories or devices are labelled, user access to the object can be controlled. A password generating program provides users with a random mnemonic password string to reduce the chances of someone guessing passwords to gain unauthorised access. A record is captured and maintained for every attempt to access the system to provide an investigative tool and audit trail. Secure Topix was designed to meet the US Government's B1 security standard and can be tailored to meet the less restrictive demands of commercial work. It starts at \$30,000 and can be added to any Topix system from December.

IMI ACQUIRES BROOK STREET COMPUTERS TO GAIN EXPERTISE IN THE UNIX MARKET

IMI Plc has acquired Brook Street Computers Plc, founded by Ian Skinner in 1985 and best known for its Unix and personal computer-based Unity software. IMI, the former Imperial Metal Industries, has a turnover of around £1,000m and its IBM software services arm, IMI Computing Ltd, reported sales of £18m last year. David Williamson, managing director of IMI Computing, has previously indicated that he regards the RS/6000 as IBM's endorsement of Unix, and he also acknowledged that IMI would follow that lead by acquiring Unix skills. Jeremy Ward, IMI's marketing director, says that while he has no illusions about the role of Unix in the corporate market, the acquisition enables IMI to gain expertise which is necessary as Unix and Systems Application Architecture move closer together. Neither company would reveal the cost of the deal, but Brook Street Computers, which is headquartered in Guildford, Surrey, has net assets valued at £800,000. The two firms will maintain their separate identities, and Ian Skinner is to continue to head Brook Street for at least another two years.

...AS DEC BUYS DATA LOGIC'S UK-BASED FINANCIAL SYSTEMS BUSINESS

Given that in its entire history, DEC has made only a handful of tiny acquisitions, the minimaker yesterday signalled a major change in strategy with the news that it had acquired the Financial Systems Business of UK-based Raytheon Co subsidiary Data Logic Ltd. The business employs more than 100 people and specialises in information distribution systems for financial dealing rooms, majoring on integration of Unix-based systems. Its trading systems under Unix are installed in over 30 banks across Europe and DEC is buying the business and employees lock, stock and barrel.

...AND CONSIDERS FORCED LAYOFFS TO CUT COSTS

DEC, which along with companies such as Hewlett-Packard and IBM has a traditional "no-layoff" policy says it is considering layoffs to cut costs if revenues fall short of forecasts. JF Smith, senior vice president of DEC told the Wall Street Journal that the company's headcount may have to be reduced by 5,000 to 6,000 more workers in the year ending June 30 and this may necessitate involuntary job losses. Separately DEC France told Agence France Presse that it will be making dozens of forced job cuts as part of an employment strategy.

...WHILE BULL SA CONFIRMS JOB LOSS PLAN, AS 350 UK JOBS GO

Bull SA has confirmed that it will reveal a plan for further job cuts by November 15. Meanwhile, the UK operation Bull HN Information Systems Ltd has announced that it is to cut 350 jobs, mainly from finance and administration, bringing the numbers of the UK workforce down to 2,220. It has also reorganised itself into four business units: Commercial, Government, Public Authorities and Open Systems. Industry gossip also suggests that 800 jobs are to go in Boston, Massachusetts, and that Bull is proposing a reorganisation in return for further finance from the French state.

COROLLARY ADDS MULTI-THREADING TO MPX SCO UNIX

The multi-processing extension to SCO Unix - MPX - developed by Corollary Inc is to get support for multi-threaded serial input/output courtesy of the Irving, California-based company: Corollary says it will add support for the device driver to its multiport boards and will be supplying the technology to other board manufacturers via an agreement with SCO. And Corollary has unveiled an EISA bus version of its 33MHz Intel 80486 486/smp symmetrical multi-processor subsystem. The two-board 486/smp EISA Base CPU set, with from 2Mb to 16Mb memory integrates with existing 386/smp and 486/smp boards, creating an EISA-compatible system with from 2 to 10 processors.

AQUEST CONVERTS AT AND EISA MACHINES TO HIGH-END WORKSTATIONS

Aquest Inc, Santa Clara, California, quiet since its spin-out from Intel Corp more than a year ago, (UX No 259), is set to reveal a graphics accelerator and high-speed compute board that will convert AT- and EISA-based computers into high-end workstations. Aquest, which was spun out specifically to develop systems based on Intel's 80860 Risc processor, will be using the part in conjunction with a Texas Instruments 34020 graphics co-processor in the Superstation 3D, which will be marketed OEM by Hercules Computer Technology Inc and sell for around \$6,000 from the second quarter of next year. The board will enable 80X86-based computer users to run PC applications, while compute-intensive applications will run on the Superstation board.

HUNTER TAKES DOS-TO-UNIX PORTING TECHNOLOGY TO 386/486

Hunter Systems has moved its computer-aided DOS-to-Unix porting technology to 386/486 machines. As with the company's older 68000-based technology, the new XDOS Transformer allows DOS applications to be ported automatically to 386/486 Unix platforms running SCO Unix, Interactive 386/ix and AT&T System V/386. It offers ISVs improved time-to-market, concurrent Unix/DOS revisions, end-user technical support and cost benefits. DOS programs retain their look and feel, keystrokes and data compatibility. Prices will start at \$375 per user, averaging less than \$100 per additional user. Hunter, which will be adding RISC platforms soon, has just gained \$5.5m in first-round venture capital.

AT&T ENSURES THAT C++ GETS ITS OWN MARKETING ARMY

AT&T's Unix System Laboratories Inc has set up the C++ Reseller Alliance, to promote products based on the C++ programming language and libraries and to share information on the use of C++ in large software development projects. In fact C++ is such a popular language choice for those getting into object-oriented techniques that you would think such a fan club unnecessary. However, just in case Smalltalk, Eiffel et al surge into significance the C++ Alliance includes the marketing muscle of AT&T Computer Systems, Apple Computer Inc, NCR Corp, Santa Cruz Operation Inc, Sequent Computer and Sun Microsystems.

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We've gone to the people who know about such things and definitely sorted it out: The symmetric multiprocessor Sparc (UX No 305, 306) that Sun expects to have out by the end of next year will be run by an operating system of Sun's own concoction. It will of course bow to the exigencies of SVR4's ABI and API. Sun has had a fully staffed development group working on the project for the last two years and reportedly has had the SMP up and running "in different stages" during the last six months.

The Sony/Apple marriage, (UX No 303), will be consummated with a 5lb notebook machine with a new interface, handwriting recognition and communications features, according to Computerworld.

US firm Sentry Market Research, Westborough, Massachusetts, reckons that Unix will be running on around 5% of all installed personal computers by the end of this year - a 96% increase on 1989 figures.

Intel Corp has confirmed that a 50MHz version of its 80486 part will be revealed early next year - possibly at Comdex Spring - accompanied by system announcements from manufacturers.

Berkeley, California-based Geoworks is offering a Motif-based graphical user interface for low-end personal computer users without the power to take advantage of all the features of Microsoft Windows. PC/Geos - Graphic Environment Operating System - will run on 512Kb XT-class machines, and looks like Windows or Presentation Manager. Geos costs \$200 and Geoworks is currently working on a C++ interface to the environment.

NeXT Computer Inc has won the 1990 G-Mark Grand Prize Award, given by Japan's Ministry of International Trade and Industry for good design: NeXT, applying through Canon Inc, won the award for the design of the original NeXT machine - last year the award went to Sony's 8mm Handycam camera.

The 88Open Consortium is holding its European general meeting in Frankfurt on November 28 to 29: Speakers will include Keit Diefendorf, system architect of the 88000 chip, who will talk about future developments.

MIPS Computer Systems Inc has gone to Campbell, California-based Touch Communications Inc to provide Government Open Systems Interconnection Profile (GOSIP) products for MIPS RISC/os-based systems. Touch is supplying its Alliance OSI range of portable GOSIP products for integration with the MIPS operating system. They will be re-marketed by both companies and sold by Touch.

Silicon Graphics Inc, Mountain View, California is looking for a wider market for its Iris graphics co-processor technology and has packaged it up on boards for use with AT-bus and Micro Channel PCs with an 80386SX processor up: the boards cost from \$3,500 to \$5,000.

Sparc International is still keeping its members list a secret but now it's got 80 names to protect rather than the 60 of two months ago (UX No 297).

Visix is going to be touting its Rev 2 version of Looking Glass this week: the software adds such niceties as tree view, save layout, enhanced help, coloured icons, editable icons, bit map import/export, remembered commands and new icons including some 50 for applications. Pricing is still uncertain but it will be no more than the \$595-\$795 cost of Rev 1.0 when it ships in November. Upgrades for customers on Maintenance or who bought in the last 90 days will be free.

Pencom Software is planning to port the MIT X Consortium's X11R4 and OSF/Motif to NeXT: the product will be available next year and provide a full X11R4 server running in NeXT's NeXT Step GUI allowing NeXT to run X applications. This is Pencom's first product. It is a division of Pencom Systems.

Data General Corp continues to pick up those giant public sector contracts that promise the quickest route back to prosperity, and the latest is with Computer Sciences Corp, which is buying AViiON servers for a \$15m contract with the US Department of Defense in which it is one of two finalists for the Army Reserve Automation System programme; it's a nail-biting time for the minimaker, because if Computer Sciences wins, Data General will get a tidy share of a contract that could reach \$1,000m over its term.

And gossip from across the pond has Wang Laboratories Inc considering buying Data General Corp AViiONs as part of its open product family.

Boston Business Computing Ltd, the Andover, Massachusetts-based developer of DEC-compatible software, has converted its VMS emulation software for IBM's ES/9000 range: the packages run on System 370 and System 390 machines under AIX, and include EDT+, VCL, Vmail and Vback-up.

NEC Corp is planning a complex instruction set 68040-based workstation to be released this month: previous models of the 68000 family workstations ran System V.2, but the new one will run System V.4.

Hewlett-Packard Co has won a \$15m contract to supply the Singapore Bourse with 1,600 workstations: the Hewlett-Packard Apollo 9000 series 400 workstations will replace the front-end personal computers currently used for trading activities.

Open Software Foundation sponsor Siemens Nixdorf Informationssysteme AG executive vice-president Hartwig Rogge maintained a staunchly Teutonic "no comment" stance when taken aside and questioned by a couple of reporters about the possibility Siemens might buy into Open Software Foundation rival, AT&T Co's Unix System Laboratories - but then why shouldn't he give a straight "no" if the idea was not under consideration: watch this space.

Austin-based Pencom Software Inc is doing a version of the X Window System 11.4 and Motif 1.1 for the NeXT Inc's NeXT Computer System with ships early next year. It will provide a full X11.4 server within NeXTstep, and support X clients. No prices.

It's hard to conceive of who might want a multi-user version of OS/2, but whoever they are, they can have it now, courtesy of Coral Springs, Florida-based Citrix Systems Inc, which calls the thing Citrix Multiuser - The Multiuser Edition of MS OS/2: it is aimed at commercial applications that require low-cost, terminal-based systems, is out first quarter 1991, and is blessed by Microsoft Corp. It runs with LAN Manager and Novell's NetWare - it is \$1,000 for five users.

Tony Heywood, managing director of Uniplex at its home in the UK, called by staffers "the charm, the brains and the charisma" behind the firm as well as the "closer" with investors and OEMs, resigned suddenly two weeks ago allegedly in a management dispute with chairman and founder Peter Osborn: Word is that Uniplex, which backed out of Unix Expo last week, hasn't been making its numbers and those close to the firm are supposing it's up for sale.

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SUN MOVES IN ON GRAPHICS MARKETS WITH SPARCSTATION 2

Sun Microsystems last week doubled the power of its Sparcstation range with the launch of the Sparcstation 2, for an entry-level price of \$15,000 (£11,000). With ratings of 21 SPECmarks, 28.5 MIPS and 4.2 MFLOPS, the new station is the fastest ever offered by Sun, using a 40MHz Sparc sourced from Cypress Semiconductor. Clearly smarting from launches from IBM, DEC and Silicon Graphics over the last few weeks positioned directly against them, Sun claimed the new system was smaller and cheaper than IBM and Silicon Graphics, while dismissing DEC's offering as similar to its Sparcstation 1 Plus announcements back in April. Sun also launched graphics versions of the new platform, including the 2GX for 2D and 3D wireframe, the 2GS for 3D solids modelling, and the 2GT for high performance 3D graphics, incorporating an i860 RISC chip from Intel Corp. And the company dropped the price of its low-end IPC to £8,850, including GX graphics capability to create an entry-level graphics machine. The diskless SLC now costs £3,500. As for the Sparcstation 1, around £2,000 cheaper than the new models, Sun says it will continue "while people want to buy it", with board-swaps available from early next year. Sparcstation 2s come with 19" colour or mono monitors, with up to 96Mb main memory and up to 7.6Gb disks. The entry-level mono version costs £11,000, including 19" mono monitor, 16Mb memory and 207Mb disk; a colour version costs £13,000, and a server with 876Mb drives and 2Gb tape costs £18,000. More details, page 3.

BULL BITES THE BULLET - CUTS JOBS AND PLANTS

FRENCH GOVERNMENT TO FUND UNIFIED GCOS - UNIX ARCHITECTURE

Compagnie des Machines Bull SA bit the bullet at the end of last week and announced a sweeping reorganisation that sees seven of its 13 factories close, including Newhouse in Scotland and the original mainframe plant in Phoenix, 5,000 more people lose their jobs, and the acknowledgement at last that the UK and Italian Bull HN subsidiaries are actually in Europe and not the US. On the positive side, research and development expenditure is to be increased, with the French government funding a \$220m programme to accelerate development of a unified architecture combining the GCOS operating systems with Unix, and a 25% increase in the research budget at Zenith Data Systems. At the same time, the company is to pare its areas of activity to concentrate on core product lines, in particular turning its Bull Peripheriques OEM business into a separate subsidiary in which outside equity participation will be invited. A new Direction Europe under Didier Ruffat will bring together all the European subsidiaries outside France, including the UK and Italian affiliates, into a single entity that will also embrace Eastern Europe. In return for losing its European arm, Bull HN will add Bull SA's operations in the Far East to its own there. There will in future be a single research and development budget for the entire company co-ordinated by Bull HN president Roland Pampel. The factory closures will be completed by 1992, the six surviving plants being Angers and Boston for high technology development and assembly; Villeneuve d'Ascq and St Joseph, Illinois for personal computer and other volume assembly; Belfort for OEM peripherals and one Italian plant for small printers. In France, the Joue-les-Tours plant will close next year. The additional 5,000 - essentially administrative - layoffs in addition to the 2,500 that have gone this year, will be completed by the end of next year, with 1,100 more going in France, bringing the total down to some 42,000.

AT&T "DISCUSSING MERGING COMPUTER BUSINESS WITH NCR"

AT&T Co is wooing NCR Corp again according to "individuals familiar with the talks", who passed the news on to the Wall Street Journal. Three years ago, the same paper quoted "insiders close to the company" saying that AT&T had proposed acquiring NCR in August 1987 (UX No 155), and it acknowledges that it is far from certain that anything will happen this time. The sources say that everything has been discussed, from AT&T handing over its computer business to NCR in exchange for a stake in the enlarged company to AT&T acquiring NCR outright, and suggests that the latter is the more likely. However all the evidence is that the former would be much the more successful option: NCR's biggest asset is its management, which has proved among the most intelligent among the major computer companies, and even if present management could be locked in at AT&T, the company's record suggests that it would soon start interfering, jeopardising the success of the acquisition. On the product front, it would not be difficult to harmonise the lines.

IBM TO OPENLY MARKET AIX DATABASE

Further details are gradually coming to light about the database that IBM is developing for its AIX operating system. John Glyde, IBM UK AIX Manager said that it will be marketed as a direct rival to databases offered by Oracle and Ingres for the Unix market - it will be marketed for sale on non-IBM equipment. As has been reported previously (UX No 307) the AIX database is being modelled on the database manager in OS/2 Extended Edition. When asked to describe the type of product this database will be Glyde said that it will be "akin to Oracle - a product that will run on multiple platforms". A key part of this AIX database, as of all IBM's databases, is the company's Distributed Relational Data Architecture announced in July. This architecture extends the power of IBM's Structured Query Language from one system to a network of connected systems. It prescribes commands, data descriptors, data, objects, communications areas and statements and builds on other Common Communications Support protocols - SNA LU 6.2, a new level of Distributed Data Management, the new Formatted Data Object Content Architecture, as well as the new Character Data Representation Architecture. IBM is reportedly hawking DRDA around various standards bodies and independent database vendors to get it accepted as a universal standard. However, since IBM will be marketing this architecture on non-IBM machines via the AIX database, marketing muscle may well create a de facto standard anyway. After all this database will offer Unix users the ability to fit their mid-range machines in snugly with any host mainframes running DB2 and thereby with SAA. Glyde says the product is unlikely to appear next year, but IBM's AIX contingent is keen to get it to market as soon as possible. It is unclear whether the database will be bundled with RS/6000s.

TOSHIBA TO MARKET SPARC LAPTOP ABROAD

Toshiba Corp says it is considering marketing its Sparc-based laptops in the US and Europe: the company will consider manufacturing those to be sold in the US market at its US subsidiary, Toshiba America Information Systems Inc - and suggested that the company may be in competition with Research, Development & Innovations Inc to supply Sun Microsystems Inc with Sparc-RISC-based laptops (UX No 307): the machines were introduced in Japan in July and Toshiba says that by the end of September, it had received 1,800 orders for the box. Meanwhile, RDI was highlighted in Friday's Wall Street Journal.

NCD LOWERS ITS ENTRY COST TO X

As reported briefly last week, Network Computing Devices launched its new 15" monochrome X-terminal at Unix Expo, with a list price of \$1,500. The NCD15b lowers the entry price for NCD's products from a previous low of \$2,295 for the NCD19b 19" model, launched back in July. NCD points out that the product costs over \$1,000 less than DEC's 15" VT1200 X terminal, but is twice as powerful, using a 16MHz 68000 processor: it includes 2Mb memory standard (expandable to 5Mb). Lowest price-point, however, still goes to Visual Technology Inc's \$1,000 terminal, launched a few weeks back. But NCD's Judy Estrin dismissed "some, so called X-terminals marketed at seemingly rock-bottom prices" as "only slightly better than dumb terminals, as their design dictates that the X Server software runs on the host computer". But despite our brief item last week (UX No 307), the Visual products do run X-Server - we were thinking of GraphOn (UX No 294). Meanwhile, the NCD terminal duly turned up at London's Open System Show last week distributed by Tanminster Ltd of Croydon: cost is £1,215.

...WINS X-TERMINAL DEAL FROM CONVEX

Supercomputer maker Convex Computer Corp has signed a \$2 million two-year contract with NCD to supply X-terminals to resell with its C2 line of systems. The Richardson, Texas-based company will take the 68020-based NCD19 and call it the CXterminal-19. The terminal has a 19" 1280 x 1024 display. Convex began shipping the units in October.

NCR GEARS UP X-TERMINAL MANUFACTURING THROUGH ADDS

Meanwhile, NCR Corp revealed what it says is the industry's first X-Station to run the Motif interface locally on a network. Facilities include automatic configuration of setup parameters using a host-based data file, automatic network name and address facilities and SNMP network management. NCR says it has high hopes for X-terminal technology, predicting that over one million will be shipped over the next three years, two thirds to the commercial sector. NCR itself plans to move the XL family of terminals into areas such as banking, financial, insurance and legal businesses. It is now managing and marketing its X-terminal products through its New-York-based Applied Digital Data Systems subsidiary, which has high volume display station production capabilities.

...CLAIMS 68040 TOWERS "ARE TWICE AS FAST"

Despite its new concentration on the Intel-based 3000 range, NCR Corp is not abandoning its Tower customers altogether, and it is claiming that its brand new Tower 32/750 and new versions of the 32/825 and 32/850 are among the first 68040 systems to come on the market. NCR is claiming that the 68040 versions will be twice as powerful than typical 68030-based systems, quoting benchmarks run by Neal Nelson & Associates. The single processor 32/750 should support up to 128 users, while the 32/825 and 32/850 are multi-processors using from two to six 68040s and numerous terminal and file processors connected via Multibus II. The 825 supports 256 users, while the 850 supports up to 512. Operating system is Unix V.3.2. rather than the V.4 implementation on the 3000 range. Existing 32/700 and 32/800 users will be able to upgrade via board swaps. Re-compilation of applications, although not necessary, will improve performance further, says NCR. Just how available the new models are at present is not clear - at least one 68040 vendor at Unix Expo last week was sceptical that Motorola had yet succeeded in ironing out the far from trivial problems that have delayed the 68040 up until now.

AGE - NUMBER NINE PACKAGE TURNS PCs INTO X TERMINALS

Yet another option for X-terminal buyers comes from Number Nine Computer Corp of Cambridge Massachusetts. The Number9GX-Series uses the Xoftware X software from San Diego-based graphics software house AGE, combined with the Number Nine board with 60MHz Texas Instruments 34110 chip and custom ASIC chips for insertion into a 286 or 386 ISA or MCA PC running Unix or DOS. There are six levels of resolution up to 1280 x 1024 in 256 colours. Packaged with its own TCP/IP software, the package is being sold in the UK through Computer Resource Management Ltd of Bristol. Prices were not available. AGE is now shipping TIGA/DOS release 1.2, the latest version of its X-server for MS-DOS, for \$495.

DEC BUNDLES LEGATO PRESTOSERVE AS STANDARD ON DECSYSTEM 5500

DEC's recently launched DECsystem 5500 deskside system (UX No 307) has Palo Alto-based Legato Systems Inc's Prestoserve hardware and software product bundled in as standard in order to improve the performance of the Network File System by as much as 100%. Legato, which signed an agreement with DEC back in July, along with a deal from NFS originators Sun Microsystems (UX No 291), says that the products will also be offered as an option on the DECsystem 5100 desktop system.

COROLLARY TO INTRODUCE EISA BASED 486 MULTIPROCESSOR AT COMDEX

Corollary Inc is following up its Unix Expo announcements of multi-processing extensions to SCO Unix (UX No 307) with the introduction of a new 486 EISA-based multiprocessor system at Comdex in Las Vegas this week. The two-board set, called the 486/smp EISA Base CPU, is an enhancement of the company's existing AT-based 486/smp multiprocessor. Evaluation units are now available to OEMs. Developed in conjunction with some of its OEMs, the new product uses 33MHz 486s with 256K write-back cache, Intel EISA support devices, floppy disk controller, COM1 port, keyboard interface and standard BIOS. COM2 port, mouse and PS/2 keyboard connections are optional. Like the earlier product, the system supports up to ten CPUs for up to 256 users, and includes Corollary's 32-bit C-bus for processor and memory traffic. Operating system is the Corollary-developed multiprocessor version of SCO Unix, known as SCO MPX.

LIANT SIGNS UP WITH FUJITSU

Liant Software Inc, the Framingham, Massachusetts-based parent of Language Processors Inc, Ryan McFarland Corp and Template Graphics Software Inc, has signed its second major Japanese OEM deal this year by forming an alliance with Fujitsu Ltd. The two companies plan to jointly develop "advanced open systems productivity software products". Applications development tools will be created by combining existing Liant and Fujitsu software with new software modules. Fujitsu's FORTRAN for MS-DOS and OS/2, which the company has sold extensively to the Japanese market, were both developed by Ryan McFarland. Liant signed up the NORT Group - consisting of Fujitsu, Hitachi and Mitsubishi - back in June to produce products for the GMicro "open hardware" system line.

KOREAN CMS AGREES OEM DEAL WITH TRIGEM

CMS Enhancements Inc, Tustin, California is diversifying from its personal computer add-ons business and moving into systems under a major agreement with the Santa Clara-based TriGem Corp offshoot of Trigem Computer Inc, Seoul, South Korea. The Korean company, which manufactures mainly OEM, including machines for Seiko Epson Co, claims to be Korea's only dedicated computer company, and expects worldwide revenues of \$300m in calendar 1990. Under the agreement, CMS will take on not only TriGem's wide range of personal computers, but also Sparc-based Unix laptops and workstations - but not the Sparc-based machine TriGem is building for Research, Development & Innovations Inc, which runs MS-DOS and Macintosh applications as well as Unix. The two are forming CMS TriGem, in which the Korean will hold 40%, to handle the new business, and the Sparc-based machines are not expected to go through the new venture for at least a year. TriGem will manufacture 500,000 microcomputers this year and will double its capacity to 1m by next year. TriGem has invested more than \$15m in its new US product line, which makes its bow at this week's Comdex/Fall in Las Vegas, and includes 80486, 80386, 80386SX and 80286 servers and personal computers, 80386SX and 80286 laptops and notebooks; and facsimile machines, fax cards, modems and ISDN phones.

MAROSI MERGES WITH OWEN BROWN'S MIGRATION SOFTWARE SYSTEMS

Marosi, the consultancy operation started off a year ago by Sphinx Ltd founder Pamela Gray in the UK, has been merged with California-based Migration Software Systems, a software house headed by ex-Sun Microsystems' executive Owen Brown. The combined operation hopes to combine consultancy services with software tools to aid companies migrating to open systems platforms.

ANSI SUBCOMMITTEE PROCRASTINATES OVER RPC CHOICE

Open Software Foundation VP Ira Goldstein and Distributed Computing Environment business manager Jon Gossels told InterOp audiences in California a few weeks back that OSF's DCE remote procedure call had been endorsed and recommended by the ANSI subcommittee responsible for such things. The assertion was repeated to Unigram in New York a week later, with the addition that 98% of what was accepted was from OSF, 2% from rival Netwise. There's only one problem with this apparent coup - ANSI RPC subcommittee chairman Mark Hamilton says it isn't true. Hamilton, who in real life works for Netwise, would like to stay above partisan politics for the sake of his chair, but says that Goldstein and Gossels made their InterOp statements before any presentation of the OSF RPC had even been made to the subcommittee. And as it turned out, the subcommittee adopted a few points and rewrote a few others, but tabled the bulk of the proposal for further study at the next ISO meeting. It was submitted, he says, merely as a "paper for discussion". Moreover, the meetings held last week to further the discussions have no official status - the nearest decision on RPCs is not expected until May of next year.

Sparcstation Shorts

A testy but jocular Sun Microsystems president Scott McNealy presided over the introduction of the Sparcstation 2 in San Francisco last week, fielding unwelcome questions from securities analysts about the company's recent poor financial performance. They questioned the impact the new launch had had on Sun's bottom line, with some users putting off purchases until the new line was introduced. McNealy offered a curt retort, insisting that "this is not a financial analysts' meeting - its a product introduction".

Among its many boasts last week, Sun predicted that the Sparc market - including Sun and the clones - would cross the crucial one million mark during 1992. One million, says Sun, is the magical point at which a computer architecture becomes not just another point at which a computer architecture becomes an industry standard, a la IBM's PC. At that point, runs the argument, the push and pull of market forces begin to feed on one another. ISVs jump all over themselves to port their software on to a platform with a one million installed base, the availability of that software draws more users in, which in turn draws more ISVs in, and so on. Sun also claims that passing the one million mark will finally lay to rest all the silly notions that the Sparc is not the one and only industry standard Risc architecture out there.

In the meantime, Sun says it has now shipped 120,000 Sparcstations since the original introduction 18 months ago. It also predicted that it will have shipped a total of 250,000 by the end of its financial year in June 1991, up to 500,000 by the end of calendar 1991. It has a current run rate of 38,000 per month and rising.

To drive home the point on its graphics performance, which should get Sun a ticket to new high-end 2-D and 3-D application areas such as MCAD, animation, scientific visualisation and others, the company said that its top-end 2GT model can process 500,000 3-D vectors per second, 100,000 Gouraud-shaded Z-buffered polygons per second, and 300,000 anti-aliased 3-D vectors per second. It has a resolution of 1280 x 1024.

Sun gained something of a coup at the launch, with the announcement that Wavefront Technologies Inc, the leader in the animation marketplace, would be porting its software to the new platform, its first time on Sun.

Sun co-founder and VP Bill Joy, much to the chagrin of corporate marketing VP Ed Zander, called the products "warm-ups": the next generation, he said, due out in mid-91 or so, will double the performance at current clock speeds through the use of superscalar architecture.

Sun claims to be responsible for 74% of all RISC shipments, with MIPS - described as "a series of four or five architectures without an applications binary interface" by Sun VP desktop and graphics Curt Wozniak - closest behind.

Contrary to rumours last week at Unix Expo that Sun was about to make layoffs - something it's never done - the company is saying that it plans to grow another 20% to 30% over the next year.

Open Systems 90

LONDON'S OPEN SYSTEM SHOW HAS SPIRIT, DESPITE RECESSION

The Open Systems Show was playing second fiddle to Olympia's Mac User Show in London last week, having to make do with three floors of the unsuitably shaped Olympia 2 - a tall and narrow venue that isolates the various parts of the exhibition and destroys a sense of the whole. But despite the shadow of the recession, the overall mood was positive, and the stands hid a fair amount of interest for the more intrepid explorers. Biggest and best stand at the show was from DEC, which had Unix chief Dom Lacava in attendance, with demonstrations of Recital Corp's dBase products on the new DECsystem 5100, and was also showing IT Security International's Link tool and Imperial Software Technology's X-Designer.

AT&T launches new StarServer S

AT&T Computer Systems International chose London as the venue for the first showing of its latest StarServer computer using the Intel i486, which it announced two days before. The StarServer S is the uniprocessor version of the multiprocessor StarServer E announced back at Comdex Spring in June (UX No 286) - Bell Labs designed machines that use the EISA bus and runs Unix V.4. Rated at 26.5 MIPS, the Starserver S costs from £12,000 in the UK with 4Mb RAM and 300Mb hard disk and uses a 33MHz 80486. Both machines have been shipped to customers, although the StarServer E is unlikely to be shipped in multi-processor configurations until early next year, when the symmetric multi-processing operating system AT&T is working on in conjunction with Pyramid Technology has been fully completed. AT&T also announced the availability of Unix V Release 4 version 2.1, a binary end-user version to run on its Work Group product lines, plus a European Language supplement. The machines will be sold in the UK through AT&T Istel, which hopes to gain business through Istel's vertical market segments. Up until now, Istel sold mainly DEC and IBM hardware to automotive, manufacturing, financial services, retail and health businesses. It will also sell to AT&T Corporate accounts, and is beginning to establish a VAR network. British Olivetti still sells AT&T 3B systems.

OSI still slow in the UK

Although - or perhaps because - commercial UK computer companies have proved to be one of the slowest in Europe to support Open Systems Interconnection standards, the EuroSInet organisation announced that it was regionalising its operations to form a UK-specific arm under the management of Pat Sutton from Bull and marketing consultant (ex-Concurrent) David Steele. And the OSI Network Management Forum is to hold its next President's Roundtable meeting in London on December 4th.

Sabre is PC Window to X.400

From systems integrators Boldon James of Congleton, Cheshire, comes Sabre 400, a Microsoft Windows 3-based communications product that allows MS-DOS PC users to access standard X.400 messaging systems. Based on "user agent" technology licensed from Retix Corp, the first release of the product provides interworking with other Retix message transfer agents using a networked file system interface similar to those provided with Novell, 3Com, Microsoft and Sun NFS networks. Later versions will support the X400 1988 P7 message store access protocol, and the X.500 model. Price, from January, will be £350.

ICL launches 486 - but no Sparc multiprocessors

On the hardware front, ICL was playing catch-up with its US subsidiary by introducing the Intel-based DRS 3000 deskside server line (UX No 302, 304). Running Unix System V.4, the DRS 3000 boosts the performance of the older DRS 300 and 400 machines, which "will continue to be supported, but will no longer be the strategic first choice". Supporting up to 32 users, the machines are positioned below ICL's Sparc-based DRS 6000 machines. Prices start from £16,000, with a typical 32-user configuration costing £38,000. Originally planned for early next year, the introduction took place earlier than planned "due to pressure from software houses and VARs" according to ICL. Perhaps the same motivation will prompt ICL UK to come clean about multi-processor DRS 6000s, which have already been introduced in the US. There are reportedly two and four processor models rated at up to 60 MIPS, which ICL are using to supply OEM customers such as Sun Microsystems. A two processor model with 32Mb RAM, dual 560Mb disk drives plus a high-speed bus and I/O support should cost around \$150,000. In the UK, ICL also said that Unix V.4 would be available on its i486-based DRS Model 75.

New Nova 4GL from the Netherlands

Despite the fierce competition, North London-based SkillAdvance thinks there is still a gap in the market for another fourth generation language. The company has joined forces with Transmediair of Bilthoven in the Netherlands, to market the SuperNova 4GL already popular in continental Europe, and beginning to emerge in the US through Four Seasons Software of Iselin, New Jersey. SuperNova is a database independent application developer that encourages a non-procedural, top-down, object-oriented approach to programming. Meanwhile, Computer Power Europe, now responsible for the Today 4GE, are beginning to talk about Version 4 of Today, which is due out in the second quarter of next year. It promises to provide "the full set" of standard graphical user interfaces and sophisticated windowing capabilities.

IXI, JSB collaborate over Windows

JSB Computer Systems of Macclesfield in Cheshire - a long term advocate of windowing systems that don't require expensive graphics terminals - has made its first nod towards X-Windows by licensing technology from IXI of Cambridge. JSB's MultiView DeskTerm product incorporates IXI's X.deskterm, which allows character-based applications to be quickly adapted to run under X-based graphical user interfaces such as OSF/Motif. Using the DeskTerm technology, JSB will extend the product to include Microsoft Windows 3 user interfaces running on PCs - allowing it to offer application developers and users the choice of dumb terminals, PCs or X-terminals for the user interface, independently of the application. Software needs only simple modifications to directly use the DeskTerm protocol, according to the two companies, or alternatively an English-like script language can be used via the Soft Option product from IXI's neighbouring software house Cambridge Connectivity. Work on the Microsoft Windows version should be completed early next year, and JSB hopes that Uniplex, which currently ~~takes X.deskterm~~ from IXI, will also include its Windows 3 extensions with the Uniplex office automation suite. JSB, which has won numerous worldwide bundling deals for its JSB Multiview products, plans to unveil its full strategy at the UniForum show in early January.

OSF HOLDS MEMBERS MEETING AT BOSTON HQ

The Open Software Foundation held its latest members meeting last week at its headquarters in Cambridge, Massachusetts, and reportedly spent the bulk of the three days reviewing the 40-odd submissions gathered in its latest request for technology - the one seeking software for a Distributed Management Environment. IBM has reportedly made three submissions to the OSF Distributed Management Request for Technology, one in conjunction with Hewlett-Packard, one on its own, and a third with DEC and the Massachusetts Institute of Technology: the HP version includes HP's Open View graphics along with AIX management facilities. OSF's ISV Council (UX No 283) also reportedly got an organisational model approved that envisions a steering committee, manned by rotating ISV volunteers, to interact with OSF management and set up focus groups that comment on OSF's business model and RFT procedures. Members are being asked what they think OSF's technical priorities and future RFTs should be through to 1994, refining what the Consortium now calls "The Open Road".

...ANDF SUBMISSIONS DEMONSTRATED

Last week's OSF members meeting held in Boston was the first chance for members to see Architecture Neutral Distribution Format submissions actually running (UX No 295). Participants were required to run the ANDF software on the platform of their choice plus one other, to show portability. The four submissions included the UK's Royal Signals and Radar Establishment running on a DEC VAX and 386 machine, Hewlett-Packard and the University of Virginia on HP Precision Architecture and 386, Siemens/Nixdorf on a 386 machine and a DECstation 3100, and Peritus on Sparc and MIPS. The decision whether or not to go ahead, according to OSF's Director of Business Management Marie Burch, lies not so much with the technology - which works, according to OSF - but on commercial viability. Will OSF break even or make a profit on it? How will it be licensed? And will it be able to effectively take advantage of future architectures as they emerge? If the ANDF project does get the nod, we should see the first snapshots very soon, with finished product by the end of next year.

MEXICAN SPARCS TO FLY AT COMDEX

The purity of Comdex as a DOS event is about to be compromised by an incursion of Unix boxes - and particularly the new Sparc clones anxious to make Unix a commodity item. As reported over the last few weeks, we can expect to see CompuAdd, Tatung, Trigen, RDI, Goldstar and Twinhead hawking their Sparc wares at the very least. And from Mexico comes LSI customer Intelecsis, a 250 man \$12m PC manufacturer that currently sells to the local Mexican market and exports to Columbia. The company is interested in expanding into other Latin American markets as well as Africa and Europe, and is hoping the Sparc will springboard it into these far reaches. At Comdex it will probably be showing a mid-range Sparcstation, a tower version with 100Mb hard drive, floppy and colour, according to design engineer Eric Romero. Prices are not yet set. Deliveries come first quarter, with Intelecsis hoping to make 1,000 units next year.

PERFORMANCE SEMICONDUCTOR OFFERS FIRST INTEGRATED MIPS RISC CPU

Sunnyvale, California-based Performance Semiconductor Corp, one of MIPS Computer Systems Inc's Silicon partners is promising the first highly integrated implementation of the MIPS R-series RISC. The Performance Integrated Multichip Module, to be offered with says system clocks of 30MHz, 35MHz and 40MHz to deliver 25, 29 and 33 VAX MIPS combines CPU, floating point accelerator, 32Kb instruction cache, 32Kb data cache and Pacwrap R3100A system bus interface on a single programmable gate array, replacing about 50 devices used on earlier designs. It is targeted at a broad range of applications from workstations to high-end embedded controllers for commercial and military users. Commercial 1,000-piece pricing is \$578 for 30MHz, \$752 for 35MHz and \$983 for 40MHz. The highly-integrated parts arrive in first quarter 1991.

AFTER FAILURE OF NOVELL BID, NOW LOTUS TRIES FOR SAMNA

Lotus Development Corp clearly believes that it needs to make a substantial acquisition and that there is no time to waste: having failed in its attempt to get Novell Inc to the altar, despite winning definitive agreement on merger terms, the Cambridge, Massachusetts company yesterday announced definitive agreement to acquire word processing software specialist Samna Corp of Atlanta, in a development that threatens to put Wordperfect Corp's nose out of joint. An agreement between Lotus and Novell to set up common software support centres that would also include Wordperfect was intended to survive despite failure of the attempt to merge Novell into Lotus. Lotus has agreed to acquire Samna, developer of the Ami and Ami Professional graphical word processors for the Microsoft Windows operating environment, for \$18.84 a share cash, about \$65m all told, against Samna's share price in the market of \$10.875 ahead of the announcement. A substantial portion of the \$65m acquisition cost will be allocated to purchased research and development expenses, resulting in a one-time charge of \$40m to \$50m against Lotus profits in the quarter in which the transaction is completed, which the partners hope will be the current one. Lotus shareholders are not likely to be very impressed by the price being paid for the acquisition, because Samna has been in a state of decline, reporting a \$2.3m loss for 1989 on sales down 22% at \$11.1m. The launch of Windows 3 by Microsoft has brought a significant turnaround, with losses for the nine months of \$1.2m on sales up 42% at \$10.3m - and a profit of \$145,000 in the most recent quarter. As well as the two word processors, Samna has a new information access product for Windows, SmartText, and offers its character-based Samna Plus IV for multi-user systems running Unix System V.3.2 and Santa Cruz Operation Inc's Xenix. Samna will become the Word Processing Division of Lotus, operating from its present base in Atlanta under co-founder Said Mohammadioun, and Lotus will be hoping that the acquisition will prove happier than Ashton-Tate Corp's diversification into word processing when it took over the now scarcely visible Multimate International Inc in 1985.

ENCORE LAUNCHES UMAX V REAL-TIME UNIX

Revealing very few details, Fort Lauderdale, Florida-based Encore Computer Corp claims to have "the industry's most complete real-time Unix environment", Umax V. Umax V is "an absolutely standard real-time Unix implementation of AT&T System V.3.2 and outperforms today's proprietary Real-Time Unix operating systems, the company claims. The new Unix is a component of what Encore calls its total software architecture.

..."ENHANCES" RELATIONSHIP WITH INGRES

Fort Lauderdale, Florida-based Encore Computer Corp says it has "substantially enhanced" its relationship with Ingres Corp, signing a "strategic account relationship agreement" under which Ingres will now sell and support its products on Encore's Multimax parallel multiprocessor computers worldwide, and continuously tune, enhance and update its products for the Encore machines - so Encore has shipped Multimax systems to Ingres' world headquarters in Alameda, California and to the European headquarters in London; Ingres Release 6 is now certified for the Encore Multimax.

ICL PURCHASE OF KIENZLE LOOKS ON

It is looking increasingly likely that ICL will be acquiring the Mannesmann Kienzle small computer system arm of steel giant Mannesmann AG. Mannesmann says it is in close negotiations with other firms about Kienzle and expects a conclusion before the end of the year. The company declined to comment on a report in last week's Der Spiegel that ICL will take Kienzle over in stages.

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At the RS/6000 launch a few weeks back, IBM confirmed that it is working on a sub-\$10,000 diskless RS/6000 for release next year, and also said that it has a 70MHz version of the Powerchip up its sleeve.

US press reports say that Intel Corp has backed out of marketing the fully configured 386 and 486 workstations it introduced last January (UX No 267), following bad feeling from its chip customers: Intel claimed the workstations clashed with its own-brand PC line.

The Unisys-Chorus tie-up (UX No 302) has persuaded Unix International to ask for more technical details and business data on the Chorus micro kernel technology.

The OSF have reportedly been considering the establishment of a trademark for the Foundation.

The new MS-DOS 5.0 expected in December (UX No 298) has been delayed, and is now unlikely to see the light of day until March 1991.

The Open Software Foundation is expected to tap its leading six sponsors for another \$4.5m each next May, but hopes that thereafter, it will become self-financing from the fees it collects on its software.

IBM has signed a royalty-free licence deal with ParcPlace Systems Inc of Mountain View, California for the use of the SmallTalk language and the description of the essential base classes of objects - IBM has used Smalltalk before by incorporating Digital Inc's SmallTalk/v PM into its range of OS/2 tools, to encourage programs to be written for Presentation Manager: in a separate agreement ParcPlace Systems is working with IBM to make Objectworks/Smalltalk available for the RS/6000 in February 1991 - this product enables programmers to develop applications on the RS/6000 and deploy them immediately on PS/2 under Windows 3.0; ironically, SmallTalk is one of the bulkier object-oriented languages and is not as popular as C++ among developers - but then C++ is AT&T's baby and so one assumes IBM could not endorse it.

On the same day as, and clearly worried by, IBM's endorsement of SmallTalk, and the formation of the C++ Reseller Alliance (UX No 307), the fans of the other main object-oriented language, Bertrand Meyer's Eiffel, launched NICE - the Nonprofit International Consortium for Eiffel: Meyer has now turned over the evolution of the language to NICE and parties interested in participating should contact Applied Logic Distribution of London SW15 for membership information.

DEC has announced two object-oriented products: Objectivity/DB, Objectivity Inc's database, for both VMS and Ultrix, which costs between £3,000 and £25,000, and the DEC Trellis Object System, which the company says features a pure object-oriented language, tools and compiler support for the development of large complex applications - a licence will set you back £5,000; the products will be available early next year.

Standard Platforms Plc, Blackburn, Lancashire, which went for simultaneous flotations in the UK and the US, has completed its initial public offering in the US, where it trades under the name of Docufile Inc, the San Diego company it acquired last year. The developer of Unix-based optical disk filing system for archiving got 945,000 shares away all told at \$4.25 a share, raising some £2m. The US end was handled by Marche' Securities Inc.

Toshiba Corp plans to launch an 80486-based file server before the end of the year: the server is being designed to support networks of personal computers from different manufacturers - there's no single widely-used standard in Japan: the servers will also be manufactured and marketed in the US, as a floor-standing model, in Japan as an EISA desktop.

Yokogawa Hewlett-Packard Co will launch a Japanese language version of the LAN Manager/X network operating system, jointly developed with its Cupertino partner, in January 1991: other third party software that will enable personal computers to be used as workstations are under development and will be released simultaneously, running the TCP/IP protocol over Ethernet or StarLAN networks.

Intel Corp has confirmed that a 50MHz version of its 80486 microprocessor will be revealed early next year - possibly at the Comdex/Spring show, and says the launch will feature system announcements from manufacturers.

The effort to put OS/2 on the MIPS Computer Systems Inc RISC chips is true enough - but it appears we were misled in thinking that Sony Corp is going to be the middleman in the project.

Berkeley, California-based Geoworks Inc is offering a Motif-based graphical user interface for low-end personal computer users without the power to take advantage of all the features of Microsoft Windows: PC/Geos - Graphic Environment Operating System - will run on 512Kb XT-class machines, and looks like Windows or Presentation Manager; Geos costs \$200 and the company is currently working on a C++ interface for the environment.

The AT&T Unix System Laboratories booth at Unix Expo included the Open Look user interface running on a Series 9000 machine from Open Software Foundation sponsor Hewlett-Packard Co: the implementation, compliments of Meillo Consulting, takes advantage of Hewlett's superior native language support and is meant for the Asian market since it can handle Korean, Japanese and other multi-byte character sets and it sees 300 to 400 Far Eastern installations next year.

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DEC TO OFFER ALL-IN-1, Rdb FOR COMPETITORS' UNIX MACHINES

DEC is following IBM's lead and is planning to unbundle its systems software and do versions of some of its key software products for competitors' systems. IBM said last week that its forthcoming Unix database would compete with the likes of Oracle and Ingres on a wide range of hardware, (UX No 308), but the move is a complete turnaround of policy for DEC, and Electronics News says that the company not only intends to support Sun Microsystems workstations within the next year, but extend that to Hewlett-Packard and IBM Unix-based systems, as well as IBM's proprietary MVS. The first move will involve DEC's computer-aided software engineering tools, to be followed by database, transaction processing and office automation packages. The company acknowledges that converting software for other hardware could take five years or more since it would first have to be converted from VMS to Ultrix, and DEC's All-In-1 office suite probably won't run under Ultrix for another three years. DEC could well be in head-to-head competition with IBM in the third party Unix database market in three or four years, too, because the company is now understood to be working on a database for Ultrix derived from Rdb. DEC asserted in 1988 that there was no need to embrace other vendors' systems because there was no customer demand. But manufacturers are having to develop new revenue streams as hardware profits decline, and DEC's move to lower cost RISC-based architecture makes software sales increasingly strategic. DEC says that the move could open up new hardware accounts, but also acknowledges that its own installed base could come under attack. However, the company believes that the move will not only generate new revenues, but also enable it to charge for layered software that is currently bundled with the hardware. Annual licensing revenues are around \$500m, but on the basis of research and development expenditure, software ought to be generating some \$2,000m in annual revenues, the company reckons.

OLIVETTI TO CUT ANOTHER 7,000 JOBS - 3,000 OUTSIDE ITALY

Following Bull SA's restructuring plans, (UX No 308), Ing C Olivetti & Co SpA last week took its problems by the horns, saying it will lay off another 7,000 people. However they do these things differently in Italy, so despite the fact that Olivetti is a private company with no state involvement, the announcement came not from Ivrea but from the Minister of Labour, Carlo Donat Cattin. Of the cuts, 4,000 will come in Italy, 3,000 in the rest of Europe. The company had hinted in September that the 3,500 cuts announced in June would not be enough, and the new bad news was revealed to the minister during meetings with chairman Carlo de Benedetti on Monday. Commenting on the cuts, which will bring the workforce down to 45,200 from 59,500 at the beginning of 1989, Olivetti said that while it reckoned it was doing better than the competition, the state of the market was worse than it had forecast, so that on top of the problems of a squeeze on margins that it experienced last year, there was now a serious lack of demand to contend with as well.

JAROGATE GOES INTO RECEIVERSHIP,

BUT FOUNDER SAYS A UK BUYER HAS ALREADY BEEN FOUND

Suggestions that Jarogate Ltd, the UK's small, but long-established Unix and Concurrent DOS system manufacturer is in a state of collapse were confirmed last week by Robin Tracey, founder of the Surbiton, Surrey-based outfit. He says the company is in the hands of receivers from Finnie & Co, but despite the £750,000 debt, is still trading and has already lined up a UK buyer for the firm, expected to be revealed in a couple of weeks. Tracey, who says he intends to stay with Jarogate, and will not be troubled if he has no equity stake in it, attributes the company's problems to a proposed management buyout negotiated earlier this year, and claims that staff headcount increased so dramatically that the wage bill soared while sales were neglected. Tracey expects Jarogate's development and manufacturing operations to continue under the new ownership - he claims around 4,000 systems have been installed worldwide, and only last month Jarogate launched the Sprite XMi series of 80386 and 80486-based multi-user Unix systems, (UX No 305).

COMDEX - UNIX SHOUTS ABOVE THE RACKET

At two million square feet of floor space, Comdex in Las Vegas is bigger and more impossible than ever - it's said to be the biggest show in any industry. This is the first year that Unix has made any of the noise, the dinmakers being the new Sparc clones - see page 3. Still, with seven exhibition sites, 1,850 booths and 100,000 or more people it helped having a map, compliments of Sparc International, to find them all. More interesting was who was using them - including the Microsoft analyst, way ahead of our own reporter - trying to work out if they should do anything about it.

Dell unbundles V.4 operating system

In the wake of Dell's Unix Expo announcement of Unix SVR4 for its 386/486 machines, requests for the operating system by itself have compelled Dell to a policy decision to sell the operating system unbundled. Calling it good mostly for development, vice president Glenn Henry says that Dell will guarantee nothing if its not put on a Dell box, but will do what it can - within reason - to support it even if it's not. Henry says they tried it on a Compaq box and it works.

Everex previews Esix V.4

Everex Systems Inc of Fremont, California, was also at Comdex, preannouncing its ESIX SVR4 implementation, also for 386/486 machines. Like its V3.2 predecessor, Esix SVR4 strips out device drivers and speeds up the file system. It currently includes Open Look but will add Motif, and is expected to be introduced at UniForum next January, with deliveries following in the first quarter.

Tektronix disperses workstation staff

Tektronix personnel at Comdex confirmed rumours that the company had now dispersed and re-deployed the staff that were working in its workstation division, which the company said last month that it must sell or shut down within 60 days (UX No 304): confidence that a buyer will be found does not appear to be high, underlined by Data General chief executive Ron Skates confirming that his company was not interested when he visited the UK recently.

There were suggestions at Comdex that some of the LSI/Opus "instant Sparc Kit" customers, (UX No 306), were very surprised to hit Comdex and find a dozen other boxes looking exactly the same.

MICROSOFT REVEALS REVOLUTIONARY RESCUE PLAN FOR OS/2

The battle between IBM and Microsoft over the future of OS/2 has taken a new twist with the launch of the Bill Gates Comdex/Fall crusade for a new document-based software system. Previewed in the New York Times, this crusade is firmly rooted in object-oriented technology. Basically, Gates envisages a time when users working on a document will be able to call in, say, a spreadsheet tool, a word-processing tool and a tool for drawing graphs for use within different parts of the document. This contrasts with today's software system which is driven by applications rather than documents. The elements of this new strategy will appear over the next few years culminating in a Windows 3-compatible OS/2 3.0, planned for release in 1992. However, this approach positions Microsoft against IBM which has co-responsibility for the development of OS/2 and has recently announced the formation of its Patriot Partners project with Metaphor Computer Systems Inc. This project is running parallel to that of Microsoft's document software system in that it is developing object-oriented programming, multimedia support, end-user visual programming and standard access to expert systems for OS/2. In short, it is developing an open, standards-based software environment for software and hardware vendors, but this environment will run under AIX and other major versions of Unix as well as OS/2 (UX No 300). Meanwhile, IBM and Microsoft have not managed to sort out their problems over the marketing of OS/2 version 2, which already resides forlornly at some customer sites in all its 32-bit splendour but is still unannounced, and has no release date.

STATE-OWNED BULL "WILL NOT BE PRIVATISED"

French Industry Minister Roger Fauroux told the Assemblée Nationale last week that "the computer industry was a strategic sector of paramount importance" and that there was "no question of privatising Groupe Bull". Fauroux, answering deputies' questions about the 5,000 additional redundancies worldwide planned by Bull, said that the company had the full support of the government in its restructuring plan. "Only the state has the resources to put into play the capital necessary to enable Bull to reattain the level of greatness that is its right," declared Fauroux. Meanwhile Bull has given more details of its reorganisation in France, saying that manufacture of Unix computers in Echirolles will end in March 1991 - a decision taken as long ago as 1988, with the work being transferred to the main computer plant at Angers. Echirolles will then become dedicated 100% to development of Unix software, making it the world headquarters for Unix development for the entire group, with 500 employees in 1991. As for Massy, the microcomputer subassembly work it does will be transferred to Villeneuve d'Ascq. Massy, which loses 200 of its 1,300 employees in the process, will then specialise in research and development of Unix products, workstations, network applications, and engineering work. The changes underline the crucial role that Bull now confers on Unix.

APTECH FILE SERVER USES WINDRIVER KERNEL

Following the launch of its Sun Microsystems-hosted high-speed input/output subsystem a few weeks ago, (UX No 304), Aptech Computer Systems Inc, Portland, Oregon, has announced the first in a family of Unix-based file server systems for supercomputers, which again use WindRiver Systems' real-time VxWorks kernel. FutureLink, hosted by a Unix workstation, supports a variety of storage devices, whilst file control is managed by UniTree software, an implementation of the IEEE's Mass Storage Reference Model that automatically migrates files among disk and tape libraries. Interfaces supported include the high-speed High-Performance Parallel Processor Interface - HIPPI - and Ultraset; VME, Ethernet and FDDI. FutureLink offers transfer rates of 10Mb per-second across eight channels - Aptec claims the next generation of FutureLinks will go up to 40Mb per second. Prices start at £200,000 and ships are set for the second half of next year. The likes of Cray, IBM, Convex, Amdahl, DEC, Alliant, Ultra Network Technologies, Network Systems and Maximum Strategies have declared their support for HIPPI.

SUPERCOMPUTING: PARALLEL C IS PORTABLE

In a development that could give a substantial push to the problematic parallel processing business, Active Memory Technology Ltd, Reading-based builder and marketer of the DAP Distributed Array Processor, and Thinking Machines Corp, Cambridge, Massachusetts builder of the Connection Machine, have agreed to standardise their massively parallel C compilers worldwide, to provide users with a stable and portable environment for the development of parallel applications. One of the major dampers on the development of parallel applications has been the fact that each machine on the market has been proprietary, and most come from small, vulnerable companies. The common C will be based on the most current version of Thinking Machines' C* language. Active Memory is taking a licence to parts of the compiler and Thinking Machines is licensing Active's patents on single instruction multiple data architecture.

CONVEX HAS INTERPROCEDURAL COMPILERS

"The industry's first interprocedural compiler that can automatically analyse and optimise the entire application program rather than just in dividial procedures" is the claim made by Richardson, Texas-based Convex Computer Corp for its new Convex Application Compiler. The compiler was developed with the help of Rice University in Houston, and Convex claims that it represents the first practical application of interprocedural analysis research in an integrated, language-independent compiler product. It is claimed to compile the entire program using all available information on program flow, variables used and procedures used, and it supports both Fortran and C applications, increasing the performance of existing applications over that of conventional compilers. The Application Compiler compiles programs in the way that writers edit papers - checking each page checked carefully; checking and acknowledging the references to the terms and ideas used on multiple pages; and arranging it in an order that is most productive to the reader. Specific features of the compiler are Automatic Inlining, which removes call overhead for frequently used procedures and expands opportunities for vector and parallel optimisation; Pointer Tracking, which minimises the hindrance to optimisation of pointers in C programs; Constant Propagation, which means that the compiler has knowledge of variables that have been assigned a constant value prior to the invocation of a specific procedure and can propagate or use these values in the optimisation of the invoked procedure to improve vectorisation and parallelisation, to improve automatic inlining, and to eliminate dead code; and Procedure Cloning, performed when interface variables have different but constant values on entry to a procedure - the compiler makes a copy of the procedure, renames it, and modifies specific invocations to use the new version. It also has an Error Checking feature that is claimed to uncover common coding mistakes in Fortran that are difficult to detect with conventional compilers. The Application Compiler will be available in the first quarter of next year, but no price was given. Separately, Convex announced that ConvexAVS, its version of the Application Visualisation System developed by Stardent Computer Inc, Concord, Massachusetts would be available on its machines in the first quarter 1991; again no price.

----- Comdex News -----

Maureen O'Gara reports from Las Vegas

As expected, the RDI Sparc-based laptop, Brite Lite, which incorporates Sun Microsystems' 20MHz IPC board and runs Mac and MS-DOS applications as well Unix, turned up in the Sun Microsystems booth at the Comdex show in Las Vegas last week, (UX No 307). The deal the pair cut is a simple co-marketing agreement rather than the clear-cut OEM pact certain Sun salesmen were hoping for. This way Sun gets to test market the box to examine the potential demand for such a machine. Sun won't take any orders as such, but will turn leads over to RDI. RDI, which still has Solbourne Computer fish to fry, says it's happy enough with the alliance because it gives them total hegemony over the product. RDI doesn't have a sales force that can call on its Sun leads, but TriGem chairman Young Kim, head of the Korean outfit that will manufacture the Brite Lite, says that he and RDI president Rick Schrameck can handle it since they are only interested in big numbers.

Tatung Science & Technology Co duly introduced its first Sparc-based machine, an entry-level, fully expandable S-bus colour desktop system at \$7,000 with 19" colour monitor and three S-bus slots. Using a 20MHz Sparc and rated at 12.5 MIPS and 1.4 MFLOPS, it measures 2.8" by 16" by 17.3" and has 8Mb expandable to 64Mb and a 1.44Mb floppy. One or two 208Mb disks can be installed and it ships in first quarter 1991.

And Sun Microsystems' Eastern Bloc operation has turned up a customer interested in producing the first Sparc made behind the rusted Iron Curtain. The Polish academy of Sciences is having a series of discussions this week with the LSI Logic/Opus Systems teams about their instant SparcKit.

Sampo Corp of America, the US arm of the \$1bn Taiwanese monitor-maker, showed up at Comdex last week with its LSI/Opus Sparc machine. Sampo, which does Sun's monitors, said it currently has no formal plan, price or budget for the box. Instead it's watching initial response, figuring to have the answers to these questions by the end of the week. One very real possibility if demand isn't apparent, would be for Sampo to delay any introduction. It's looking for a business that would support producing 10,000-15,000 widgets a quarter after a year. It figures part of its added value is the American managers who run the subsidiary, giving it a leg-up over the other Far East Sparc clone-makers trying to bring a product here with no distribution vehicles to speak of.

According to Comdex attendees who have been out there lately, the Taiwanese, Koreans and Japanese are preparing to enter the X-terminal business in earnest and figure the Taiwanese and Koreans - at least including Goldstar, Samsung, Daewoo and Hyundai - could threaten the leadership position of US firms like Network Computing Devices. What they saw and heard seemed to indicate that the high-end of the market would see more competition than the low-end. Far Eastern incursion, however, is not imminent, but more likely to happen later in 1991. Goldstar, however, was at Comdex showing off its GoldenView colour X-terminal which uses a 20MHz, 32-bit Intel Risc 80960 for its CPU and claims an execution rate of 7.5 MIPS and burst rates of 20 MIPS. Resolution is 1024 x 768 and it displays 256 colours. Goldstar has 17", 19" and 20" screens and uses an optimised X server 11.4. Price is around \$4,000.

Meanwhile Samsung was at Comdex previewing its first colour Risc-based X-terminal, which uses Advanced Micro Devices' AM29000 chip and AGE's Xoftware code. The terminal is the first colour model in Samsung's 29000-based line, which was launched at the Xhibition show back in May, (UX No 284), and comes with 256 colours and a resolution of 1024 x 1280.

NCR "PITCHES FOR OSF's
DISTRIBUTED MANAGEMENT RFT"

According to US sources, it seems that NCR Corp may have joined the Open Software Foundation so that the alternative Unix club would pick up NCR's solution to the Distributed Management Environment Request for Technology, (UX No 301). NCR reportedly submitted technology that could meet 17 out of the 18 RFT categories - dubbed Open Network Management - to OSF at its members meeting in Boston last week, (UX No 308).

SIEMENS NIXDORF LAUNCHES WS200s
WITH SANTA CRUZ UNIX, OPEN DESKTOP

Siemens Nixdorf Information Systems launched new Unix workstations at Comdex/Fall this week: the WS200 series is based on its Slot-CPU modular personal computers and the machines make no concessions to the company's sponsorship of the Open Software Foundation, running Santa Cruz Operation Inc's Unix System V.386 and Open Desktop. The WS200s come in desktop and desktop configurations, with the 10DT and 20DT desktop models feature 80386SX processors at 16MHz and 25MHz. The desktop 30T uses a 33MHz 80386 and the 40T a 25MHz 80486. The machines are offered with 19" and 21" mono or colour monitors with resolutions up to 1,280 by 1,024, and MS-DOS emulation is supported under Unix. No prices were given.

GRID JOINS THE SERVER FRAY
WITH 450 WATT MONSTER

Tandy Corp's Fremont, California-based GRiD Systems Corp, which in its early days promoted the idea of plugging its portable computers into a desk-top base station when in the office, is going back into large fixed systems with an entry into the network server market. The GRiD 486ei-25/SVR is an 80486-based EISA bus machine with nine expansion bays for up to 4Gb of storage, and runs all the major network operating systems, supporting networks of MS-DOS, OS/2 and Unix machines. GRiD promises to offer both network interface and storage peripherals as 32-bit EISA designs to complement the thousands of AT bus products already supported. The 25MHz 80486 has 256Kb secondary cache and comes standard with 8Mb expandable to 64Mb and seven available 32-bit EISA slots, and is designed to be heavily loaded - it has a 450W power supply. It costs \$12,000 without disk drives and comes out next month.

E&S FOLLOWS WORKSTATION FRAY
WITH DISKLESS ESV MODEL

Evans & Sutherland, Salt Lake City, Utah, has added a diskless model to its ESV series of Mips Computer Risc-based high-end Unix workstations which run the extended, 3D version of the PHIGS graphics standard - PEX - under X-Windows. The ESV 3, at \$27,900, is claimed to do 360,000 vectors per-second and 19,000 vectors per-second, whilst the top-of-the-line ESV 50 is also now available in a diskless configuration for \$78,400. The company will also be offering an FDDI option on its workstations from December with the Fiber Link interface card, priced at \$9,900. Biosym Technologies, San Diego, California, has also agreed to port its molecular modelling packages to the ESV series. E&S has also signed up as a value-added reseller for Kodak's XL 7700 printer which it will offer on the ESV series from next year at \$25,000.

THE CHALLENGE WESTERN COMPANIES FACE IN PURSUIT OF EASTERN PROMISE

William Fellows reports from High-Tech Forum in Budapest

Many high-tech Western companies have been doing well out of syndicated state and government buying practices in Eastern Europe - in effect government-granted monopolies to preferred manufacturers. However the political structures, as well as the huge state-sponsored conglomerates that have characterised Eastern Bloc economies are gradually dissolving and their associated organisations being split up. The prevailing political and economic agendas specify the development of Western-like business and trading practices but these are not going to materialize overnight, and there remain a huge number of implications for firms either already doing business out there or contemplating a move into these emerging marketplaces.

In the Soviet Union, potentially the largest of the new markets for information technology companies, the ministries which control and administer the large state organisations and industries are being encouraged to diversify their activities into markets that will provide additional, and hopefully profitable sources of income for the time when state support is either reduced, or removed entirely. A number of commercial zones - information technology and publishing amongst them - have been identified as potentially lucrative economic areas which are likely to develop rapidly over the next few years. Computing and data processing departments within these industries and organisations have become centres for both state-related and independent business activities, and as a result, many Soviet and other East European computer companies have been spawned by groups of individuals from these kinds of departments. According to Alexandr Fridman, director of SUUG, the Soviet Unix User Group, these fledgling outfits are able to operate as hardware and software dealers and devolve their interests into separate business activities. Moscow-based Computer-Aided Technologies, SRC in Yugoslavia, Software Products and Systems in Bulgaria, and the Czech firm Software Slusovice are all examples of where this has happened. Indeed a rash of spin-offs, co-operatives and joint ventures have begun to emerge. However, for Western firms already well-established in the East, these changes mean in particular that central government buying will become of minimal importance for box-shifting. Small-scale purchasing and retail business is likely to be the order of the day.

How to sell ?

For IBM Hungary, one of the biggest problems that the opening-up of East European markets is presenting, is simply how to go out and sell its computers. There is a very limited concept of marketing, little or no experience of sales techniques and no history of sales careers in these countries, according to managing director Elek Straub. Previously all of IBM Hungary's equipment sales have been carried out through the government, which virtually guaranteed a market in perpetuity. Straub, who has 90 employees at IBM Hungary says the outfit did \$10m business last year, and there are now at least 150 mainframe sites around the country. However he reckons there are at least 200 clones of IBM equipment, perhaps 100 copies of pirated mainframe software, and over 100,000 IBM-compatible personal computers in existence - none of them made by IBM. However many of the clones are likely to disappear over the next couple of years he believes, as the original products become more widely available, and spare parts for the clones begin to dwindle.

As far as software goes the problem of copying is much more endemic. It has been estimated for instance that 99% of all software in use in the Soviet Union is "pirated" - a figure probably only marginally higher than in the rest of Eastern Europe - although technically there is no such thing as piracy. There is no law that forbids the copying of software. Although new copyright laws are planned - and are drafts of these laws are available - no intellectual property laws of the sort which protect source-code in the West can be expected in the Soviet Union for many years. Even with new copyright laws it will be a long time after they are passed before any kind enforcement will begin, according to Irina Savelyeva, an attorney with Moscow-based LECS.

Double-edged sword

The problem of software copying is double-edged sword for Western companies eyeing up the East, for whilst a presence in the Eastern markets is becoming increasingly necessary, firms obviously do not want their products to be copied and distributed without any kind of return. There are however numerous - and compelling - explanations for the proliferation of "pirated" software.

In the first place Western software has only really been available - in the Soviet Union at least - for the last two or three years, certainly before the relaxation of trade restrictions it all had to be copied. Second, most Western software - with some exceptions - is only available in exchange for hard currency, and prices are anyway far beyond the means of most Soviet programmers or developers.

A good example is Microsoft Word, the de facto industry-standard word-processing application in the Soviet Union according to Stepan Pachikov, general director of the Moscow-based software house ParaGraph, which produces a range of products from handwriting software, through user interface technology, to computer games. He believes that the way to stop the endemic copying of software is to make it cheap. If users were prevented from using their "free" copies of MS Word he argues, most Soviet programmers would simply have to stop working, such is the popularity of the package. There are reckoned to be 300,000 programmers in the Soviet Union - in an information technology industry employing 500,000 or so. With the average salary of Soviet programmers around 300 Roubles a month, it would take over four years for an individual just to amass the 12,000 Roubles needed to buy a copy of the package. President Gorbachev, who draws a salary of \$2,400 a month, would be one of only a handful in the country able to afford the software. Paragraph, with a turnover of around 3m Roubles is now working on a Russian-language version of MS Word, and reckons it will sell upwards of 10,000 copies of it next year. Meanwhile, Christian Wedell, Microsoft GmbH's general manager, says the company is working on a Rouble version of MS-DOS that its distributors across Eastern Europe will sell, and that it is also looking to produce MS-DOS locally in the USSR.

The copyrighting situation in Bulgaria - indeed across much of the rest of Eastern Europe - is not quite as dire as in the Soviet Union. Ivan Todorov of Sofia-based outfit COMSED, and a legal advisor to Bulgarian information technology companies, estimates there are 20 pirated copies of every software package for each legitimate one. There is copyright law in Bulgaria - enshrined in Article 15 of the Decree on Economic Activity - but at present it is confined solely to text, though a more stringent piece of legislation is going through parliament, and is expected to become law in March of next year.

Revolutionary support

Some companies realising the potential of the Soviet market, and the wealth of programming and development talent, have begun to act - such as Nantucket Corp, Los Angeles, California, developer of the Clipper application development environment for Ashton-Tate's dBase database. Through its Moscow offices, Nantucket now sells Clipper in local currency - 6,000 Roubles - and offers an extensive range of support services, a newsletter and user group meetings. This is revolutionary in the USSR, where the concept of support is previously unheard of says Nantucket's Vanessa Wade. Nantucket claims a paid-up installed base of around 1,000, and its first user group meeting in Minsk in October attracted 250 delegates. Nantucket also has an academic version of Clipper up its sleeve for release around the turn of the year according to Wade. The one thing that is completely impossible to support though is a telephone hotline service, because as Paragraph's Pachikov warns, "trying to get a phoneline is more difficult than buying a nuclear submarine."

The prevailing opinion of Soviet operators, and of Western companies already trading in the East, is that the best way to stop people stealing your software - or any other product - is to be there yourself, in force. Although Western companies have been searching for ways into Eastern Bloc economies for many years, Paragraph's Pachikov believes many are now frightened of investing because of such problems. His message to the West is simple - "put your money where your mouth is!"

EUROPEANS REVIEW PROGRESS AT ESPRIT '90

by Mark John

The four-day Esprit '90 exhibition in Brussels last week attempted to show exactly what has been achieved with all that European public money. The Esprit programme, which co-ordinates hundreds of projects whose overall aim is to make the European high technology industry competitive with those in the US and Far East, is set to cost a further 5,700m ECUs (equivalent to \$4,104m) up to 1994. Increasingly, Esprit has come under fire both inside and outside Brussels for failing to use this money effectively, and the critics have even started suggesting that the guiding policies of Esprit have in fact done much to retard Europe's overall information technology competitiveness. In such a climate, the tacit goal of Esprit '90 is clearly to vindicate the organisation's policy-making through the achievements of individual exhibitors.

Esprit funds Cathedral compiler - but US to benefit

For the last seven years, the Leuven-based Interuniversitar Micro-Elektronika Centrum has been leading one of the most successful Esprit-funded projects in the field of microelectronics. Indeed, if Esprit is all about catching up with the US and the Far East, this home-grown Belgian project is one where the Europeans have actually stolen a lead on the rest of the world. Partnered by Alcatel, Philips, the Ruhr Universitaet of Bochum, Siemens and EDC in Belgium, Interuniversitar's aim was to develop a silicon compiler capable of significantly speeding design of application specific integrated circuits and very large scale circuits. The result of this project was the prototype computer-aided design compiler Cathedral, which has since been taken on by Philips and vigorously developed into a robust more market-oriented product, the Pyramid compiler. Talking at the Cathedral stand at Esprit, Interuniversitar engineer Hans de Keulenaer reckons that ASIC design for most applications normally takes several man decades and that the result of the project was to reduce the timescale by a factor of between 10 and 20. Cathedral has already been used to develop the circuit for a prototype all-digital graphic equaliser for a Philips' home stereo system, and for a compact disk application that merges sound, video, text and graphics on the same digital player. It is also being used in the European effort on high definition television. De Keulenaer reckons the Cathedral project has highlighted the need to recognise the development stage within Esprit-funded efforts: previously, Esprit gave a grant for the research phase, and expected the companies involved to bear the rest of the costs involved in getting the product to market. The "product development" stage was completely ignored. De Keulenaer states: "we realised that there was a Grand Canyon between research and the commercialisation of Cathedral. One of the merits of the European Commission is that at last they have seen that this part is necessary and now are financing it". The immediate rewards of the seven-year effort seem likely to fall outside of Europe as project member EDC is owned by the US company Mentor Graphics, and Mentor has been quick to put itself forward as the natural distributor of the product, which will become available as part of a computer-aided design software package firstly on HPApollo, then on Sun workstations some time in 1991.

UNIX IN THE EAST: USSR, ROMANIAN GROUPS

With the changes taking place across Eastern Europe, Unigram.X found two Unix groups particularly keen to tell the world of their existence. The Soviet Unix Users Group was founded eight years ago by 12 organisations. The first industrial installations of Unix showed up in 1984 running on DEC PDP 11 clone machines, and all initial copies of the operating system are believed to have originated from three versions of the software which found its way into the Soviet Union around that time. Local programmers developed local language versions. Now, SUUG director Alexandr Fridman says, SCO Xenix is by far the most popular version of Unix over there, more so due to historical reasons than anything - simply that SCO Xenix has been quite widely run on personal computers and been migrated onto other machines.

A newcomer to the user community is the Romanian Unix Users Group which was set up just a couple of months ago. Now with 25 members, it is chaired by Liviu Iftode of the Bucharest-based Infec Software Group. The most widely used Unix-like in Romania is known as U. U, derived from a copy of BSD 2.9 which came to Romania from an East European company back in 1985, was developed for use on DEC PDP clones and on personal computers. There is now a version available known as U/DOS, which is both Unix and MS-DOS-compatible according to Iftode. Iftode himself cut down a version of BSD 4.3 Unix especially for personal computers and teaches Unix in Bucharest, whilst the small private company that he works for develops Unix, MS-DOS and database applications, and does turnkey CAD solutions for industry and business.

BBN GETS A WHOPPING 510 SPECthruput RATING FOR 63-PROCESSOR TC2000

BBN Advanced Computers Inc, Cambridge, Massachusetts, has put its TC2000 parallel supercomputer through the SPEC group's performance benchmark test for multi-processor systems and come up with a SPECthruput rating of 510 - nearest to it, though really an unfair comparison, is Stardent's four-processor 3040 system which comes in at 91.6 - the TC2000 benchmarked incorporated 63 20MHz Motorola 88000 processors. New software for the TC2000 includes an updated nX, Unix operating system and development toolkit. In addition BBN has released a new version of the BSD 4.3-compatible Mach 1000 operating system for its Butterfly GP1000 parallel system which now supports Posix 1003.1 and X-Windows 11.4, along with a new debugger, C and Fortran compilers.

DATA GENERAL's AViiONs GET THEIR FIRST OBJECT DATABASE, COURTESY OF ITASCA SYSTEMS

Data General Corp's AViiON 88000 RISC-based line of Unix systems has picked up its first object-oriented database management system courtesy of Minneapolis-based Itasca Systems Inc. The Itasca object database, introduced in August, is a distributed, multi-client, multi-server system designed to support highly complex workstation applications. It is based on the Orion prototypes developed by the Object-Oriented and Distributed Systems Laboratory of the Microelectronics & Computer Technology Corp non-profit pre-competitive research co-operative down in Austin, Texas. Object database management systems differ from hierarchical, network, and relational systems in using persistent objects - re-usable modules of data code - rather than serial lines of code as the fundamental units of applications programming. This means that products like Itasca can operate on complex data significantly faster than the otherwise comparable non-object systems. Itasca sees its database being used on the AViiONs in graphical applications in the areas of computer-aided design, software engineering, computer-integrated manufacturing, computer-aided publishing and mechanical computer-aided engineering. Itasca already runs on Sun Microsystems, Hewlett-Packard and Apollo, Silicon Graphics workstations, and the single-copy price for all versions is \$4,000.

MEIKO OPENS AS MEIKO WORLD IN US WITH NEW SURFACES

The Intel 80860 RISC seems to be supplanting the Inmos Transputer at many of the companies that build scientific co-processor boards, and Bristol, Avon-based Meiko Scientific Ltd combined launch of a US company, Meiko World Inc in Waltham, Massachusetts with the launch of two 80860-based products, the Engineer's Computing Surface and the Embedded Real-Time Computing Surface. The new systems are claimed to differ from other parallel processing systems in the number of processors they can support, and that they use Sun Microsystems Sparc front ends, while Transputers and 80860s can be mixed and matched so that users can run different applications or parts of an application on the most appropriate processor, with the complex running under Unix. The Engineer's Computing Surface is for application developers working on engineering and scientific applications. A typical entry-level Engineer's Computing Surface consists of four Transputers, 4Mb of memory, and development software and is priced at around \$50,000. A 2.6 GFLOPS system, comprising 64 80860s, each with 8Mb of memory and software, will cost around \$1.5m. The Embedded Real-Time Computing Surface is designed as an extension to a larger system. An entry-level configuration includes two 80860s, 8Mb and development software and costs about \$50,000. The systems can scale up to more than 1 GFLOPS of power in a single 19" rack. Next year, Meiko World plans turnkey systems built around the new hardware.

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Terminal-handling board builder **Specialix International Ltd**, Byfleet, Surrey, has opened its third international operation, in France, to market its Z80 and Transputer-based boards that enable larger numbers of terminals to be attached to Unix servers than would be possible without front-ends: the Paris office follows one in Munich, Germany and a subsidiary in the US, and Specialix looks for £1.6m with a 10% margin from its first year in France; worldwide, it looks for profits almost doubled to £1.1m for the year to June 1991, on turnover about doubled to about £13m.

Following a management buyout at the Wokingham, Berkshire-based **Advent Systems Ltd**, the company has been reborn as **Advent Systems Imaging Ltd**: the firm produces image management software that runs on Sun Microsystems workstations.

Correction: Interactive Systems' European Distribution Manager is Gareth Buchanan-Robinson, (UX No 306) - Interactive is now offering the popular DOS-based Norton Utilities package on its Unix operating system technology, porting of which was done in conjunction with Peter Norton Computing and Segue Software.

X/Open says that the latest additions to its user council - the US Departments of Agriculture and Treasury, Boeing, Union Bank of Switzerland, Swedish Telecom, Sweden Post and Ericsson - brings the collective information technology budget of the council up to \$21bn, that's without the recommendations made by advisory bodies like the CCTA and Statskontoret; and the Madrid regional government in Spain has announced that it will require XPG3 conformance for future procurements.

Anthony D'Annunzio, formerly director of software development for **Concurrent Computer Corp** has been appointed as vice-president of technology for **Unix International**, following the departure of JoAnne Miller.

Glockenspiel Ltd, Dublin, Ireland, is to adapt Santa Clara, California-based **Perennial's C++** validation suite to work with C++ compilers on MS-DOS and OS/2 - the suite will be available by early next year.

Contour Computer Services of Milpitas, California, and Fife, Scotland, has upgraded its diagnostic software for the maintenance and repair of Sun Microsystems Inc workstations - Contour offers a five day turnaround on the repair of workstations and peripherals.

US Pick/Unix house The Ultimate Corp's Watford, Hertfordshire-based subsidiary has acquired **Apscore's** UK and European operation - **Apscore International Ltd** - which becomes part of the **Ultimate Group**, but retains its own name: **Apscore's CUE-BIC** operating system and **Pick-based 4GL** development system are already distributed by **Ultimate** in the US - this move brings a similar distribution arrangement to Europe.

Myrias Research Inc, the Edmonton, Alberta builder of parallel processing systems around multiple Motorola 68040s, has run out of money, laid off its 80 employees and shut up shop: the failure, reported by **Newsbytes**, came only days after the company reported shipping its first 68040-based machine.

ICL has won a £2.5m order from **Barclays Registrars Ltd** for a two-node **Series 39 Level 65** mainframe and a **DRS 6000 Level 50** system running **OfficePower**: **Barclays** will design a new share registration system using the systems, which replace existing **IBM** and **Honeywell** systems.

The **US General Services Administration Board of Contract Appeals** has authorised a rebid on the \$228.3m contract that the **Treasury Department** awarded to **Sears Business Systems Centers** in May: in August, the contract appeals board overturned the original deal and concluded that **Sears' bid** failed to meet 10 mandatory requirements because it included an 80286-based Unix operating system to run on an 80386 machine, and a laptop that exceeded the specified weight requirement; under the new round of final offers, **Falcon Microsystems**, **Government Technology Services Inc**, **Grid Systems**, **SMS**, **Sysorex Information Systems** and **Sears** are all expected to bid - **SMS** and **Falcon Microsystems** made separate protests when **Sears Business** was awarded the original contract.

Applix Inc of Westborough, Massachusetts has signed a deal with **General Electric Co Inc's Corporate Technology Group** to the effect that **Alis**, the office automation software from **Applix**, will be offered as an office automation tool for all Unix machines at **General Electric's** world-wide locations - no value was given for the contract.

Advanced Software Automation Inc, Santa Clara, California, has a new workbench designed to reduce the time spent on understanding software code: **Hindsight** presents graphical feedback back about the effects of code modifications on the rest of the program, pinpointing deficiencies and updating documentation directly from the code - it works with existing C code on most Unix workstations running **Motif**, **Open Look** or **SunView** and costs from \$12,000 to \$23,000.

Realising that the **XMS minisupercomputer** derived from its **Supertek** acquisition's **S-1 X-MP-compatible** box is not what users really want, **Cray Research Inc** is offering anyone that buys **XMS** a financial credit when they upgrade to the forthcoming **Y-MP-compatible minisuper**: the offer applies to **XMSs** ordered by next April 30 for delivery in 1991 and the follow-on box must be ordered installed by December 31 1992.

And **Yokogawa Electric Corp**, former Japanese partner of minisupercomputer builder **Supertek Computers Inc**, is to form a joint venture with **Cray Research Inc**, which acquired **Supertek** earlier this year, to market the **Cray supercomputers** in Japan.

Inmos International Plc has announced that its **ANSI C Toolsets** are available for four new development environments - the **IMS D7214** for **IBM** and **NEC** personal computers under **PC-DOS**, **IMS D6214** for **VAX VMS**, **IMS D5214** for **Sun 3** under **SunOS 4.0.3**, and **IMS D4214** for **Sun 4** under **SunOS 4.0.3**: these C cross-development systems include compiler and debugging tools, and can be used for building parallel programs on single and multiple **Transputers** and **Inmos** claims the new C compiler achieves up to a 30% performance improvement over other implementations.

Corollary Inc has appointed **Infinite Solutions**, Norcross, Georgia, and **Star Technologies Inc**, Laguna Hills, California as distributors for its symmetrical multi-processing subsystems and software.

MasPar Computer Corp, Sunnyvale, California, has introduced a new mass storage system for its **MP-1** massively parallel computer, with from 2.8Gb to 17.3Gb disk space: prices go from \$112,000 to \$315,000 and deliveries start at the beginning of next year, and **MasPar** is also readying release 2.0 of its system software for the second quarter of 1991.

Data General has introduced **Frame Technology's FrameMaker** publishing software for its **AViiON Risc** workstations, priced at \$2,500 per-user.

Unify Corp has joined forces with **Sumitomo Metal Industries Ltd** and **Air Company Ltd** to form **Unify Japan**, which will be based in Tokyo with a further office in Osaka.

San Jose, California-based Rasna Corp is to convert its **Applied Structure** and **Applied Motion** programs for the **Silicon Graphics Inc Iris 4D** family of workstations and expects to have the job done by the first quarter next year: the programs are the flagship members of the **Mechanica** family of design optimisation software tools - **Applied Structure** is a structural analysis and shape optimisation tool, **Applied Motion** is a mechanism analysis and optimisation tool; no prices.

NCR is to market **Mancom Technologies' Vision System** integrated document control and imaging software which runs on the **System 3000**.

Stardent Computer Inc has moved its headquarters to **Concord, Massachusetts**.

Stratus Computer Inc, headquartered in **Marlborough, Massachusetts** has expanded its **Asia-Pacific** operations by signing distributors in **Thailand**, **Indonesia** and the **Philippines**, and opening a sales subsidiary for **Singapore** and **Malaysia**: the distributors, **Solutions Corp oration Ltd** of **Thailand**, **PT Gemawidia Statindo Komputer** of **Indonesia**, and **Equitable Computer Services Inc** of the **Philippines** now market and support **Stratus** systems in their respective countries.

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UNIX SOFTWARE VENDORS REPORT "DANGEROUS" LEVELS OF SOFTWARE THEFT

Some of the top-selling Unix software vendors, including Interactive Systems, Santa Cruz Operation, Informix and Uniplex, claim that up to 50% of all Unix software currently being used in the UK has been illegally installed. Lars Turndal, managing director of SCO UK says that in his company's market "for every piece of 'official' software sold at least one other is actually installed." The problem it seems does not lie with end-users, but with information systems managers abusing their powers by copying software - "the problem centres on a minority within the reseller channels," says Informix UK's managing director Malcolm Padina. "Some resellers are copying purchased software onto customers' systems and then walking out with those same disks ready for the next job. Not only is this illegal, but it leaves the user with no support media and denies the customer the ability to reinstall the software at a later date." After such a public admission of these abuses, moves to combat the problem are likely to come swiftly from the Unix industry. The Federation Against Software Theft - FAST - is one group that has long-campaigned for a clampdown on such activities. Interactive Systems' Director of European Operations, Doug Miller, admits that "a lot of software has been illegally installed," but believes the practice is even more rife on the continent, where it could even be reaching the endemic levels more often associated with the former Eastern Bloc countries, (UX No 309). One Italian Interactive reseller claims that for every legitimate copy of Interactive Unix installed in Italy, there are between five and ten others illegally installed. "Given those numbers we've probably got a million copies installed," said Miller.

TECHNICAL PROBLEMS, CHIP SHORTAGES COMPOUND PROBLEMS AT CONCURRENT

Concurrent Computer Corp has run into problems that have delayed the debut of a new real-time Unix release, according to a report in Electronic News. The company, currently experiencing financial difficulties after losses over the last two quarters - a \$9.9m loss on turnover that declined 20% to \$70m for its first quarter this year - has reportedly had difficulties adapting the operating system to the Mips R3000 RISC-based Series 8000 systems it announced last February (UX No 268). And the company - along with many others - has also been hit by delayed deliveries of the Motorola 68040. Last week Concurrent announced its new 7000 Series of 68040 VMEbus multi-processors, offering a claimed 60 MIPS performance with an entry-level price of \$14,500, aimed at signal processing, simulation and on-line transaction processing applications. But Electronic News reports that initial shipments might need to be restricted to uniprocessor versions because of the chip shortage. Both the 7000 and 8000 Series rely on the new operating system to achieve full specified performance, and this now seems unlikely to appear as a full release until the first quarter of next year. The paper reports that Concurrent has sold 20 Risc-based Series 8000 machines since shipments started in April.

INTEL: "CHEAPO 80486 WITH NO MATHS CO-PROCESSOR"

Looking for a way to drive its dominant microprocessor family even harder, Intel Corp is working on a cut-down version of the 80486 for launch next year. Unlike the 80386SX, which is a 16-bit bus version of the 80386, the new part will be a full 32-bit processor, but will dispense with the on-chip arithmetic co-processor, making it more or less equivalent to a fast 80386 with 8K-bytes of on-board cache, Computer Reseller News reports. The part will be priced to enable designers to build significantly cheaper 80486 machines - in the \$3,000 to \$4,000 price range - that will still outperform 80386 machines by 30% to 40%. The move will also help Intel to keep one step ahead of the emerging competition led by Advanced Micro Devices Inc that is working on reverse-engineered versions of the 80386, by making that chip look like an obsolescent part. The chip is expected to surface in the first half of next year, initially in a version with a 20MHz clock.

AMDAHL "SETTLES ON MIPS RISC FOR

DEVELOPMENT PROJECT"

Amdahl Corp, which had been weighing the Risc architectures from Mips Computer Systems Inc and Sun Microsystems Inc as the basis of a scientific Unix machine that would use some of the technology from the failed Key Computer Laboratories project, (UX No 309), has reportedly underlined its independence from its 46% shareholder Fujitsu Ltd by settling on the Mips R-series Riscs. Mips' John Mashey, vice president of systems technology, says that Amdahl "has certainly been talking to folks," but declined to comment further. There are suggestions that the chips will be used in a machine that incorporates the input-output architecture developed for the Key supercomputer, and maybe its bus structure, Electronic News hears. Fujitsu fabricates the rival Sun Sparc microprocessor.

INTERGRAPH MAKES A \$14m OFFER FOR DAISY'S ASSETS

Daisy Systems Corp was beginning to look as if it had no future at all when no buyer for the business appeared after it filed for Chapter 11 bankruptcy protection, but Intergraph Corp has made an eleventh hour offer of \$14m for the assets of the computer-aided engineering software developer. Intergraph signed a letter of intent to pay \$10m in cash and \$4m in shares, and entered a deposit of \$1m, and the offer was due to be examined by the bankruptcy court in San Jose last week. It had been thought that Suez Partners of Paris would make a firm offer for the company, but Intergraph's bid is seen as the most serious offer to date. The existence of the bid was turned up in court papers, and Intergraph declined to elaborate or say whether the bid was for all the assets, which consist of Daisy Systems in Sunnysvale, Cadnetix in Boulder, Colorado, and the design centre and European operations, which are headquartered in Israel. Although the move would take Intergraph into electronic design automation in a big way, it raises key questions about the company's future product strategy, because the Huntsville, Alabama firm builds all its workstations around its own Clipper Risc chip, and has committed to the Open Software Foundation's OSF/1 Unix, while most of Daisy's software is written for Sun Microsystems workstations - versions for the Sparc are almost ready - and Sun is a member of Unix International Inc.

HOW THE SPARC-COMPATIBLE HARDWARE INDUSTRY COULD EVEN NOW FAIL TO IGNITE

The rush to produce commodity hardware based on the Sparc architecture evident at Comdex - and there are lots more companies out there still waiting to announce, according to industry sources - brings a whole new problem area into focus: how will the machines get to market? Maureen O'Gara investigates.

The name of the game in Unix right now is distribution - or it ought to be if it's going to merit all the money being spent on it. At Comdex, the archetypal distribution venue, a brand new contingent of hardware vendors arrived, the low-end Sparc cloners. These are predominantly low-profile Far Eastern firms with a history of quiet OEM PC production and a determination to finally make a name for themselves in the "Big Apple", the vaunted American marketplace. None of them are dependent on Sparcs for this strategic breakthrough, but part of their formula is to wrap themselves in the Unix banner - partially perhaps, out of a growing distaste for Intel - and ride to glory if it pans out.

Toothless

As Unix suppliers, however, the cloners appear at first blush to be a toothless lot. Maybe it's their rush to market. But almost to a man - and by their own statements - none of them has a clue how to get the machines through the sales channels. Most of them have no pre-existing distribution in the US. Their initial Sparc products add no value other than price cutting. Support is non-existent. And their marketeers are back home, not in the US. Take Chicony, for example, a \$30M keyboards and portables maker: its Sparcette, the 1025, hasn't passed Federal Communications Commission approval yet, is expected to be in volume production in January, has its marketing department (what the company calls its futures department) back in Taiwan, and says it has no idea who its distributors will be or whether it will use OEMs, VARs or both.

DataTech Enterprises or, in its US/European guise, DTK Computer, a \$200M maker of motherboards, add-on cards and PC clones, also out of Taiwan, is another. The company has two Sparc models: one using the 12.5 MIPS LSI 20MHz chipset and an Sbus; another using the 15.8 MIPS Cypress 25MHz chip and a VME bus. Otherwise they're pretty much the same. DTK is expecting volumes on the first box in the late second or early third quarter; third quarter for the VME model. Like most of the others, volumes here seem to depend on demand, but there's an increasing apprehension among observers that there may turn out to be more suppliers than customers. DTK has some vague notions of approaching OEM and dealer channels, but where it thinks it will really score is by piggybacking on Sun's existing VARs. Unfortunately, this course may not exactly square with what Sun and its new US technical distributor Access Graphics have in mind.

Tatung, of course, has a bigger name and at least managed to get a full-blown press release out on the fact that it's entered the Sparc market, a hurdle most of the others failed to jump. It even has a published price point, \$7000. But inside sources say Tatung has to resolve some internal politics before it gets its Sparcette off the ground. Tatung is divided into two subsidiaries in the States, each run by a son-in-law of the chairman. Tatung Science & Technology (TSTI) is bringing out the LSI/Opus Sparc, which it calls the TWS-5020, and is also responsible for developing the VME-based unit the company previewed at Comdex last year.

However the TWS-7000 or VARstation I (UX No 258), has yet to come to market and no date has been set for it. TSTI unfortunately has no real marketing capabilities. Its sister unit, Tatung Company of America (TUS), has - along with some comprehension that there's probably no money in selling Sparcettes through the average PC channel rather than the 2,000 VARs it judges to be capable. Early on TUS reportedly had an LSI/Opus-based Sparc effort of its own afoot, but was told to back off. ~~complaints were heard from [redacted] it's involved in the [redacted]~~

Giant Hyundai isn't set up to bring its Sparcettes into the US either, and says the systems integrators and VARs needed to move the product are different from its current base. It's taking a more pragmatic stance, saying that it's more likely to sell its SS1s and SS2s Sparcettes in its domestic Korean market. Sampo too, as we reported last week (UX No 309), has no business plan and is just trolling the waters seeing if it should start now or shelve the product for a while. Twinhead, however, is being more aggressive, even though its top Sparc marketing and R&D people are back in Taiwan. It hopes its ace in the hole is the fact that its US sales force is American. Twinhead is a \$120M company with 800 employees manufacturing PC clones. It reckons its first task is to take its TwinStation 1 to OEMs, estimating it will do 10,000 units in the first 12 months after volume production begins in the second quarter, and doubling the year after that. It's got a diskless colour entry-level machine at around \$5000 to \$6000 and one with a 200MB drive for \$1000 more. Like its colleagues, it figures to move up-market in short order, and is evaluating both LSI and Cypress 25MHz and 40MHz chips.

Mass marketeers

Among the Americans, Northgate didn't bother to turn up at Comdex with its OmiSparc workstation, apparently because it's not really ready. Northgate has proved impossible to reach by phone, so it's hard to gauge the impact Northgate's current fiscal woes, a third-quarter \$1.9M loss, and its resultant decision to change presidents and close down its six-month old direct sales force in favour of pure telemarketing will have on its nascent Unix effort. However, industry analysts are sceptical of Northgate's clout as a Unix vendor. The other US mass marketer involved is CompuAdd, which currently looks to have the strongest profile. Its SS-1 is offered in three configurations: the entry-level, priced at \$5995, is diskless with 8MB internal and a 19" monochrome screen, the second at \$8695 comes with a 16" colour screen, a 210MB SCSI drive and a 3.5" floppy, the third at \$9595 simply substitutes a 19" colour monitor. The \$400M-a-year company, by its own account the largest direct seller of PC equipment and owner of some 89 retail stores, will offer a 30-day money-back guarantee, free on-site service for a year and free technical support for the life of the product. Shipments of the boxes, which CompuAdd will make itself, start in the first quarter backed by an Advanced Systems Group it's formed to sell and support the machines. We'll have to ask them how they did at Comdex.

TEKTRONIX SAYS "DON'T PANIC" - OFFERS THREE YEAR WORKSTATION SUPPORT, NEW X-TERMINALS SOON

Martin Jowett, marketing manager of Tektronix UK Ltd's visual systems group, says that only three UK employees are directly affected by the US parent company's decision to put its workstation division on the block, (UX No 304) - he hopes that all can be found other positions within the company. A buyer for the stricken workstation division is unlikely to be found at this stage, though Jowett says negotiations are continuing. Tektronix's message to its remaining employees and customers is "don't panic." Tektronix will be offering a minimum of three years support for workstation hardware, and will continue with software enhancements for the next twelve months, though the planned transition from its Unix V.3-based operating system software to Unix V.4 has been axed. The company is re-directing efforts into developing its X-terminal products. The recently launched TekXpress colour family, (UX No 291), will likely be extended with models based upon the Motorola 68040, and low-cost X-terminals will emerge around the \$1,000 mark - though no lower says Jowett - anticipating future X-terminal products from other manufacturers that are likely to break the \$500 barrier. As far as Risc goes, Jowett says the firm is looking at Intel and Advanced Micro Devices technology - in addition to the Motorola 88000 which it used in its workstation range. Tektronix is also ready with new models that incorporate touchscreen technology - developed in conjunction with one of its US value-added resellers - that will be announced soon. The attempt to diversify products is currently pre-occupying many of the plethora of X-terminal developers struggling for a foothold in the crowded marketplace, and one of the latest innovations is to attach disk subsystems to the back of X-terminals via SCSI interfaces and run Unix on the box. Although no-one has yet announced a product like this, many firms - Tektronix included - are doing internal feasibility studies of this technology.

MICRO FOCUS SETS VERSION OF COBOL/2 FOR UNIX V.4

Micro Focus Plc will have a version of its Cobol/2 available next month for Unix System V.4 and for Santa Cruz Operation Inc's System V.386. Cobol/2 1.2 for the 80386 will be \$3,000 but prices for other hardware will be up to OEM customers.

MARC SOFTWARE's Composer+ GOES TO PROGRAMMED INTELLIGENCE

Programmed Intelligence, Atlanta, Georgia, has acquired Palo Alto, California-based Marc Software International's word processing division, forming Wordmarc International, which will stay in Palo Alto. Developed by Marc Software, Composer+ is a word processing package for Unix, VAX/VMS and MS-DOS platforms. The idea is to combine it with the data retrieval functions of Programmed Intelligence's Intelligent Query database report writer and query tool, enabling word processing documents to be created with data from a variety of databases.

DEC TREADS THE WORN PATH INTO THE SYSTEMS INTEGRATION BUSINESS...

DEC has been hiring staff and capitalising on internal expertise in preparation for the unbundling of its professional services and building systems integration skills, according to Computer Systems News. Unlike IBM which provides systems integration through third parties, DEC believes that in-house expertise will enable it to cut discounts and tackle larger contracts. It recently acquired the Financial Systems Division of Data Logic which specialises in information distribution systems for financial dealing rooms. Systems integration represents a mere 4% of DEC's total revenues, but the company says - along with every minicomputer vendor - that the business is crucial for stability.

...AS ORACLE CUTS BACK

Meanwhile Oracle's commercial systems integration business, Oracle Complex Systems Corp appears to have hit difficulties. According to Computer Systems News, the head of Complex Systems, Bill Stevens, has been replaced by George Dreyer, who was previously vice-president of federal systems in the subsidiary. Staffing levels at the unit are to be reduced by 15%.

UK JOINT VENTURE IS FIRST TO DELIVER CCITT 1988-COMPLIANT X.400 SYSTEM

Secure Information Systems Ltd, the joint venture between British Telecom and SD-Scicon, reckons it has stolen the march over rivals such as Retix Corp, OSIware and Touch Communications with the launch of the first X.400 messaging and electronic mail system to conform to the CCITT 1988 standard, an integral part of the CCITT's GOSIP 3.1 Open Systems Interconnection profile. While most companies are said to be some 18 months away from being in a position to offer the latest X.400 standard, SISL claims that it will have its Open 400 product up and running on an OEM's hardware within three months of signing the order. X.400 88 is substantially different from the 84 version, which failed to include such essential items as a message store and distribution lists, and only had primitive addressing and security facilities, without encryption or non-repudiation options. Subsequently, manufacturers were forced to add those features themselves, and each implemented them in a proprietary way. SISL, a late entry into the X.400 market, says that it does not have the millstone of X.400 88 developments behind it and therefore has a commanding lead. The company is initially aiming at major OEM deals, and sales and marketing manager Roger Marshallsay is off to the US next week to talk to five system vendors about the product. The new version, says Marshallsay, will be essential for vendors responding to government procurements both at home and abroad, as it is part of the UK and US GOSIP profiles - and SISL says it can offer OEMs a special deal by throwing in its existing Secure X.400 implementation, which will also be X.400 88 compliant by next September. Open 400 includes interfaces to allow OEMs to add value, especially in such areas as adding a user interface to X Windows, Uniplex or other products.

Electronic Data Interchange

Marshallsay predicts that, despite the slow take-up of OSI by commercial companies to date, and the lip-service paid to it by many hardware manufacturers, OSI has now reached its critical mass, and demand will explode over the next few years. The X.400 market itself is set to grow by a factor of three over the next four years, so that around 15,000 computers and 500,000 PCs will use it for communications by 1994 - with X.400 88 remaining the basis of the technology, despite a planned further standards revision in 1992. But Marshallsay predicts that the big boost in X.400 will come in the form of electronic data interchange rather than simple messaging. A new user agent for EDI over X.400, called PEDI (protocol for EDI) is currently being specified for introduction next year, and the European Commission is working hard to get European agreement over EDI standards through its TEDIS programme.

MIPS REMAINS TIGHT-LIPPED ON OS/2

by William Fellows

John Mashey, Mips Computer Systems' vice president of systems technology was in the UK last week - first stop on a round-the-world mission to spread the gospel according to Mips. The acknowledged trouble-shooter and jack-of-all-trades at the Sunnyvale, California-based chip-developer brought with him missives on the struggle for ECL, the imminent arrival of the R4000, the end of the big endian/little endian schism and the direction of SPEC - as well as teasers on the speculation of an OS/2 implementation.

Mips' R6000 ECL Risc project has been dogged by problems to the extent that DEC killed its plans to introduce R6000 versions of its DECstation Ultrix workstations at the end of the summer, (UX No 296). Mashey is confident that the future of the processor is now assured - although the failure to produce good parts put the whole project in jeopardy during the summer - "it was touch and go," he says. Indeed the Sunnyvale, California-based company has hundreds of thousands of pounds worth of machines lying around now, waiting for the CPU element in the three-chip set to arrive - the floating-point and cache elements have been in place for some time now.

Mips' next generation CMOS part - the R4000 - will be revealed "pretty soon," says Mashey. Initially it'll be positioned at the high-end of the market and become a building block for "monster multi-processing" machines - when a single chip implementation arrives - and embedded systems, but will gradually replace the R3000 at the low end. Likely to fall in the 40 MIPS-50 MIPS performance range it is positioned just above Sun Microsystems' Sparc chip, but will see action in low-end mass-market machines he says. Although Sun has a twelve month lead over Mips at the low-end, according to Mashey, Mips looks to be gearing up for a concerted assault at both the high-end and low-end with its new parts, plus those re-worked versions of the older R3000 from the likes of Integrated Device Technology and Performance Semiconductor - see opposite - which will be hitting the market soon.

Both the R6000 and R4000 - indeed all subsequent Mips parts - will incorporate the switch implemented in the R3000A, (UX No 304), which allows applications to run on machines configured in either big-endian or little-endian byte order without the need for re-compilation. Silicon Graphics, Bull, Control Data and others have all contributed - informally - to the design of the Mips processors: Silicon Graphics has concentrated on multi-processing features whilst Bull has worked on ensuring adherence to X/Open's XPG standard. 70% of the company's revenue now comes from systems sales, the other 30% is derived from its bevy of licensing deals, and there are reckoned to be around 600 systems installed in the UK, according to Mips UK's Steve Bailey.

Mashey - a founder member of the Systems Performance Evaluation Cooperative - says that SPEC's benchmark tests will be formally separated into integer and floating-point performance ratings following the demands of member companies. The multi-processing and input/output test suites the Cooperative is working on will be available during the second quarter of next year, although most SPEC companies have already put systems through their paces in these tests he says.

Mips is keeping the industry guessing about Microsoft Corp's much-mouthered plan to do a version of OS/2 for its processor - or whether Compaq Computer Corp, or indeed any of the other players with undeclared Risc intentions like Tandy Corp and Ing C Olivetti & Co SpA will sign up for its technology. Microsoft would likely be interested in doing an OS/2 port if Mips - or anyone else - can put together a system that will compete with Intel 80386 and 80486-based platforms in price.

BRITE LITE SPARC LAPTOP ATTRACTS ATTENTION FROM XEROX...

In case we weren't perfectly clear last issue, the version of the RDI Sparc-based Brite Lite laptop that Sun will co-market will be different from all the others that are made: to overcome any resistance attributable to the ever virulent Not-Invented-Here Syndrome, Sun's will use its own IPC mother board rather than the one laid out by RDI and its partner TriGem. Meanwhile we hear that in addition to Sun and possibly Solbourne, where the TriGem people made a sales call last week, the Unix/DOS/Mac-running laptop is also attracting some attention from Xerox, another Sparc reseller.

...WILL BE SHOWN RUNNING MAC "IN A FEW WEEKS" ...

RDI did not however show Brite Lite running Mac programs at Comdex. Company president Rick Schrameck said that's because he didn't want to dampen any of the enthusiasm generated by the simple fact of a Sparc laptop (not to mention any of the distracting behind-the-scenes rigmarole with Sun which agreed to co-market the thing right before the show started and was also showing it). It's not because the thing doesn't work, or because RDI is concerned Apple, famous for being fast with a lawyer, will take any legal action. Brite Lite runs Mac programs via software emulation which Schrameck says is perfectly legal. He declines to say where he got it from but Brite Lite's DOS emulator comes from Insignia Solution. Brite Lite running Mac is supposed to be shown in a few weeks.

...WHILST GOLDSTAR FRETS OVER BUGS IN THE SPARCKIT

Goldstar, one of the early access clients of LSI Logic and Opus for the pair's instant Sparc clone kits, is concerned that bugs in the 25MHz/18 MIPS chip set may impair its upward migration path. News of the bugs, which came to Goldstar's attention in the last month, had the Korean company skuttling around to all the other Sparc makers looking for alternatives. Interviewed at Comdex, Goldstar also voiced scepticism that LSI will be able to deliver on its promise to produce an 80-MIPS CMOS Sparc chip, the "lightening" co-development project it has with Metaflow Technologies and Hyundai Electronics. Goldstar claims the dataflow technology the trio is using to do two instructions in a single cycle is like "eating dinner before you eat lunch". Goldstar's suspicions have caused it to seek out LSI competitors, Cypress and Texas Instruments, both of whom are also working on 80-MIPS Sparcs - Cypress under the code name Pinochle and TI under the name Viking. Contrary to LSI, both are using the alternative superscaler approach. Goldstar would like to avoid going to Fujitsu for silicon because it finds the Japanese difficult to deal with. LSI's Sparc Systems Division marketing director Prem Nath admits there are bugs in the 25MHz chip but says they are being worked around and that the chip runs Unix. They are nothing more than normal, he says, "nothing show stopping" and should be corrected in the next rev. Meanwhile, Lightening prototypes are due at the end of the second quarter.

RS/6000 IS IBM SUPERCOMPUTER DISK ARRAY CONTROLLER

IBM has now revealed a few more details of its second round of Supercomputing System Extensions for its new ES/9000s, (UX No 299), fitted with Vector Facilities, and it turns out that the High Performance Parallel Interface-attached Disk Array Subsystem is an array of 5.25" drives - IBM has not said which of its disks it is using - connected to the host via an RS/6000 RISC Unix box used as the controller. The Parallel Interface is the 800Mbps - 100 Megabytes per second - channel that was announced for Vector Facilitated mainframes in May last year, and make use of the Parallel Input-Output Access Method disk striping facility also announced at that time, which spreads logically contiguous data across several physical disks to speed access. The combination of the channel and the disk array will enable a data transfer rate of 50Mbytes-per-second, IBM claims. The new Supercomputing Visualisation Enhancement is also RISC-based and uses the fast channel to provide a high resolution image in about 10mS. IBM says that the new Extensions are really aimed at the next generation of supercomputing, implying that they will be part of IBM's contribution to the machines that Steve Chen's Supercomputer Systems Inc is developing in Eau Claire, Wisconsin - but are being made available to some customers with IBM's present generation Vector Facility - not least so that IBM can see how they work in practice. All of which means that prices are very elastic and there is no price list.

IBM RS/6000 Ada Announcements

IBM has picked up the Rational R1000 Series 300 co-processor and R1000 Series 300 Memory Expansion for marketing with the RS/6000: they come from Rational Inc in which IBM acquired an undisclosed equity stake earlier this year. A half-height bay contains the R1000 processor, memory and an 8mm tape drive. Designed for Ada software development, the co-processor communicates with the RS/6000 via TCP/IP and comes with with from 32Mb to 64Mb memory. The co-processor is \$84,000 - plus a \$4,500 installation charge - memory expansion costs \$32,000.

Rational X Interface

It supports Rational Environment, an integrated software engineering environment that automates the activities of software teams. Rational X Interface provides a method for accessing the Rational Environment from RS/6000s via the OSF/Motif-compatible AIXwindows. The Cadre Teamwork Interface integrates Teamwork - a software engineering tool running on the RS/6000 - with Rational Environment, and includes document generation, design rule checking, traceability and configuration management features. A Publishing Interface integrates Interleaf Technical Publishing Software products with Rational Environment. Documents generated by the Rational Design Facility tool are converted by the Publishing Interface into an Interleaf format for editing on the RS/6000. Rational Network Mail and Rational Network Mail Simple Mail Transfer Protocol Gateway provide for network data communication. Systems developed on the Rational R1000 can be tested and compiled on a variety of target computers using a range utilities. The Rational environment is available now for \$15,000.

Atherton's Ada Software Backplane, Project and Integration Softboard

Also in the Ada world, IBM is offering Software BackPlane, Project SoftBoard, Integration SoftBoard and Integration Modules, from Atherton Technology for the RS/6000. There are modules for integrating Software BackPlane with Interleaf TPS, the Verdix Ada Development System, and Cadre Teamwork. Software BackPlane is priced at \$4,000, Project SoftBoard costs \$2,250, Integration SoftBoard starts at \$5,000, Cadre Teamwork Tool Integration Module costs \$750 and Verdix VADS comes in at \$250 - the Interleaf TPS Tool Integration Module is out after Christmas.

MIPS CAMP SQUARES UP TO SPARC WITH NEW R3000 IMPLEMENTATIONS...

Following the launch of LSI Logic Corp's single-chip implementation of Mips Computer Systems' R3000 Risc processor last month, (UX No 305), other players are now lining up behind the part with products that are likely to drive the processor down into the low-cost, mass-market end of the Risc business, which Sun Microsystems' Sparc has been having much to itself recently. Backing Mips Computers' John Mashey's claim that the company is around a year behind Sun at the low-end of the market - see opposite - these new arrivals could spawn a rash of low-cost Mips-based systems and embedded applications over the next year or so, similar to the gaggle of Sparc-box builders that have entered the fray over the last few months.

A single-chip implementation of the R3000 combining a CPU, floating-point unit and cache memory in one module is expected to be revealed by Sunnyvale, California-based Performance Semiconductor Corp early next year. 25MHz, 35MHz and 40MHz versions of the package will go from \$600 to \$1,000 for quantities of 1,000-up. Performance claims its PIMM - Performance Integrated Multichip Module - puts the Mips architecture ahead of the integration and clock-cycle advances made by the Sparc-architecture camp.

Integrated Device Technology Inc, Santa Clara, California, has announced a Risc-based toolkit for designing embedded systems based upon Mips' R3000 part. The Real8 laser printer developer's toolkit includes an IDT7RS388 processor board which uses a 25MHz R3001. Printer board-makers will be able to speed-up Postscript-compatible graphics output by up to 10 times it is claimed. Resulting printer boards could be out early next year for around \$300, the toolkit ships in February for \$3,000. IDT is also offering a board-level Mips solution, the R3501/52, with on-chip caches, prices for which fall as low as \$30 in large quantities.

And NEC Corp has launched a faster version of the R3000: the company claims its VR3000 delivers 32 MIPS compared with 26.4 MIPS for the version launched in July. Samples cost \$770 apiece. NEC is to follow up with the VR4000 in April and the superscalar ECL VR6000 in July.

...AS FUJITSU FIGHTS BACK WITH EMBEDDED SPARCLITE

Meanwhile over in the Sparc camp, Sun's Far East chip-partner Fujitsu, through its San Jose, California-based Microelectronics Advanced Product Division, has announced the Sparclite family of Sparcs for an assault the embedded systems market. First in the line is the tightly-coupled MB86930. Sampling in the first quarter of next year and shipping during the autumn, it is manufactured in 0.8 micron CMOS technology. There are 20MHz, 30MHz and 40MHz versions with performance going from 20 MIPS to 37 MIPS. Development tools for the part - including software emulators and debuggers for Sun hosts and personal computers from Microtec Research Inc, a hardware emulator from Step Engineering and real-time operating systems from Wind River Systems, JMI and Flame Computer - are expected by the middle of next year. With the LSI Logic and IDT implementations of the Mips processor - see above - as well Sparcs from LSI and Cypress, not to mention the Philips' effort, Intel Corp's 80960 and Advanced Micro Devices' Am29000, it is clear that Fujitsu is not going to have a smooth passage even with this new part. However, though the raft of embedded suppliers looks to be reaching capacity there is little danger of capsizing as analysts believe the embedded market could be even more lucrative than the workstation market in the long-run. Scottsdale, Arizona-based InStat Inc forecasts the embedded Risc market to be worth \$248m out of an embedded systems market worth a total of \$6.32bn by 1994. Fujitsu Sparclite goes from under \$50 for quantities of 1,000-up.

MIPS COMPUTER'S SUCCESS IN JAPAN CHARTS THE ROUTE FOR OTHER US, EUROPEAN COMPANIES

Japan has been a key element in the successful international strategy of fast-growing MIPS Computer Systems Inc over the last few years. Although not all apparently believe that the MIPS strategy is appropriate for an American company in these days of semiconductor trade friction, the tightly focussed MIPS can point to the strength of its relationships with Japan's top companies - and the revenue from Japan - as proof of its success. Recently Anita Byrnes had the opportunity to interview the country sales manager for Japan and a director of MIPS Computer Systems Japan KK, Tom Laux, who is the bicultural Californian who started the company in Japan.

When Tom Laux became country sales manager for Japan - he is now also a director of MIPS Computer Systems Japan KK - he ran it from his house for a few months. That was a little over two short years ago, but it is now a company with 30 staff in Japan, contributing a considerable slice of the Sunnyvale, California parent, MIPS Computer Systems Inc's international revenue - and 50% of MIPS total revenue of \$102m last financial year came from outside the US. In 1988 MIPS was dealing through a distributor in Japan, Marubeni Electronics, and Japan was contributing around \$1m of its \$12m total turnover, when Bob Miller, now chief executive, joined MIPS and took the bold step of sharply refocussing the company as a "technology company" with a very strong international perspective. It was at that point that MIPS devised its vision of itself as a two-sided company with a technology and a systems arm, and set about acquiring its "Semiconductor Partners", one in Europe and one in Japan, as well as the three companies in the US. A wholly owned subsidiary was set up in Japan - a bold step considering the cost - MIPS Computer Systems KK's paid up capital is 75 million yen - \$550,000 in today's money, and Laux went about recruiting staff, starting with a customer support manager.

NEC came through

The managing director of the company is Mr Yasuhiro Nakagawa. NEC Corp was the company that came through with the quickest decision to become a MIPS Semiconductor Partner - NEC in 1988 had just released its complex instruction set microprocessor-based 4800EWS workstation, a late entry to the workstations market, and apparently recognised that it needed an edge if it was to gain market share. The head of the Semiconductor Division Dr Sasaki, a "man of vision", was the driving force behind the decision. NEC is now one of the five companies licensed to receive mask-level data and authorised and obliged to make pin-compatible MIPS R2000 and R3000 CMOS chips. NEC, along with Sony Corp, is also a Semiconductor Partner for the R6000 ECL chip. A number of other Japanese major manufacturers have figured in MIPS success. Toshiba Corp is an Architecture Licensee - meaning that it is licensed to receive the schematics and a certain amount of general information about the MIPS RISC chips, giving it in effect the right to reverse engineer the chip, but more importantly to use MIPS Computer's optimised RISCCompilers. Design wins have included Sony (RISC NEWS workstation); the workstation division of NEC (EWS 4800 Models 220 and 260); Sumitomo Electric Industry Co, a subsidiary of Sumitomo Corp (its SP-200 workstation and a new R-3000-based machine) and Brother Industries Inc.

A number of other major companies will be added to this list, but because of the 18 months to two years design time, they have yet to be announced. On the systems side Kubota Ltd, which has invested \$20m for a 17% stake in MIPS, manufactures MIPS systems at its plant in Yamanashi, through its subsidiary Kubota Computer Co, and according to Laux, has taken complete responsibility for manufacturing, as well as making OEM sales. The systems business and OEM sales of RISC systems make up 50% of MIPS Computer's revenue in Japan. For example Sony Corp recently became a MIPS Valued Partner and committed to an OEM agreement on the 55 MIPS 6280 high-end RISC machine, seeing its software compatibility with the RISC R3000-based NEWS as an opportunity to create server networks; and a number of other manufacturers are expected see the R6000 in similar light.

Critical in Japan

Key to MIPS' successful leveraging of manufacturers many times its size in Japan has been its positioning as a technology company willing to give a measure of control to its licensees. Tom Laux sees MIPS as the central research laboratory for its customers, with the customers looking after manufacturing, product quality, delivery, pre-and post-sales support - critical in Japan - and sales. Most European and American companies do not recognise that as a general rule, Japanese companies like to add value to a foreign product, understand it, make it their own; only then will they make the commitment to have their name on the product. This contrasts with the free and easy distributorship arrangements more common in the West. MIPS has also been distinguished by its flexible approach to the market - it sells the building blocks for systems at any level - from chips to boards to systems and software. One could add that, in cultural terms, too, having a bilingual person such as Laux committed to Japan, with an understanding both of the industry and the environment into which the company is moving, has been invaluable in making the right decisions over the past few years. Looking to the future, Laux sees that the relative balance of MIPS revenues will change from a 50-50 ratio to a 25% technology-75% systems ratio by 1994; that RISC use will expand into new fields - controllers for laser printers is one area where they are just beginning to be used, see pages 4 and 5 - but in the future he expects to see a range of other areas not necessarily directly computer-based; and that hybrid RISC applications and real-time Unix and embedded RISC will become more important through into the late 1990s.

COMMUNIC8 OFFERS VMS-TO-UNIX CONNECTIVITY SOFTWARE

Communicating and moving binary data between VAX/VMS and Unix systems is a lot more complicated than transferring simple ASCII text files between the two, but London-based Communic8 Migration Software Ltd - set-up in March this year - is now offering connectivity, file and data transfer software from Denver, Colorado-based Accelr8 Technology Corp and KI Research which it claims can do the job. KiNET allows Unix systems to operate as a fully-functioning node in a DECnet environment, it costs £2,000 for Sun Microsystems workstations, and £4,000 for an IBM RS/6000 implementation. Accelr8 - which provides a VMS command-line and all VMS utilities on Unix, and converts data files between the two environments costs £8,000 on Sun workstations and £10,000 on IBM's RS/6000. The software also runs on Data General's AViiON workstations, though no prices were available. There are already a couple of thousand users of the software in the UK according to Communic8's Keith Shipton, who says that banks, including Barclays, are particularly interested in the software for integrating their systems. Ki is due to launch an OS/2 version of its product this week.

JMI SETS SPARC VERSION OF REAL-TIME KERNEL...

Version 2.4 of Spring House, Pennsylvania-based JMI Software's C Executive real-time operating system kernel for embedded control applications can now be hosted on Sun Microsystems' Sparcstation 1 workstation and used to develop applications before downloading them on to Sparc-based embedded control boards. Existing C Executive customers using Cisc processors can move their applications on to the Sparc using this new version, which includes an optional MS-DOS-compatible file system - CE-DOSfile. C Executive is available in the UK from Real Time Systems Ltd, Douglas, Isel of Man, priced at £600, the DOS file system costs an extra £300. Versions for transputers, Intel's 80960 and the Motorola 88000 processors will be out soon.

...AS UNIPRESS LAUNCHES XView FOR DEC, IBM, HEWLETT UNIX BOXES

UniPress Software Inc is doing versions of Sun Microsystems' XView toolkit 2.0 for DECstations, IBM's RS/6000 and Hewlett-Packard's 9000/300 series. The ports will allow existing SunView and Open Look applications to be moved on to these platforms, SunView applications to be converted to Open Look, or all-new Open Look applications to be created. Delivered with XView 2.0 libraries, Open Look Window Manager and X11.4, a full licence for the software costs £6,000. A DECstation version is available now, an IBM RS/6000 port is out in January 1991 and the Hewlett edition follows in February.

ALR CHALLENGES COMPAQ WITH POWERPRO

Advanced Logic Research Inc, Irvine, California, has announced a multi-processor 33MHz 80486 EISA bus machine which will compete head-on with Compaq Computer Corp's Systempro - at around a third of the cost. A single processor Systempro, with 8Mb RAM, 240Mb drive and a floppy drive comes in at \$21,000, whilst a Powerpro with 17Mb RAM and 330Mb disk kicks in at \$15,000. Prices across the Powerpro range, which will can run Banyan Systems' Vines networking operating system and SCO's Corollary-derived multi-processing MPX, go from \$7,500 to \$24,500, and start shipping next month.

APPLE "READIES 68040 MACINTOSH" - IS SWAMPED WITH CLASSIC ORDERS

Now that Motorola is due to begin shipping good 68040 in volume this month, (UX No 307), US sources are saying Apple Computer is readying a Macintosh built around the part for delivery during the first half of next year. Apple's Risc machine under development in Cupertino, California, is likely being designed to run its A/UX Unix implementation, according to the same sources. Meanwhile the Macintosh Classic is proving too successful even for Apple's good, the Wall Street Journal reports - demand for the cheapest Mac ever is so strong that Stamford University, which ordered 295 in September has so far received only 12, while ComputerLand expects to receive at best 80% of its requirement by year-end; many other dealers have no stock and are howling that the dearth will wreck their fourth quarter business. Apple is making the thing in two shifts at its plant in Singapore and pulling out all the stops to increase supply and meet demand - manufacturing capacity has been upped by 40% since before the launch. It will go to three shifts next month and make it in Cork as well - the company is expected to sell 225,000 Classics this quarter but could have sold some 75,000 more.

AT&T PULLS C++ DEVELOPERS INTO RESELLER ALLIANCE...

The C++ Reseller Alliance has been formed by 16 firms to promote products developed using AT&T's C++ language - the group aims to encourage the unified development of object-orientated programming techniques, and is to advise AT&T's Unix System Laboratories. Besides AT&T, members include Apple, NCR, Glockenspiel, Santa Cruz Operation, Sun Microsystems, Solbourne Computer, Saber Software and Imagesoft. Any hardware or software vendor licensing or distributing AT&T's C++ can join the alliance - there are no membership fees.

...AS CODE FARMS LAUNCHES Organised C++
Canadian software house Code Farms Ltd, Ottawa, has a new C++ tool dubbed Organised C++, an extension of its Organised C software, which enables developers to define, build, use and maintain persistent data objects via Data Manager, Intelligent Database and library modules. It runs on Unix workstations, VAX/VMS machines and personal computers, and works with the major Unix C++ compilers, as well as the Zortech and Borland C++ compilers for personal computers. Prices go from \$75 to \$1,745.

AT&T LOOKS FOR DISTRIBUTORS - DEC DISTRIBUTOR REPORTS LOSS

AT&T Co's Computer Systems Division is reportedly ready to sign agreements with several national chains of computer system distributors in the US - including Computer Bay. Meanwhile, Merisel Inc of Marlboro, Massachusetts - the result of a merger between PC distributors Softsel Computer Products Inc and Microamerica Inc, and a recent convert to Unix systems with the DEC RISC line (UX No 290) - has reported third quarter losses of \$1.3 million on turnover of \$306 million. But the losses are blamed on merger expenses, and the company hopes to back in profit by the next quarter.

SIMPACT FRONT-ENDS FOR CONCURRENT'S UNIX MACHINES

The Masscomp end of Concurrent Computer Corp in Westford, Massachusetts has turned to Simpack Associates Inc, San Diego, California for front-end communications processors for its 5000 and 6000 Series real-time Unix multiprocessors, inviting Simpack to offer its products to the VMEbus-based machines. The Simpack Intelligent Communications Processors are built around the Motorola 68020, and include the VCI 300, VCI 2000 X25, VCI 3000 HDLC, VCI 4000 ADCCP NRM, VCI 4200/ADCCP ABM, VCI 8000/DDCMP, VCI 151001/MarketFeed 2000 Receiver, and VCI 15300/MarketFeed Receiver. The multi-port devices are programmable front-end processors that off-load communications processing from the host CPU, freeing it to perform more time-critical applications, Concurrent Computer said.

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Look for new models in Hewlett-Packard's mid-range 9000 Series 800 PA Risc Unix minicomputers due at the beginning of December.

ACT Logsys Ltd, Birmingham; Siemens Nixdorf Information Systems Ltd, Bracknell, Berkshire, and OSI Services Ltd have teamed up to work on providing systems solutions for major computer procurement projects: the group has already been selected as part of a consortium with Coopers & Lybrand Deloitte to bid for the Department of Social Security and Employment Services Group's Strategic Terminal Access Project.

Dublin, Ireland-based Business Automation Ltd, has been appointed by Informix as a distributor for its range of database products.

Ultimate UK Ltd, Watford, Hertfordshire supported by Northdoor Systems Ltd, has won a contract to supply IBM RS/6000 workstations valued at £500,000 to London-based Bankside Underwriting Agency insurance firm, which will be networked to the firm's existing AS/400 systems.

Para Systems Inc, Carrollton, Texas, has introduced software called Network Manager U/X by Minuteman - which allows workstations and personal computers running Unix to interface with its Minuteman uninterruptible power supplies: the package monitors incoming AC power, detects when it is interrupted and brings in alternative power supplies, notifies the user of the need to vacate the system due to battery exhaustion - or initiates shutdown automatically - it costs \$140.

Japanese Unix distributor Air Company Ltd, and MS-DOS-to-Unix connectivity specialist Hunter Systems, Palo Alto, California, have released Unix versions of Kanji-based MS-DOS applications, including Ashton Tate's dBASE III Plus and Kanri-Kogaku's Matu Kanji word processor: they available on Hitachi, NEC, Sony and Omron Unix platforms - Air's Californian affiliate is Twin Sun Inc.

Applied Reasoning Corp is offering its PC-Elevator 386 DOS co-processor for Hewlett-Packard's 9000 Series 400 workstations, giving users access to personal computer applications running under HP-UX: it costs \$2,000 from January next year.

IBES Corp, Richardson, Texas, has released version 4 of its Unix business software for integrating financial, distribution and manufacturing information: available from December on a range of Unix platforms, prices start at \$2,750.

Hewlett-Packard Co has won a \$15m contract to supply the Singapore Stock Exchange with 1,600 Unix workstations which will replace existing personal computers: there will be several hundred clusters, with HP Apollo 9000 Model 425ts serving similar diskless models.

Uniteq Application Systems Inc, Santa Clara, California, has some new Unix-based process manufacturing software due for release early next year, which should bring some portability and distributed features to an overwhelmingly proprietary manufacturing industry says the firm: Uniteq has already signed with IBM and Hewlett-Packard which will distribute the software - first modules support inventory management, transportation, warehousing, distribution tasks and prices start at \$20,000.

According to IXI Ltd's managing director Ray Anderson, new and established software outfits are now working on X-Windows software designed specifically for the time when large networks of X-terminal users are up and running. These are not simply X re-writes of existing applications. Groupware X applications will interact with those running in other windows, indeed IXI is itself working on new interface technology for users on X networks - help and find facilities - enabling applications, data and other interface features and functions to be quickly located across a network. Version 3.0 of IXI's flagship X.Desktop graphical user interface software will be launched early next year.

Mountain View, California-based IntelliCorp Inc's ProKappa software development system is being released on Hewlett-Packard Co's HP 9000 workstation family: ProKappa is written in C, runs under X-Windows and OSF/Motif - a run-time version is out in January 1991 priced at \$2,500, the development system soon after - priced at \$14,450 - and both are also available on Sun Microsystems Inc workstations, so developers can create applications now and migrate them to Hewlett-Packard kit.

Bantam Electronic Publishing and Borland International Inc have agreed that Bantam will publish a line of Borland-endorsed Turbo Toolboxes that support Borland's Turbo Language software; the packages are designed to work with Borland's Turbo Pascal and Turbo C++ compilers; the Toolboxes will be object-oriented and topics to be covered include object-oriented graphics class libraries, asynchronous communications support tools, a text-editing library and analysis routines; costing around \$60, the first publication will be in the second quarter next year.

Silicon Graphics Inc is opening another European subsidiary, and following the lead of several US multinationals by establishing a Spanish subsidiary: over the past few months it has established a network of distributors, and sees first year revenues of \$3m; it will market the Iris range of workstations which are from \$20,000 to \$833,000.

The prospect of having to make lay-offs for the first time in its history looms larger at DEC as the Maynard minimaker announces that its factory in Phoenix, Arizona is to close at a cost over some 475 jobs: all told, DEC wants to end the fiscal year with 5,000 to 6,000 fewer people than it started with; it currently employs some 123,000.

WordPerfect says it'll ship the rendition it's putting together for NeXT boxes this quarter: It supposedly has features comparable with WordPerfect 5.0 yet takes full advantage of the NeXTstep GUI.

Old Quantel Business Systems, which - believe it or not - after all these years and changes of fortune is still alive and kicking, has made a grudging concession to this new-fangled open-systems fad: a compiler will now reportedly allow the software developed for its proprietary hardware, particularly its manufacturing/distribution packages, to run on SCO Xenix and Unix. The company says it's not abandoning its proprietary architecture, merely supplementing it.

How's this for a change of tactics: Dux, the Unix software newcomer, will be peddling a line of Unix entertainment software, starting with a little number called "Ishido, The Way of Stones", an ancient oriental strategy game that also brings "I Ching", the old Chinese divination book into play. Already available on PCs and Macs, now for \$99 we can fool around with it on our Sparc machines under Open Look complete with sound. Meanwhile, Dux has integrated Quintet, its wp/spreadsheet/database/graph/comms packages for Sparcs, with a new DOS version of the product, allowing a user working remotely on a PC to dynamically link with a Unix Sparcstation by phone or modem via PC-NFS. Quintet, developed by the originator of Supercalc and dBase, will soon have to change its name to Sextet - they're adding a sixth module, Presentation.

Famous last words... Writing about the Unix Wars, the November issue of the UK's Open Systems magazine declares that Unix System Laboratories "is no more likely to be given a monopoly on Unix-based technology by its competitors than Sky Television is to be given a monopoly of satellite television by its rival BSB".

Micheal Heseltine, MP, currently embroiled in the battle to win the Tory party leadership battle and become the next Prime Minister, (UX No 295), found the time at the end of last month to address delegates at a Data General-sponsored open systems conference: he spoke of a politically changing world in which the barriers are being broken down, about monetary union and the ECU. Although the conference was also sponsored by The Daily Telegraph, it was apparently not impressed, and is backing Douglas Hurd as the man for the job at Number 10.

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APPLE, VLSI BACK ACORN'S RISC DESIGN IN NEW VENTURE...

Acorn Computers Plc's Acorn RISC Machine microprocessor is to be the foundation of a new chip design company backed by Apple Computer Inc and VLSI Technology Inc as well as Acorn. The new Advanced RISC Machines Ltd will be based in Cambridge, UK, and will exploit the fact that the Acorn RISC is considered just about the most cost-effective device available in terms of price-performance, power-performance and size. The company's first new processor, the ARM600 will be launched during 1991, and by 1996, the ARM700, 800 and 900 will be on the market. The company plans to market its parts through several channels including licences to manufacture, design services, catalogue product services - which ARM says includes ICL and Radius, although no product details have been released - and through licensed design services. The new company will initially be capitalised at £5m with Acorn - 80%-owned by Ing C Olivetti & Co SpA - and Apple taking equal shares, with Apple putting up cash and Acorn putting up cash and kind. VLSI Technology will put up cash for a much smaller stake, but the aim is to bring in other investors to take 35%, leaving Apple and Acorn with 30% each and VLSI with 5%. No immediate system-level product plans have been disclosed, though since Acorn is a graduate from the MOS Technology 6502 chip that was also the basis of the Apple II, there is the prospect for Apple of producing very cheap machines for the educational market capable of running both Apple II and Macintosh code using software or firmware emulators. Future designs will also be targeted at the major embedded control and notebook computer markets. ARM says that Philips Communications in Germany is looking to use the processor for embedded control purposes in video compression, and Acorn co-founder Dr Hermann Hauser's Active Book Company Ltd will use the ARM as the processor for its forthcoming notebook computer. Acorn claims that over 130,000 ARM chips have been shipped so far, and that the part's small size makes it ideal as a standard cell in applications-specific controller circuits. The company claims a price as low as \$1 per MIPS for the 20 MIPS version of the chip, and says that the VLSI Technology implementation delivers the equivalent of 100 MIPS per Watt. Radius Inc uses the ARM in its graphics accelerators for the Apple Macintosh, and the other licensed fabricator, Sanyo Electric Co is developing embedded controllers around the part. The new ARM Ltd design company plans to offer a complete custom service for special versions of the RISC family. Apple's interest in the Acorn RISC Machine first became an open secret two years ago, when it became known that Apple had included the chip on a list of RISCs it was weighing for future use. However the new agreement does not affect its plans to use the Motorola 88000 RISC in high-end workstations, Apple affirmed; it is likely to use the Acorn RISC Machine first in note book computers that could be launched as soon as first half of 1991.

...AS TENON PUTS MACH ON THE MAC

Tenon Intersystems, a year-old start-up, is putting Mach on the Mac, preserving the famous Apple interface and extending it to Unix programs. Tenon's software, dubbed MachTen and due out next quarter, runs as an application on the Mac's native operating system. The Santa Barbara, California-based firm says MachTen, based on BSD 4.3 and Mach 2.5, includes over 300 Unix programs and a Mach kernel that supports a standard Unix applications environment. That environment lets all standard Mac programs run simultaneously with Unix programs and reportedly gives the Mac true Unix multitasking, full internet communications and a distributed file system via NFS. Data files are stored in Mac-form so the Unix and Mac programs can share data. Tenon says MacTen will run on the whole Mac family provided the box has a minimum of 2Mb RAM and a 20Mb hard disk though 80Mb-100Mb are better. In the US, a two-user licence will go for \$595; an unlimited licence for \$835, but there will be no upgrade from one to the other. Technical documentation will cost \$280.

HEWLETT'S NEW RISC SERVERS

As expected, (UX No 310), Hewlett-Packard this week launches five new servers based upon its Precision Architecture Risc technology. There are three additions to its HP-UX Unix-based HP 9000 Series 800, and two in the proprietary MPE-based HP 3000 Series 900. The new Unix boxes are expected to triple existing performance, coming in at around 50 MIPS. There is a low-end Model 842S, the 852S - which, with up to 64Mb RAM is likely to come in at around \$150,000 - and the high-end 865S which starts at \$300,000. Hewlett is also announcing HP SwitchOver/UX for the 9000 Series, which is claimed to provide automatic switch over from a primary to a standby processor. New 3000 Series systems are the Models 948 and 958, with tags starting at \$20,000 per transaction per-second.

ENFIN LE MOTOROLA 68040...

Motorola Inc is satisfied that any remaining bugs in the latest version of the 68040 are livable with and last week began shipping the desperately late part in significant quantities to companies like NeXT Computer Inc and Hewlett-Packard Co that had been severely hurt by the lateness of the chip. Motorola is now able to ship several hundred 68040s a week, and says that will rise to a peak of 1,000 a week in January - but it doesn't expect to get supply into line with demand until the middle of 1991 - giving further ammunition to those manufacturers that argue that it is vital to have a second source manufacturer for crucial parts like the 68040. All told, Motorola says it is now expecting to ship 250,000 to 500,000 of the \$595 chip next year, and that 36 system and board manufacturers have announced their intention to use the part, with another 89 so far undeclared.

...ENABLING NEXT TO SHIP

Redwood City, California-based NeXT Computer Inc says that the arrival of significant numbers of 68040s from Motorola Inc has enabled it to start volume shipments of the new NeXTstation, which lists for \$5,000 for a system that includes floppy and hard disks and NeXTstep environment. It is also shipping the NeXTcube 68040-based version of its original cube-shaped machine, and 68040 boards to upgrade its installed base of 68030-based computers. Having stopped shipments of its original box in May, NeXT had nothing to sell as it waited for 68040s.

TEXAS AND FORCE DEVELOP PARALLEL, CACHE-COHERENT FUTUREBUS+ SILICON

Texas Instruments Inc and Force Computers Inc have teamed up to jointly develop a chip which implements the parallel protocol control cache coherency functions for the high-speed Futurebus+ standard. The PPC, parallel protocol controller, will bring multi-processing support to the Futurebus+, enabling parallel-processing, transaction-processing, multi-processing and fault-tolerant system designers to take full advantage of the new bus technology. Texas will manufacture the silicon which will be implemented in Force FCPU-4X Motorola 68040-based boards. The PPC also becomes part of Texas' TFB2000 Futurebus+ chip family as the TFB2002 and Texas will market it to other Futurebus+ board and system manufacturers. The PPC will also be fabricated by Philips Components-Signetics following its agreement with Texas last month, (UX No 305). Prototypes are expected by the end of next year with board-level production slated for 1992. The part is not restricted to use with the Motorola chip-set, and can interface with all kinds of processors. Force will begin supplying basic Futurebus+ boards to the US Navy - one of the prime movers of the Futurebus+ effort - in the third quarter of next year, where much of the testing will be carried out. Futurebus+ development has been held back by the lack and high-cost of silicon, plus the absence of a hard and fast set of standards to work to. However Texas and Force say that the IEEE P896.1 Futurebus+ definition is now complete, and by 1995 Texas expects Futurebus+ chip sets to be competing favourably with other bus architectures with a 32-bit implementation for low-end personal computers and workstations costing around \$125, and a 64-bit set, with a data transfer rate of 3.2Gb per second for high-end graphics workstations priced at around \$175. Force's 68040-based VME board, the CPU-4X, ships from January next year and will be upgradeable to the Futurebus+ version: it says alliances with systems manufacturers for Futurebus+ are already in place, but declined to name those companies involved.

GEC-MARCONI SOFTWARE TO MARKET ATHERTON'S PROJECT SUPPORT ENVIRONMENT IN EUROPE

Sunnyvale, California-based Atherton Technology's integrated project support environment is to be marketed in Europe by GEC-Marconi Software Systems, Borehamwood, Hertfordshire. Atherton's Software Backplane - a repository and services for linking computer-aided software engineering - CASE - tools, data and methodologies - and SoftBoard, a series of software development applications, run on IBM's RS/6000, Sun Microsystems' Sun-3 and Sun-4 Sparc systems and DEC's VMS and Ultrix platforms. GEC-Marconi Software's director Keith Wilman says the company has been working with Atherton's project environment since March of this year - it already sells IBM-based and other CASE solutions in the UK. Although Atherton's president Arthur Goldberg believes that integration and project management tools will become increasingly important across the board as demand for, and investment in software development continues to outstrip resources available to do the job, he is looking in particular to the real-time CASE market where recent studies by London-based analyst Ovum Ltd suggest that integration efforts will grow to become the largest single component of the overall real-time CASE tools marketplace. Ovum estimates this market to be worth \$204m in the UK by 1995 - up from around \$63m now, and \$1,663m in the US, from \$506m this year. Atherton's technology uses object-orientated programming techniques and has an X-Windows-based graphical user interface.

NEXT IBM RS/6000 "DUE NOW"...

IBM will formally launch the last of the RS/6000 models announced back in February anytime now, (UX No 270): the Model 730 POWERstation was slated for a fourth-quarter introduction at the announcement. The three-dimensional graphics workstation incorporates a Supergraphics Processor Subsystem performing at 990,000 3D vectors per-second, and includes technology licensed from Silicon Graphics Inc. It comes from the graphics workstation firm's Mips Computer Systems Risc-based 4D three-dimensional Iris system, which has a proprietary graphics processor. The Model 730 is aimed at the low-end of the three-dimensional graphics workstation market and uses the Model 530 engine which clocks at 25MHz delivering 34.5 MIPS and 10.9 MFLOPS. With from 16Mb to 128Mb memory, 355Mb disk and a floppy drive prices will start at \$73,000.

...MORE COMMERCIAL FOCUS FOR US...

IBM UK's AIX Systems Manager David McKenzie says that RS/6000 Models 320, 520 and 530 are now on three-week lead times for delivery in the UK, the 540 five weeks and the rack-mounted 930 six weeks. In the UK around 70% of RS/6000s so far installed have been at commercial sites says McKenzie - the figure is between 30-40% in the US, according to Dale Legband from IBM's Performance Evaluation Centre in the US. IBM is expected to focus more closely on the commercial market in the US following new benchmarking with commercial applications.

...AS AKERS GETS THE SUN BUG...

Legband says IBM has identified things it needs to get better at in order to compete with firms like Sun Microsystems including graphics performance in the mid-range, although he says IBM has been achieving successes over Sun where the two have competed head-on for business. This follows IBM supremo John Akers' recently reported remarks in the Boston Globe that "if IBM wants to become successful vis-a-vis Sun, we have to do what they're doing at least as well as they're doing to even have a chance to be even with them, and we ought to be able to do better than Sun."

...AND BIG BLUE "IN TALKS TO BUY INTO OR BUY DASSAULT'S CATIA"

IBM, which has already established a systems integration joint venture with Dassault SA in the French market is reportedly negotiating with the defence electronics firm to buy all or a part of the Dassault Systemes business that develops the Catia large-scale computer-aided design program. According to Electronic News, Catia, which IBM markets only on its 370-type mainframes, is threatening to become an all-too-effective competitor for Cadam, which IBM now owns outright, in the market on which IBM is increasingly depending to make the RS/6000 Unix machine a commercial success. The RS/6000 version of Cadam is the one that was originally developed for Apollo Computer Inc workstations, and it is not clear which product IBM would make its flagship if it could gain control of Catia as well; it has long offered both on its mainframes, but Cadam is dominant and accounts for about 70% of CAD/CAM software and related hardware sales totalling about \$1,800m a year. Nevertheless competitors say that Catia is IBM's key offensive product these days, particularly in three-dimensional applications; versions of various of the programs that make up the Catia suite are being developed for the RS/6000, but initially at least, they will need the pricey IBM 5085 graphics terminal system front-ending the RS/6000.

AS YOU WERE: AMDAHL "HAS NOW DECIDED TO USE THE SPARC RISC"

The report that Amdahl Corp had settled on the MIPS Computer Systems Inc R-series RISC family as the basis of forthcoming scientifically-oriented machines, (UX No 310), appears to have been premature. Electronic News now believes that the company has reversed the earlier decision and will go with the Sun Microsystems Inc Sparc chip. Amdahl is not commenting, but the clincher appears to have been the large base of Sun workstations already installed, and the wealth of software available for the Sparc.

START OF BEAUTIFUL FRIENDSHIP? CDC TEAMS WITH NEC IN UK

Control Data Ltd and NEC UK Ltd both have problems in the computer market: in Control Data's case, it has no history in the server market that it hopes to conquer with its new MIPS Computer Systems Inc RISC Unix machines, in NEC's case, it is seen as a peripherals rather than a computer systems supplier. Accordingly, the two have joined forces to make combined bids that put together CDC's 4000 Series servers and NEC's line of personal computers, the larger ones of which are offered with Unix as well as MS-DOS or OS/2. The two companies will be looking for large organisation-wide contracts in government, manufacturing, scientific and legal markets, where one or the other already has a presence. Each of the partners will maintain its own equipment. It is the first such deal signed by NEC UK, but if it works, the partners may extend it worldwide.

HARRIS HAWKS NEW NIGHT-HAWKS

Harris Computer Systems last week revealed two additions to its Motorola 88100 Risc-based series of Night Hawk real-time Unix systems. Using up to eight 25MHz versions of the part each running at 20 MIPS, with from 16Mb to 192Mb RAM and 390Mb disk, the top-end NH4800 is available in floor-standing and rack-mounted models - prices start at \$58,000, or £58,600. The NH4400S is a rack-mounted, low-cost version of the NH4400 with up to four 25MHz 88100s and from 16Mb to 82Mb RAM. Available in minimum quantities of five in the US, the price is \$185,000, or £28,400 each in the UK. Both run Harris' real-time CX/UX and CX/RT, and CX/SX secure Unix operating systems. Harris says it has no plans to upgrade its Motorola 68030-based NH1200 and 3000 series to the 68040, though the new 88110 part will be supported. All systems in the NH4000 series are object-code compatible.

ADDS MOVES PRODUCTION TO NEW YORK, ANNOUNCES 68040-BASED MENTOR 7000

ADDS, which has taken over X-terminals from its parent NCR, is moving production from Orlando, Florida to its headquarters in Hauppauge, New York. Display marketing director Vincent Luciano claims they can make them cheaper and faster there than if they came out of the Far East. Marketing and services will remain in Orlando. And ADDS Systems Division last week announced it will be adding a new Motorola 68040-based Mentor 7000, the Model 5/50, doubling the performance of the current high-end 5/30. The hardware, not due out until April, will come from NCR, ADDS' parent. The box, priced between \$60,000 and \$70,000 will run Pick either stand-alone or concurrently with Unix.

HITACHI PREVIEWES MIGHTY NEUROCOMPUTER

Back home in Japan, Hitachi Ltd has been previewing general-purpose neuro-computer which has a speed of 2.3G operations per second and consists of 1,125 neurones, built measuring 12" by 8" by 9", demonstrating it running a share price forecasting application and a signature recognition system. The company says that the machine is 10 times as fast as its own S-820 supercomputer and that it could have a production version available within two years, configured with a Unix workstation front end.

SPARC INTERNATIONAL READIES NEW PROGRAMS TO BOOST FORTUNES

AFTER DISAPPOINTING COMDEX SHOWING...

The pitiful showing of the new Sparc clones at Comdex last month (UX No 310) seems to demand that Sparc International and Sun too - if it's to pull off its Great Strategy - require at least some polished orchestration from them in the future and maybe even give them the wherewithal they need not to look like they're tripping over their own shoelaces. Sparc International supposedly has a portfolio of cooperative distribution programs in the works for next year but obviously needs its members to get behind them before the window of opportunity slams shut on their fingertips. It also needs the financial clout to pursue them. It's thought the consortium and its masters have just started negotiating a draft 1991 budget. Presumably there'll be enough zeros in it to support their marketing plans.

...AS FORCE AND IRONICS JOIN THE SPARC BANDWAGON...

Two of Risc's early supporters, board-makers Force Computers and Ironics Inc, have bitten the bullet and switched platforms to hop on the Sparc bandwagon. After two years of trying, Force hasn't had much luck peddling its Motorola-88000 boards, and neither has Ironics with the AMD29000. Sparc's 2,000-odd programs and more vibrant market apparently lured them to the chip.

...AND DATA GENERAL DECIDES TO SERVICE SUN BOXES

Data General's going into the business of servicing Sun boxes, the first non-DG systems it's ever maintained. DG has cut a deal with Apex Computer, a leading fourth-party Sun maintenance operation in Redmond, Washington. Apex will train DG engineers, provide the spare parts inventory and inventory repair and back up DG's technical staff. Data General started servicing multi-vendor peripherals three years ago.

UNIX, WINDOWS AND MAC TO GET COLOUR GUI-BUILDING SOFTWARE FROM TIGRE

Tigre Object Systems is building an object-oriented Tigre Programming Environment for developing colour graphical user interface software that will run without modification on Windows, Sun/3s, Sparcstations, RS/6000s, DECstations, HP 9000s, Apollos, Mac IIs and heterogeneous networks. Tigre, which claims to cut development time by up to 80%, will be directed at multi-user, multimedia applications using full-motion video and sound. The Soquel, California company now expects Tigre, based on ParcPlace's Objectworks/Smalltalk revision 4, to ship in mid February priced at \$3,500, not including run-time versions.

UNICORN PORTS CICS-COMPATIBLE TRANSACTION PROCESSING DEVELOPMENT APPLICATION TO UNIX

Twenty-year-old Unicorn Systems is porting its new CICS/VSAM-compatible on-line transaction processing development system, Unikix, to Arix 800 and System90, NCR 3000, Pyramid, Sequent, Sun Sparc and Unisys 5000 and 6000 platforms. The software is intended to leverage Unix into Fortune 1000 accounts where CICS has been used for 25 years and is reportedly installed on 80% of all IBM mainframes and at 60% of all TP sites. It will allow end-users, especially those in retail, banking, finance and insurance, to salvage their existing software and move it to less expensive Unix stations at a cost saving of as much as 300%, Unicorn says. Unikix runs under System V.3 and the Unix version of Micro Focus COBOL/2 compiler. A single-user Unikix costs \$7,500.

AS/400 vs RS/6000: BEST OF BOTH WORLDS OR MID-RANGE MESS FOR IBM?

Katy Ring reports

When discussing IBM's mid-range and the RS/6000 in particular, one factor that is of crucial significance is the RS/6000's operating system. This is because while IBM's AIX is in existence and work is ongoing with OSF/1 there is going to be confusion in the marketplace. After all, why should the punters buy the RS/6000 now when it comes with an operating system that will be obsolescent as soon as OSF/1 is adopted?

As reported a couple of weeks ago, (UX No 307), John Glyde, IBM UK's AIX manager, says that the RS/6000 will have one operating system called AIX which will be an implementation of OSF/1. IBM's version will have bits added to it, such as SNA communications, and other participating vendors will add their own flavour to the "open" operating system, which will be compatible at the level of Application Environment Specifications.

Upgrade charges

Glyde says that OSF/1 will not be implemented in one leap - it will be implemented in stages. Each release of AIX will include more of OSF/1 - there will be upgrade charges and Glyde does not know how many upgrades will be required - and at some point different vendors' implementations will merge into one operating system compatible at the applications level. Glyde argues that a big chunk of OSF/1 comes from AIX anyway, so that the two operating systems looked the same from day one. However, features will be added to AIX-OSF/1 such as IBM's System Management Interface Tool, which, while it will not prevent the portability of applications, will, IBM hopes, keep users hooked to AIX-OSF/1. Glyde is adamant that no functional enhancements will be made that will affect application portability. However, he says that members of the Open Software Foundation have no intention of following Unix International's lead - OSF/1 will not be the same operating system on different vendors' machines. Instead the Foundation will define a wide set of standards to ensure application portability and interconnectedness between different vendors' machines via Application Environment Specifications, the Distributed Computing Environment and OSI, TCP/IP standards. He says that by the end of 1991 the Foundation camp will have a fully interoperable operating system. The first implementation of AIX-OSF/1 will appear on the PS/2 sometime next year - the PS/2 because reference ports developed by the Foundation were on to an Intel machine. The implementation for the 3090 is not a high priority and, as might be expected, most IBM engineers will be working on the RS/6000 version. While it is reassuring to know that members of the Foundation, including IBM, will not keep their versions of Unix alive as a competitive offering against OSF/1, it seems likely that astute customers and software developers will await the arrival of AIX-OSF/1 before making an RS/6000 commitment. Another area where there is much interest in the relative roles of the RS/6000 and the AS/400 is Systems Application Architecture and AD/Cycle. Henry Douglass, IBM UK's Application Business Systems' marketing manager, is in no two minds that SAA offers a welcome sales pitch for the AS/400. As he says, SAA means the ability to develop co-operative processing so that applications can be put where they will run best within Advanced Program to Program Communications, APPC - this is not an opportunity that is lost on large enterprise customers.

And within SAA, the AS/400 is billed as the application server and the key machine for handling transaction processing. Within AD/Cycle, the AS/400 is positioned as the machine to use for the development of transaction-based applications - it delivers application code much more quickly and less expensively than is the case in a large MVS environment. Douglass says there is no slippage in development plans for the AS/400 Repository Manager, which is still under development in Rochester, Minnesota. Douglass said he was aware that there was a lot of user interest in making the RS/6000 part of AD/Cycle because of its fast processing power, making it eminently suitable for application development. He also said that he would welcome a closer affinity between the RS/6000 and AD/Cycle, adding that bringing the RS/6000 into AD/Cycle is a very attractive proposition. Douglass agreed that the role of the AS/400 as the application development machine for AD/Cycle may have been over played in the sense that within distributed co-operative processing data and code are accessible by applications on other systems and, therefore, there is not such a need to rewrite applications. However, Douglass denied that this move to down play this particular role for the AS/400 signalled a diminished profile for the AS/400 within AD/Cycle. Similarly, Douglass denied that the fact that IBM had gone out to small UK company Synon Ltd to develop the AS/400 code generator, without bothering to take an equity stake in the company, reflected any lack of will on its part to emphasise the AS/400's part in AD/Cycle.

No clear plans

Meanwhile, John Glyde was of the opinion that over time we would see a more intimate relationship between the RS/6000 and SAA - in particular this will come about via the AIX database which IBM is developing (UX No 307). It will also come about through the implementation of the Distributed Computing Environment throughout IBM's ranges. However, whereas Douglass appeared to assume that the RS/6000 would, sooner or later, be part of AD/Cycle, Glyde was more circumspect. He said that there were no clear plans yet to integrate the RS/6000 into AD/Cycle. He agreed that customers were taking an interest in using the RS/6000 for computer-aided software engineering within large IBM environments. But, he said that the RS/6000 tie-in with AD/Cycle and SAA will occur gradually through a host of little developments - in other words it is unlikely to be heralded by a sweeping statement of direction. Once the RS/6000 is tied in, and should IBM reconsider developing the RS/6000 and AIX for commercial transaction processing, then the time may have come to bury the AS/400, since there will be little logic to its existence. Don't expect any statements of direction on the matter from IBM - after all it has no mid-range mess to clear up - just remember that when two worlds meet it usually means war.

HEWLETT ROUNDS UP COGNOS, SOFTLAB TO BE DESIGN PARTNERS

Having abandoned development of its own computer-aided software engine ring products, Hewlett-Packard Co has expanded its design tools strategy for the commercial market with products from third parties. Having announced that it was halting the further development of its AllBase fourth generation language and its older generation Rapid tool, as well as its Business Report Writer that comes as a standard component in its financial and manufacturing application suites, Hewlett-Packard has now clarified the situation by signing a worldwide deal with Cognos Inc to offer a migration path for MPE users via the Canadian company's PowerHouse product, and a similar deal with Ingres is also expected shortly. Following these announcements, Hewlett-Packard is adding to third-party products from companies such as Ingres and Oracle that it offers commercial users through CASEdge, by pulling in products from CGI Systems Inc, Softlab GmbH and Cognos Corp as part of its CASEdge strategy for the Precision Architecture machines: the 9000 Series 800 and the 3000 Model 900. For the HP/UX machines CGI is offering its PacLAN/X repository with Cobol code generator, which connects to Oracle, as well as PacLAN and PacBase, the former enabling HP9000 application development on an OS/2, the latter on an MVS mainframe. PacLAN/X will be available in the second quarter of 1991, the other two products by 1991 year end. By the end of 1991 Softlab's Maestro II will also be available on an MS-DOS micro using an HP 9000 as a server targeting Cobol, HP AllBase/SQL and HP VPlus on HP 3000 systems. And last but by no means least, the Cognos PowerCASE product will be available on both the HP3000 and HP9000 at the start of 1991 - the product provides some scope for applications conversion between Hewlett's two databases, TurboImage and AllBase/SQL.

NEW REPORTS ESTIMATE 25% GROWTH FOR COMMERCIAL UNIX, MOVE AWAY

FROM PROPRIETARY SYSTEMS ACCELERATING
A new report from London-based analyst Ovum Ltd estimates that the commercial Unix market in Europe will grow at an average rate of 25% to be worth \$11.2bn by 1995, up from \$3.6bn this year. Germany will continue to be the largest European market for Unix, followed by France, UK and Italy. Ovum reckons the fastest-growing sector is the high-end - systems costing over \$200,000 - presently dominated by multi-processing systems from the likes of Sequent and Pyramid, as well as Hewlett-Packard, but it expects the likes of IBM to weigh in with their own multi-processing systems over the next few years. Unix in Europe: Commercial Users and Markets is available now, priced at £600, or \$1,200.

In the UK, Orpington, Kent-based Benchmark Research's second annual report on the attitudes of large system users towards Unix, and open systems in general, finds that the trend to move away from proprietary systems is accelerating. It found 41% of information technology managers, systems managers and data processing managers questioned would consider replacing their current proprietary systems with Unix-based solutions - compared with 30% in last year's survey, (UX No 267). 55% of those questioned say that Unix will become the most important operating systems within five years: the report was commissioned by Sequent Computer Systems.

ASCII CORP TO PAY \$10m FOR A 5% STAKE IN INFORMIX

The next major software and computer services company after CSK Corp to emerge from its Japanese fastness and seek to play a role on the world stage looks like being Kay Nishi's Ascii Corp, the company that helped Microsoft Corp to get started in Japan before Bill Gates fell out with Nishi over future directions. Yesterday, relational database and Unix spreadsheet developer Informix Corp, Menlo Park, California announced that Ascii is to buy 671,833 of its shares, representing 5% of the enlarged equity, paying \$6.7m or just under \$10 a share, a handsome premium to the \$4 a share at which they were trading ahead of the announcement. The agreement limits the number of shares Ascii can buy in the market without permission from Informix. Ascii distributes the eponymous database and Wingz spread sheet in Japan. Informix reported \$6.7m net profit on \$130m sales for the first nine months of 1990.

NCR'S NEW UNIX BOXES USED IN MEDICAL RECORDS IMAGE SYSTEM...

NCR Corp has teamed with LanVision Inc, Cincinnati, Ohio for joint marketing of Statview, an image-based medical records application. The five-year agreement makes LanVision an NCR Independent Software Vendor, receiving revenue credit for the software, with NCR taking revenue credit for the hardware. Statview is the first application to be implemented on NCR's Document Management System for high volume document imaging. It consists of an NCR System 3000 Unix server, laser printers, scanners, optical disk units, and an NCR-enhanced Plexus developer's toolset from Recognition Equipment Inc as the system software. The Statview application was developed in conjunction with medical records personnel from 16 of the largest hospitals in Ohio and surrounding states. LanVision's first installation is the 450-bed University of Cincinnati Medical Centre, where it is currently installing the first phase of a \$2.5m contract to implement image-based medical records hospital-wide, and the contract is of the average size the partners expect for the system. The marketing agreement also incorporates NCR's Access 2000 communications tools, which provide simultaneous windows into other hospital systems and into remote doctors' surgeries for results reporting or patient demographics.

...BUT RADIO LOCAL NET STYMIED IN UK, MUCH OF EUROPE BY REGULATORS

A disappointed NCR Corp reports that while the US Federal Communications Commission has approved its WaveLAN spread spectrum radio local area network for use in the US, NCR Ltd is having problems getting the wireless network approved in the UK because the system uses frequencies between 902MHz and 962MHz, slap in the middle of the band used for analogue cellular telephone transmission, and the Department of Trade & Industry is worried about interference. The company argues that since WaveLAN operates at only 600mW, interference either way is unlikely. The company anticipates similar problems across the continent by saying that it is working to modify the system to use another frequency band and will lobby for a single band to be allocated across Europe, with 2.4GHz the most promising one. It runs at 2Mbps, 10 times faster than infra-red systems which need line of sight.

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Detroit-based CAD/CAM Integration Inc has a manufacturing software application designed to create an electronic packet of graphics and text instructions: the View-Graphics and Documentation System enables an engineer to create and distribute electronic documentation and is claimed to simplify documentation control on the shop floor; it runs under MS-DOS, Unix and NetWare, and is sold as two packages; the first is Document Creation which provides tools to assemble existing documents, and the second module is the Display Document Module which provides read-only access to packets of information on the shop floor; a minimum configuration requires personal computers with EGA or VGA graphics cards and monitors, an Ethernet local area network with interface boards and applications software, and graphics terminals; a Documentation Creation module site licence is \$5,000, and \$1,000 for each run-time Display Document.

nCUBE, Beaverton, Oregon, is to offer Silicon Graphics' workstations as front-end graphics platforms for its nCUBE 2 supercomputer on which it will also be running Silicon Graphics' Iris distributed graphics library.

Convex Computer is offering the UniTree file and storage management system on its C2 series of supercomputers - UniTree is marketed by General Atomics, San Diego, California.

Fourth-generation language developer Uniface has signed a joint marketing agreement with Unisys, which will begin selling the Uniface 4GL on its Unix systems.

Network Computing Devices is reducing prices on its 16" NCD16e monochrome X-terminal which uses a 15Mhz Motorola 68020 processor - from December 1 the monitor comes in at \$2,600, down \$600: NCD says its two 16" models, the NCD 16 and NCD16e, account for around 50% of the 26,000 X-terminals it has shipped to date.

DEC/Unix reseller Source 1 Solutions, Hinckley, Leicestershire, is offering an Ingres-based logistics package for DEC's Risc-based platforms: Logix 1 is a distribution and warehousing solution combining 12 modules, no prices given.

Netherlands-based Westmount Technology's computer-aided software engineering applications are now available on Intergraph's Clipper Risc-based workstations from Westmount's UK distributor Admiral Software Ltd, Camberley, Surrey.

Italian firms A3 Studio, Padua; Officine Galileo, Florence and WABCO Westinghouse, Piosasco - as well as Rolls Royce and Associates Ltd in the UK - have signed up for Unisys' InfoImage engineering document management system, which is based upon a U6000/50 minicomputer front-ended by PW2 personal computers.

Italian software house Eurosystem SpA has launched Elleconi, which it claims is a software development environment for creating applications that can interface with any SQL relational database, graphical user interfaces such as OSF/Motif and Open Look, on any Unix workstation, without the need for in-depth knowledge of either the database or the GUI: the Elleconi Workbench Language is a set of tools for creating object-orientated software under X-Windows.

Mylex Corp, Fremont, California, is readying multi-processor boards that can house up to six Intel 80486 or 80860 Risc chips and up to 128Mb memory - scheduled for release in February next year, OEM prices for the four-board set are expected to start at around \$15,000 for a single 80486 version.

Danny Hillis, the thinking behind Thinking Machines Corp, Cambridge, Massachusetts forecasts that parallel supercomputing will progress so rapidly that by the middle of the decade, conventional supercomputers will be obsolete: that fear has led not only Cray Research Inc but also Convex Computer Corp to embark on massively parallel CPU development.

The European Parliament has passed a motion ordering Bull SA, Philips NV and Ing C Olivetti & Co SpA to suspend their planned redundancies until terms have been negotiated with employee representatives, and condemned "the types of restructuring that consist exclusively of massive lay-offs and plant closures"; since the European Parliament has no powers beyond refusing to pass the Community budget, the vote was an exercise in futility.

Sybase Inc has made two manoeuvres to help safeguard the SQL Server it helped develop with Microsoft Corp and Ashton-Tate Corp: it has signed a sales and support deal with Unify Corp to cover Unify's version of Accell/SQL tailored for SQL/Server - the product is available now priced between \$1,770 and \$251,625; Sybase also announced a non-exclusive distribution deal with Uniface Corp for the latter's development tools for SQL Server.

Compagnie Generale d'Informatique SA of Paris has acquired Raleigh, North Carolina-based software design methodology specialist Yourdon Inc, which did \$7m of business last year, near half from Europe, which it serves from its base in the UK.

Data General Corp has received its first orders under its \$127m contract with the US Geological Survey for AViiON Unix workstations and servers, but is still being hounded by the House of Representatives Interior subcommittee on oversight, which said it will continue with its investigation of alleged improprieties in the award of the pact.

NeXT Computer Inc has appointed Cees Boshulzen to vice president of finance and administration, and Duco Sickinghe to vice president of marketing: both are European positions at NeXT's temporary European headquarters in Geneva.

Intourist Travel Ltd, main tour operator for travel to the Soviet Union, has bought a Sequent S27 system to cope with the increasing demand for travel to the USSR.

One of the would-be Sparc-cloners, Sampo Corp, has been trolling the world for customers among the higher profile Sun Microsystems value-added resellers, the kind who advertise in vehicles like Sun Expert: Sampo's immediate findings indicate the resellers don't want to do business with a cloner for fear of damaging their relationship with Sun.

Hyundai is the latest addition to the list of Far East companies previewing an X-terminal: like Goldstar's, (UX No 309), theirs is built around a 20MHz Intel 80960 chip and will come out as a 1280 by 960 monochrome or a 1280 by 1024, 256 colour colour unit. The company is expecting volumes in the second quarter and has yet to price the things or even make some forecasts.

Acorn says that the ARM initiative - see front page - is separate from the development work funded with £1.2m that Olivetti invested in return for exclusive distribution rights on the continent related to products development, speculated to be Unix opportunities in the education market using Acorn's RISC.

In the UK, graphics terminal manufacturer Westward Technology Ltd, Tewkesbury, Gloucestershire, is offering three high-end, colour X-terminals in 14", 15" and 20" configurations. Prices for the terminals, which use the Texas Instruments graphics processor, go from £2,500 to £4,000 and options include a virtual screen which can pan sideways and give the user an effective resolution of 2,048 by 1,024. Westward counts Pafec and Prime Computer as existing users of its standard graphics monitors, and is now looking for OEM deals for its X-terminals.

San Diego, California-based Telesoft's TeleUse OSF/Motif-driven graphical user interface building tool is now available on IBM's RS/6000 platform - from December it will also be out on Hewlett-Packard's 9000 series and DEC VAX/VMS systems: prices start at \$7,500.

Its unclear as yet whether this is good or bad news for the standardisation of object-oriented technology but industry gossip says that both IBM and Microsoft will be joining the Object Management Group sometime over the next few weeks.

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THE QUARRY IS IN SIGHT, BUT AT&T WILL HAVE TO WORK HARD IN ITS BID TO WIN NCR

AT&T Co seems so determined to bolster its fortunes in the computer industry by acquiring NCR Corp that it is likely to succeed in its quest - eventually. But the \$90-a-share exchange offer, followed by a hostile \$90-a-share cash tender offer late last week valuing NCR at a nominal \$6,000m, does not look nearly attractive enough to gain an easy passage. NCR rejected the share bid - the cash offer will expire on January 4 - but the company left the door open by saying that it would negotiate a share exchange at \$125-a-share or about \$8,500m to reflect the value it reckons has built up. The \$90 bid reflects only a 25% premium over the high reached by NCR's share price over the past six months. NCR Corp chairman Charles Exley was saying last week that he would resign if AT&T succeeded in its bid, making it clear that price was not the only reason NCR was baulking at the offer - a serious threat since AT&T needs the NCR management in place to be successful.

The merger would create America's fourth largest computer company, and of the remaining multi-billion dollar computer companies that could be a target for a predator - NCR, DEC and Hewlett-Packard Co - NCR is currently the cleanest and the most desirable. Not only does it have the farthest advanced - and already successful - open systems strategy, but it has a privileged position at the sharp end in both the banking and retail worlds. Moreover its NCR-Comten subsidiary is about the only really serious competitor to IBM itself in the SNA communications processor business - and open systems support is further advanced on the Comten machines than it is on IBM's own 3745. All those aspects make NCR peculiarly attractive for a telephone and telecommunications equipment company that still believes in the convergence between computers and telecommunications. Moreover DEC and Hewlett-Packard would both be messy acquisitions for AT&T, since both are in the Open Software Foundation, whereas NCR votes the AT&T ticket on Unix.

But, as the NCR board points out, if AT&T, as it says it does, wants existing management to continue in place and run the enlarged \$7,500m-a-year computer company from NCR's present base in Dayton, it does need to get the whole-hearted support of the company - something it clearly does not at present have. In contrast to software and service businesses, where a threat by managers and employees to walk if a hostile bid succeeds is usually enough to send a predator away with its tail between its legs, it is usually assumed by bidders that anyone can run a manufacturing company - but in this case that is not true: AT&T clearly doesn't know how to run a computer company and it will simply be throwing its shareholders' money away if it drives out incumbent NCR management. More details on page 2.

HITACHI TO BUILD UNIX MAINFRAME FROM HEWLETT RISCs

Hitachi Ltd has been promising a "Unix mainframe" to be announced next year and running the Open Software Foundation's OSF/1 implementation of Unix for some time now, and the assumption has been that it was planning to implement the operating system on one of its IBM-compatible mainframes optimised for OSF/1. Now, however, sources say that the machine will be built around Hewlett-Packard Co's Precision Architecture RISC - likely the 90MHz version of the part used in the new servers announced last week, (see page five), or the next iteration of it. Word is that the planned Hitachi "mainframe" will come with up to eight processors, delivering around 1,000 MIPS in maximum configuration. Hewlett-Packard also plans mainframe-class top-end models.

SONY PREPARES MIPS PORTABLE

Sony Corp looks set to follow rivals Toshiba Corp into the RISC-based portable market with the first portable machine to use the MIPS R3000 chip, according to sources in the US. Although few details are currently available, the machine is expected to sport a high resolution 1120 x 780 LCD screen and 240Mb disk. The machine is likely to bear the same sort of relationship to Sony's current MIPS R3000-based NWS-4310D as the current Motorola-based portable NWS-1250, (UX No 279), does to the NWS-1500. Sony is currently preparing to reveal price cuts of up to 25% on the 4310D next week, bringing the entry-level price in the UK down to under £7,000 for a standalone system. The new machine will be a portable rather than a laptop, due to the power requirements of the hard disk. It is also expected to be available worldwide, probably during the first half of next year, when Toshiba's Sparc-based is also likely to become available outside Japan for the first time (UX No 308).

MATSUSHITA STRIKES SPARC DEAL WITH SUN

Tokyo-based Matsushita Electric Industrial Co has revealed plans to develop its own high performance computer systems based on the Sun Sparc RISC processor, which it will use for products aimed at the Unix systems market and embedded controller markets in Japan. Although Matsushita is the majority shareholder of Colorado-based Solbourne Computer Corp, Matsushita is carrying out its own development work on the new machines, and in the meantime plans to buy in around \$150m (27 billion yen) worth of Sparcstation products from Sun Microsystems to use internally and sell through its distribution channels in Japan over the next three years. Among the plans for new hardware are desktop and laptop Sparc systems incorporating multi-media technology and running the Japanese version of Sun's SunOS version of Unix, the Sun ONC networking technology and Open Look graphical user interface - and Matsushita promises the products will conform to Sparc International's Sparc Compliance Definition compatibility standard. On the embedded side, Matsushita plans to use the Sparc in its consumer electronics products, a sector where it is market leader. Matsushita has developed its own 64-bit implementation of the Sparc processor, currently used by Solbourne in its latest S4000 workstation (UX No 305). Solbourne's response, page five.

UNIONS URGE NCR TO RESIST AT&T BID

AT&T Computer Systems president Rich McGinn told Unigram.X last week that AT&T had discussed the merger notion early on with some of its largest customers, and that 95% of them had backed the idea. Whether the scenario they were given included the possibility of a hostile takeover is unknown.

McGinn claimed the union of AT&T and NCR, which would create America's fourth largest computer company, would be "less painful" than past mergers between other titans simply because of their existing mutual dependency and dedication to open systems. "Something like this has never before been attempted in the open systems arena," McGinn said.

AT&T's computer operations have been a fount of red ink, despite just scoring, according to McGinn, their best quarter and their best month in October, up 25% domestically. McGinn, who is unsure what his position will be or if he will even have a job after the smoke clears, believes that the merger with NCR would immediately sop up some of the flow. McGinn, for one, would be prepared to immediately jettison AT&T's costly phone-company designed information systems infrastructure, which he claims adds substantially to his overheads, and exchange them for NCR's more modern billing and ordering procedures. Doing it from scratch would take two to three years, he reckons. Simply adopting NCR's would mean a year's transition and savings of tens of millions of dollars.

Ironically, AT&T has just moved its computer headquarters, home to 1,000 staffers, to Parsippany, New Jersey, a site that lies cheek by jowl with NCR's regional headquarters. AT&T is now contemplating moving that site again to Dayton, Ohio. McGinn says AT&T has a notion of exactly what will have to give in the product line if the merger goes through, but has no operational plan detailing the excess baggage, something it is waiting to formulate in conjunction with NCR. AT&T is gradually shifting its focus from the WE32000-based 3B minicomputer line to a succession of Intel-based machines, partly OEMed from initially Olivetti and later Intel, and partly designed in-house. It has also been working on multi-processing with Pyramid Technology, and has an OEM deal with Pyramid for top-end machines. Pyramid currently appears confident that its agreement will remain unaffected by the proposed merger, but NCR Corp has its own Intel-based Series 3000 multi-processors, including very high performance parallel processors in the pipeline, and one of the main attractions in its new Intel only strategy is the benefits of binary compatibility throughout the entire line.

The Communication Workers of America, a union that represents some 100,000 AT&T employees, has written to NCR's board telling it to resist the merger because of the number of jobs that would be lost on both sides.

And an NCR stockholder named Sidney Kaufman, of Cincinnati, has filed suit in a local court because he wants the board to seriously entertain the AT&T offer so he can make some money.

The bulk of NCR stock (68 million shares outstanding) is in the hands of institutions... neither IBM nor Japan Inc could be any too happy at the prospect of an AT&T NCR.

WHILE STANDARDS BODIES FOUNDER,

CCTA PUBLISHES USER INTERFACE REPORT...

In anticipation of the day when it will have to make recommendations on a graphical user interface specification for prospective UK government suppliers, the Central Computer and Telecommunications Agency - CCTA - has dipped its toe into the icy waters of GUI standards with a study report and background document - User Interfaces: The Issues. The report encourages organisations to develop a user interface strategy and adopt a style guide to which all its applications should conform. It is prompted by the CCTA's estimate that UK government departments will be buying around 200,000 new terminals over the next few years, in addition to the 100,000 or so that are already in use. The report emphasises that prospective suppliers should "recognise the use of such [interface] techniques is to their benefit in achieving ease-of-use and in reducing the risk of producing an unacceptable system." It makes no product-specific recommendations but rather includes a list of current GUI technology, which exemplifies the future direction it is likely to take. Motif and Open Look, plus a host of other GUI products are on the list.

..."CAN'T WAIT FOREVER"

Although the report was introduced with the blessing of the X/Open consortium - the CCTA is a member of X/Open's user council - it is becoming increasingly obvious that organisations and large open systems users are going to have to make autonomous, even product-specific interface choices whilst no standard is forthcoming from X/Open, or indeed any of the standards bodies currently cruising these waters. They include ISO, CEN, ECMA, EWOS, DIN, BSI, NIST, ANSI and IEEE - and that's just a selection. Even the CCTA admits that it "can't wait forever," and large users like the internal office of the European Commission, (UX No 280), and the rebel Unix oilmen in the Petrotechnical Open Software Corporation, (UX No 307), have already decided to go with Motif.

X/OPEN - DOWN THE INTRINSICS ROAD?

The search for a GUI standard has proved to be a minefield for all the standards bodies, but X/Open is now prepared to admit that it is heading down the road towards specifying an Intrinsic-based specification for a standard. At the very least this would mean excluding anything not based upon X-Windows, and John Totman, director of X/Open's European operations, says that "an application programming interface embracing toolkits is still a live issue."

GOSIPs "TO BE RECONCILED"

Head of the CCTA's Open Systems Group, Larry Caffrey, is confident that subtle differences between the UK and US Government OSI Profiles - GOSIPs - should be reconciled by next year via IPSIT, a two-year-old body charged with harmonising open system and government standards efforts worldwide. CCTA says Australia and Israel have already signed up to the the UK version of GOSIP, with other countries likely to declare their preference for it in the near future.

MORE XPG4 PREVIEWS

Meanwhile, following its previews of XPG4 a few weeks ago, (UX No 305), X/Open is preparing more snapshots of what the portability guide will look like. A developers' specification for CPI, the IBM protocol for SNA communications and connectivity is released this week, together with a preview on security standards that will feature in XPG4 and a preliminary specification of an application programming interface for directory services.

EUROMETHOD "IS A RUNNER"

The CCTA has also submitted an initial scope report on proposals for a Euromethod system design methodology combining both the UK's SSADM and the French Merise system to the European Commission, (UX No 236). A response is expected within two months. The CCTA would like to see a combination of the two and says Euromethod "is a runner." The UK and French government-supported SSADM and Merise are the most widely used and openly available design systems in Europe, most others are proprietary methodologies says the CCTA.

ALTOS ADDS SERIES 4000 WITH PORTABLE NETWARE AND UNIX

Altos Computer Inc, now a subsidiary of the billion dollar Acer Group, chose the UK as the launching pad for its latest machine - the mid-range Series 4000 - which it claims is the first machine on the market that will run Unix System V and Novell Netware concurrently. And responding to criticisms that its machines are overpriced compared with PC-based products from the likes of Compaq, Altos has priced the new line to undercut the SystemPro, and at the same time cut prices on its entry level Series 1000 line by up to 40%. The EISA-based System 4000 uses a 25MHz 80486 processor to support up to 64 terminals, and runs Altos Unix V.3.2, which adds features such as disk striping and mirroring, and support for X-Windows and Unix/DOS communications to the base Unix core from the Santa Cruz Operation. Altos has been quick with its port of Portable NetWare from Novell Inc, which allows it to position the new box as a fully functional Novell server, a bridge between Unix and Novell networks, and/or as a Unix-based fileserver. Sitting between the Series 1000 and the top-end Series 5000 systems launched last April (UX No 276), the machines come in two preconfigured versions: the 4420 with 4Mb memory, 200Mb disk, graphics terminal and Unix costs £16,000; and the 4844, with 8Mb memory and 440Mb disk for £16,000. Memory is expandable to 64Mb, and storage to 650Mb internally or 8.5Gb externally. The machines are due out in the US in the new year. Price cuts on the Series 1000 bring the entry level cost down from £11,000 to £6,500 for a 25MHz 386 machine, a move that was possible, according to UK managing director Colin Goble, because of the favourable exchange rate and economies of scale in buying components since the Acer acquisition.

THE YANKS ARE COMING: IBM TRANSFERS COMMUNICATIONS BUSINESS HEADQUARTERS TO EUROPE

IBM last week announced that it is moving the worldwide headquarters for its Communications Systems line of business from Somers, New York to the outskirts of London - initially to Brentford, but by 1992 the headquarters will be located in Hounslow. The organisation will consist of 120 people of whom the majority will be relocated from Somers, with approximately 20 or 30 jobs to go to European employees. IBM's most senior female employee, general manager of Communication Systems Ellen Hancock, said that to begin with the headquarters would, for reasons of consistency, be composed of Americans, but said that over time more of a European identity would develop. Reasons that IBM mentioned for moving Communications Systems to Europe included opportunities in Central Europe, Europe's leading edge in many communications areas thanks to "strong indigenous manufacturers including Siemens, Ericsson and Alcatel", and being able better to serve the European Public Network Operators as a supplier. Reasons that IBM said had no direct bearing on the move included: its entrance to the JESSI project, equal access with European manufacturers to European research projects and problems with the current round of GATT talks that might lead to increased European protectionism. Ms Hancock said the move in no way reflected a change in the emphasis IBM placed on its Rolm partnership with Siemens. One of the decisive factors in moving the headquarters to the UK rather than to any other European location was that a large number of IBM Europe's customers are also headquartered in the UK. Development efforts for the Communications Systems line of business will continue in the same laboratories as before. The transfer marks the first time a product group has been run from outside the US, making IBM look a little more like an international company.

CONCURRENT LAUNCHES 68040-BASED SERIES 7000 MULTI-PROCESSORS...

Despite its financial worries, Concurrent Computer Corp has steeled itself to launch a new series of real-time Unix systems based around Motorola's 68040 part. The 7000 series, with up to three processors - support for others will be added in future - will first be delivered with 68030 parts and upgraded to 25Mhz or 33Mhz versions of the 68040 in May next year, when Concurrent expects to begin receiving volume deliveries from Motorola. Initial shipments of the 7000, rated at up to 60 MIPS, with from 8Mb to 32Mb RAM, 200Mb hard disk, floppy drive, SCSI, Ethernet and four RS232 ports will go to OEMs as a board-level set - from £10,000 - or as a packaged system, starting at £20,000 from the beginning of next year. The 7000 series sits between low-end 68030-based 5000 and 6000 systems, and the top-end Mips Computer Systems Risc-based 8000. All presently run version 5 of Concurrent's RTU, real-time Unix operating system. Version 6, which combines features of AT&T Unix V.3 and V.4 will be out in the first quarter of next year according to the company. Pick-under-Unix house VMark Software Inc, along with 20 other firms have so far signed up for the 7000 OEM, says Concurrent UK's general manager Jeremy Crook, whilst Ingres and Informix have agreed to port their database software on to the machines. The company intends to continue with both its Cisc and Risc lines whatever the outcome of its financial restructuring - see below - and new machines based on Mips Computers' R4000 and R6000 chip sets are likely in the future.

...PREVIEWS ITS EQUITY-FOR-DEBT SURVIVAL PLAN; MORE CUTS...

Concurrent, debt-laden since its reversal into Massachusetts Computer Corp back in October 1988, will reveal a re-capitalisation programme this week to fend off looming insolvency. Much of the Tinton Falls, New Jersey firm's finance is in junk bonds - the plan is to issue new equity and reduce the crippling debt repayments to the level where "the debt-to-equity ratio is comfortable". It hopes those holding junk bonds will exchange them for what will have to be substantial equity in the re-vamped Concurrent, which intends to trim itself to a \$300m-a-year operation, from the \$340m it does now. With the aim of building turnover per employee to between \$130,000 and \$160,000, more job losses are inevitable, says Crook - "it will be a changed company," he added. Concurrent claims an installed base of 35,000 systems, though 75% of turnover still comes from its proprietary minicomputer business.

...AS ALPHA SET FOR 1991 RELEASE

Concurrent's US Department of Defense-funded Alpha project to develop a large, real-time, distributed operating system, (UX No 259), is now into its second phase of testing, the company says. It has a Posix interface and will be announced sometime next year when the US Government puts Alpha into the public domain. Thereafter Concurrent will develop a commercial product based upon it, and says it is already talking to two vendors interested in porting the technology on to their systems. Concurrent has already signed up with AT&T for its B1 secure, multi-processing version of Unix now under development, (UX No 301), but says it hasn't decided whether to integrate it with RTU or to offer it as a separate product.

UNIX SPELLS BANKRUPTCY, CLAIMS WALL STREET JOURNAL

Red Ink Flows Freely at Makers of Unix Systems, declared a headline in the US edition of last Thursday's Wall Street Journal, citing recent losses by "old-line" companies such as Bull, Unisys, Data General and Wang as proof that companies had "jumped into the market even faster than the Unix pie has grown, intensifying competition". The article quotes Gartner Group analyst Bruce Rogow as saying "For many companies Unix is bankruptcy spelled in Esperanto".

The trouble is that the article fails to address the central issue - what alternative did the likes of Bull, DG and Wang have? No doubt they would all have liked to have continued to enjoy the higher margins afforded by their proprietary operating systems for longer, rather than move into the cut-throat "commodity" Unix market, but with open alternatives around, new business dried up quickly and found them wrong footed. If things had carried on as they were in the 1970s, then Honeywell's DPS6 market would be a wonderful business today. Unisys Corp, says the article, is still losing money on its Unix business despite rapid growth. "If the Unix business kept that up", says Dan Mandresh of Merrill Lynch, "the company could grow its way into oblivion". This disregards the sort of timescales it takes for a big company to establish a profitable business from a new line of systems, and Unisys had a fair amount of sorting out to do after the merger of Burroughs and Sperry to get its Unix act together. The fact is that not one of the companies cited by the Journal entered the Unix market early enough or embraced it wholeheartedly enough to avoid the inevitable squeeze as the market changed. NCR Corp, portrayed as "one of the few winners", did make its move into Unix early - it launched its Tower Unix micros way back in 1982 - and took the whole business seriously enough to make it succeed.

MIPS LAUNCHES INTERNATIONAL RISC/os...

Mips Computer Systems Inc has announced RISC/os release 4.5i, an international version of its RISC/os implementation of Unix, and introduced a Japanese country kit, providing users with a Japanese language interface for MIPS workstations and servers. The new release features a layered design, facilitating its adaptation to different languages and simplifying the development work needed to internationalise applications - the lower layer provides functionality that is independent of any one specific language or culture and the upper layers serve as country kits that provide language and cultural-dependent interfaces. Mips says its approach means that software vendors can now concentrate on value-added features instead of modifying applications for different countries, and enables them to get new applications onto the world market quickly. The new Japanese kit, the first to be offered, includes messages translated into Japanese for over 130 Unix commands. It provides a Japanese version of the X-Window System terminal emulator, and includes a Japanese version of the Emacs text editor.

WITH MIPS RISC PROCESSOR BOARDS

Speaking in London last week, Prime chief Jack Shields pre-announced a high-end means of converting 50 Series minis into Unix machines with up to 12 of Mips Computer Systems RISCs, in two-processor increments. The entry level system will sell for under \$200,000 and has a benchmark performance of 110 MIPS. The product will ship by early 1992 and will enable users to migrate from Prime's proprietary systems to its EXL Unix implementation by swapping CPU boards. Buying in hardware from Mips to upgrade the Series 50s effectively means that Prime is no longer in the hardware business. Chairman Russ Planitzer said it is now best described as a software and services business.

SGI's NEW POWER 4D/310 "IS FASTER AND CHEAPER" THAN SPARCSTATION 2...

Silicon Graphics is launching workstations thick and fast these days, the latest being a new mid-range machine, the 4D/310. Using a single R3000 processor from Mips Computer Systems, the 4D/310 is rated at 30 MIPS and 4.9 MFLOPS, and is positioned as the entry-level system to the company's Power Series of workstations, previously all multi-processor. It shares the Powerchannel architecture with the 4D/320, 340 and 380 models, and can be upgraded to the top-end, eight processor 380 which is rated at 234 MIPS. Below these are the Personal Iris machines - the 4D/20, 25 and the recently launched 4D/35 (UX No 306). UK marketing manager Steve Webb claimed that, in comparison, Sun's Sparcstation GT 2 "has a slower CPU, slower input/output and less powerful graphics - and a higher price than the 4D/310". As a server, the machine costs £19,000 in the UK, or £35,000 as a graphics workstation. For graphics rated at up to one million polygons per second, the 4D/310 VGX costs £55,000.

...BECOMES THE LATEST TO SUPPORT DISPLAY POSTSCRIPT

Meanwhile, Silicon Graphics has become the latest manufacturer to support Display Postscript for full colour publishing on its Iris workstation line, following a licensing deal with Postscript originators Adobe Systems. Both companies claim that the implementation is the first full 32-bit version of Display Postscript to be integrated with the X standard and OSF/Motif. Silicon Graphics is also working on the integration of X with its proprietary graphics environment. The move marks what appears to be a growing trend to support Display Postscript alongside X, and as an additional alternative to Xlib for companies requiring an exact on-screen representation of the final output. IBM and DEC have also been working on the technology, as has Steve Jobs' NeXT - one of the few companies seemingly not interested in X-Windows. Sun Microsystems integrated X with its Postscript-based NeWS windowing system after failing to convince the rest of the industry to use NeWS as a standard windowing system. Postscript now looks as if it might become the next officially accepted extension to the X-Window standard, comparable to the multi-company PEX initiative to extend PHIGS compatibility to X (UX No 212), resulting in a standard method of combining the two. Frame Technology's UK co-founder and senior software engineer Charles Corfield predicted that Display Postscript and X would become more closely integrated over the next few years. "Printers and screens are both output devices, so why not use the same code" he said.

READY'S VRTX32 ON THE TRANSPUTER

Inmos Ltd and the Sunnyvale, Californian company Ready Systems Corp have signed a technical, marketing and commercial partnership, and the first fruits will be a version of Ready Systems VRTX32 for the current and the coming H1 generations of Inmos Transputers. The VRTX32 is the kernel of the the VRTX real-time operating system and it provides functions required to develop real-time microprocessor applications. It is claimed to be deterministic, providing fixed-time performance independent of system loading, and will enable applications written for other processors to be converted for a multi-Transputer environment to take advantage of the unique high-speed inter-Transputer links. VRTX32 provides task management, interprocess communication and synchronization, standard Unix and input-ouput support and the company claims that it has been bug-free since 1988 which is especially important in critical operations. The development is timed to coincide with the release of Inmos' superscalar Transputer, the HI, and Inmos, a subsidiary of SGS-Thomson Microelectronics NV, says that a VRTX-based product will be available by the third quarter next year.

HEWLETT REVEALS 90MHz RISC SERVERS...

As expected, (UX Nos 311, 310), Hewlett-Packard last week launched five new uni-processor servers in its Precision Architecture Risc-based HP 9000 Series 800 - which run the HP-UX Unixalike - and the proprietary MPE-based 3000 series. All are built around a 90Mhz implementation of the part. The HP 9000 Series 842S is rated at 29 MIPS and 6.9 MFLOPS, comes with from 32Mb to 256Mb RAM, 670Mb to 2.68Gb disk, can support up to 80 users and costs £69,900. The 852S is rated at 52 MIPS and 11.4 MFLOPS, comes with from 64Mb to 256Mb memory, the same disk capacity as the 842S and costs £117,700 supporting up to 80 users. The 865S comes in at 53 MIPS and 11.3 MFLOPS, has from 64Mb to 512Mb RAM and costs £192,400 for up to 512 users. All three ship in February next year with eight-user licences for HP-UX version 7.08. Price tags on existing 800 models are cut by from 11% to 37% across the range, with an entry-level 808S now priced at £12,500 and a high-end 870S/100 coming in at £288,100.

...POSIX-COMPLIANT MPE BY MID-1991...

HP 3000 models 948 and 958 start at £131,000 and £254,000 respectively, come with up to 256Mb RAM and 34.8Gb disk - both ship this month. In addition prices on models 980/100 and 980/200 are reduced 13% and 12% respectively to £553,000 and £861,000. Similar to DEC's strategy with its VMS operating system, Hewlett has already announced plans for a Posix-compliant version of the proprietary MPE. It is expected by the middle of next year - the same time that the OSF/Motif graphical user interface becomes available across the range - and Unix applications will be ported across says Hewlett's UK HP 3000 product manager Emmet Hayes. In addition Series 3000 systems are being readied for branding to X/Open's XPG3 portability guide. Hardware plans for next year include three and four-processor versions of the top-end Series 9000 model 870S multi-processor, new high-end Series 3000 systems to compete with DEC's top-end VAXes - together with other unspecified top-end systems - see front page - with the performance of the PA Risc chip likely to be cranked up yet again.

**...HP-UX 8.0 DUE IN SPRING
BUT LONG-TERM, "OSF TOTALLY" ...**

Version 8.0 of HP-UX is promised by next Spring, and is said to include a mix of AT&T Unix V.3 and V.4 functionality - though not Streams - but Hewlett does admit it is evaluating the possibility of making HP-UX comply with AT&T's System V Interface Definition - SVID - version 3, which defines Unix V.4. Caroline Jones, Hewlett's UK Open Systems product manager says the Series 800 will not be fitted out with OSF/1 but will wait for the arrival of OSF/2. At this time - sometime after the release of HP-UX version 9.0 in 1992 - the two will be merged on the series. HP-UX and Apollo Domain will come together with OSF/1 over a similar time period for the merged Motorola 68040-based HP Apollo 9000 Series VRX 400 line. Although Hewlett will be running native OSF/1 on its next-generation workstation technology - codenamed Snake - next year, the PA Risc boxes will likely still be initially offered with a choice of HP-UX or Apollo Domain before and OSF/1 implementation is complete. If all this sounds like too many cooks, Jones says that "long-term, we're talking OSF totally".

**...NEW MANAGEMENT SOFTWARE INCLUDED
IN OSF DISTRIBUTED MANAGEMENT BID**

New system management software for the HP-UX line includes HP Omniback, a network backup service for large distributed computing environments, supporting optical disks and a claimed back-up rate of up to 5Gb per-hour. Omniback is available early next year. Also new is HP SwitchOver/UX, providing automatic switch over from a primary to a standby processor in the event of a failure. In addition Hewlett says Omniback and its OpenSpool/UX network print spooling application has been included in the company's joint submission with IBM to the Open Software Foundation's Distributed Management Environment request for technology.

**SANDERSON MAKES THE MOVE
FROM PICK TOWARDS UNIX**

Sanderson CFL, which includes the remnants of UCL Ltd and Computer Factors Ltd, (UX No 150), is moving its core Pick applications over to Unix due to customer demand. The company, part of the Sanderson Group which includes the UK subsidiary of General Automation, production control specialists Sanderson Computers, insurance specialists Cotswold Computers and Pick on PCs company XSoft, as well as GA's operations in Australia, New Zealand, Singapore and Hong Kong, has taken Ultimate's ULT/ix Pick under Unix operating environment to run on its Pick-based Ultimate 8000 and DPX/2 hardware. ULT/ix is based on that old stalwart of the Pick/Unix world, Universe from Natick, Massachusetts-based VMark, (UX No 59), which emulates Pick under Unix. Sanderson CFL managing director Clive Arlidge, despite a continuing regard for the benefits of Pick over Unix (including a four to one advantage for Pick in terminal connectivity), says that many of his customers are now asking for Unix, while still wanting access to the Pick applications. Core products for Sanderson include the Mailbrain mail order system, Minder debt collection, Ambdev ambulance administration, Distributor wholesale package and FMS financial management system. Sanderson is also evaluating Denver, Colorado-based Unidata Inc's Pick under Unix product, (UX No 133), for DEC and Data General hardware platforms, which has the advantage of SQL compliance, and is looking closely at dual Pick/Unix developments going on at sister company General Automation. And it is also looking at Advanced Pick under SCO Unix for Intel-based platforms. Sanderson software developers will continue to work under Pick using the Databasic language, making the transition to Unix over time. "Pick makes a great database, with the advantage over its competitors that it has lots of applications, but it's going to disappear as an operating system", said Arlidge.

**LEFT OUT SOLBOURNE
LOOKS ON THE BRIGHT SIDE**

The Matsushita-Sun deal - see front page - leaves out Solbourne, the original Sparc-compatible maker where the Japanese company already has a heavy investment position. Contacted last week, Solbourne CEO Doug MacGregor, who voiced scepticism over the high value put on the pair's OEM agreement, said he had been previously briefed over the alignment, and "really didn't care". Then, looking on the bright side, he figured it might help his position. Matsushita has exclusive rights to market Solbourne machines in Japan, but hasn't moved many because it lacked the JLE Japanese version of SunOS, despite three years of negotiating with Sun for it. MacGregor attributed Sun's past reluctance to license JLE, which Matsushita now has rights to, in part to Sun's determination to carve out the Japanese market for itself, as well as to "legitimate concerns" over support. JLE, however, is now only a short-term or even belated solution. When Sun moves to System V Release 4 some time next year, localisation will come via the Multi-National Language Support extensions. And besides all of this, Solbourne does not see revenue from Matsushita sales. However, Solbourne, whose low-end system strategy is still not highly developed, is already interested in the S3000, Matsushita's small footprint plasma version of Solbourne's new S4000 desktop box, (UX Nos 304, 305) and - despite negotiations with Trigem and RDI for the Brite Lite Sparc laptop, (UX No 306) - would be very interested if Matsushita were to come up with something in the notebook line.

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Alliant Computer Systems says it has dislodged Stardent Computers' 3040 from the second place spot in the SPECthruput, multi-processor performance stakes, (UX No 309), achieving a rating of 263.6 for its Intel 80860-based, 28-processor FX/2800 tested last month: 20 FX/2800s have been installed in Europe since its launch back in January, (UX No 266), says Alliant, with a total of 50 worldwide.

Formerly of Data General GmbH, Kristoffer Sygel has joined Mips Computer Systems as vice president of European operations.

LSI Logic has appointed James Panfil to the new post of director of microprocessor products for Europe - Panfil was previously with Intel Corp.

London-based DataFlex's 4GL applications development database is now available on ICL's recently launched DRS 3000 machine - it costs £2,300.

Frontline Distribution, Basingstoke, Hants, has been appointed UK distributor for GraphOn Corp's 21" X-terminal: it is priced at £1,700.

University of California Extension, in Santa Cruz and Sony Microsystems Co, have opened a Unix workstation teaching laboratory and centre at Techmart, Santa Clara, California.

Following the launch of its new NH systems last week, (UX No 311), Harris Computer Systems says Ferranti International plc, Manchester, has signed a two-year deal for a range of NH models worth £7m.

However Harris points out that it has to call its flagship 88000-based computer family the NH line in the UK because Nighthawk is the registered trade mark of another company.

Ashton-Tate says it is now recruiting resellers for dBASE IV on Sun Microsystems workstations, based on favourable beta site reaction to the implementation - prices start at \$1,000 for the single-user developers edition.

The Object Management Group, Framingham, Massachusetts, has completed its Object Management Architecture Guide which sets out a framework, and implementation guidelines for integrated object-orientated environments: the central design feature of the Guide is a reference model which lays out the components of the environment and describes the ways in which they should interact via an architectural overview and interface definitions.

SAS Institute Inc has opened a new office in Beijing - its headed-up by SAS Hong Kong's marketing manager Jeff Lo - and other sites in Shanghai, and either Chengdu or Wuhan are planned for the next couple of years: SAS says it has 15 installations in China.

A recent survey in the US which investigated the usability of nine federal systems with a value of \$6.8m showed that only 2% of those systems were used as delivered. 47% were delivered but never used, an incredible 29% of those paid for were never delivered, 19% were abandoned or re-worked and just 3% were used after change.

Nokia Data's Alfaskop System 10 running Nokia SCO Unix System V/386 R3.2 has been awarded X/Open's XPG3 base brand.

London-based Triumph Technology is now offering the Soft-Tek International's Grafsmann graphical report writer for Unix and personal computers - prices start at £400.

Werum Datenverarbeitungssysteme GmbH's real-time database system, Bapas-DB, will soon be available to run under AIX on IBM's RS/6000 as well as under real-time operating systems: according to Computerwoche the database will be installed as a server mechanism for AIX, carrying out clients' tasks as "deputy tasks"; the standard configuration will include the core system, transactions, various help procedures, the Bapas-QL test language, and program interfaces for C and Pearl.

With the new release of SQL*Net TCP/IP for VMS, TGV Inc's MultiNet users can create a distributed database environment with Oracle Corp's Oracle database: using MultiNet's TCP/IP as the conduit, SQL*Net enables an Oracle application process running on a client to communicate with the server-based database; MultiNet's TCP/IP approach connects VMS to MVS, VM, Unix, SunOS and MS-DOS, and MultiNet users running SQL*Net can create a distributed environment that links these into one logical database; SQL*Net runs as an application on MultiNet, residing at the session, presentation and application layers of the Open Systems Interconnection model, interfacing with the transport layer where TCP/IP operates.

Empress Software Inc has appointed Sydac Software Pty as its Australian distributor for the Empress range fourth generation language and relational database management system software: the Adelaide-based company will distribute in both Australia and New Zealand.

General Motors Corp's Hughes LAN Systems of Mountain View, California, says its ProLinc local network package provides access to Banyan Vines, Microsoft LAN Manager and AT&T Star Group network operating systems: it gives MS-DOS and Windows 3.0 micros concurrent access to multiple hosts, servers and network operating systems; other operating systems supported include 3Com 3+0 pen and 3+Share, Novell NetWare, Sun, DEC and IBM hosts via LAT, TCP/IP, NetBIOS, and NFS protocols; ProLinc 1.0 is \$600 per station.

Sales of North American software in Europe rose 63% in the third quarter compared with the same period a year ago, the Software Publishers Association reports: the 32 companies submitting returns to Arthur Andersen & Co saw sales, at whole sale, in US dollars, of \$228.8m.

IBM has launched the Power Club, to establish closer working relationships with independent software vendors porting their software on to AIX: Bedford-based Facts Software becomes one of the first members with the porting of its Unifacts X accounting software.

Cyberchron Corp has developed a ruggedised version of the HP Apollo Series 10000 system - it costs \$70,000 with 16Mb RAM and 700Mb disk.

Stratus Computer Inc, Marlboro, Massachusetts, is to market Atlanta, Georgia-based Scientific Software's Network Express application for linking proprietary hardware, software and networking platforms on its XA 2000 fault-tolerant system, it costs \$6,800: Stratus has also announced version 2.0 of its OSI Server for developing OSI-compliant applications on the XA 2000 priced at \$2,200.

Simpact Associates Inc, San Diego, California, has won a \$1m order from Contel Federal Systems for its VCI 4000 communications controllers: Contel will use the controllers for a Unix-based system to modernise US Air Force weather information systems.

Sun Microsystems is to supply the Ohio-based Air Force Institute of Technology with Sparcstation products worth around \$7.4m over the next two years: the machine, including servers and workstations, will be used to support Air Force education and research conducted by the faculty and students.

Integrgraph Corp says its systems now support CAD conferencing - the simultaneous viewing of graphics images on workstations at up to eight sites - using software from DataBeam Corp, Lexington, Kentucky: it costs \$11,000.

Sun Microsystems caught everyone on the hop with its Matsushita deal, (see front page), by announcing it a week earlier than planned.

88Open has been handing out a list of design commitments for Motorola's 88000 processor which includes some enigmatic gaps for unannounced products - and it has helpfully put them in alphabetical order, leaving hapless journalists to guess which two multi-user business systems maker between the letter A and D have committed to the chip - of course 88Open would like us to believe that they mean Apple and Compaq, but when you ask them specifically, they of course couldn't possibly comment...

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NCR "WILL DUMP OPEN LOOK, 3B IF IT TAKES CHARGE AT AT&T"

By launching its tender offer for NCR Corp and saying that on acquisition, NCR would be invited to take what it wanted of AT&T Computer Systems and leave AT&T to close the rest, the phone company has put its own computer arm under sentence of death regardless of whether the bid for NCR succeeds or not. In an interview with Reuters reporter Samuel Perry, NCR chairman Charles Exley made it clear that if NCR were left in charge of AT&T's computer business, not many products would survive. "Open Look would get axed if we succeeded. The Unix model would get axed. The 3B2 we would orphan as fast as we could," he said. The problem for the benighted salesman trying to push AT&T's products is that now Exley is on record as saying what would be ditched under NCR, it seems unlikely that AT&T will be able to find a single new customer for either the 3B computers or the machines that AT&T is buying OEM from Pyramid Technology Corp - his comment about the Unix model presumably refers to the multi-processing extensions AT&T is working on with Pyramid. Exley remains insistent that it would only be with great reluctance that his board would enter negotiations with AT&T at or above the \$125 a share floor price he has said NCR would have to consider - and added in the interview that the offer to negotiate at that price would not remain open indefinitely. In another move to frustrate the bid, NCR says it will be holding meetings with its major institutional shareholders early this week in an effort to win their support against the proxy fight that AT&T is expected to launch. In a proxy fight, a bidding company seeks to persuade holders of shares in the target to turn over to it their voting rights at any general meeting of the company called to vote on the bid or on election of directors. Exley continues to insist he doesn't want a "white knight or any other colour" but made it clear that he would not necessarily fight a bid from a Japanese company - "we do a lot of business in Japan - I don't see any negative to Japanese involvement," he said. He also declared emphatically that he would not seek to engineer a leveraged buyout of NCR or take any other action that would harm the company.

RS/6000 "MUCH BETTER BUY THAN AS/400" - GARTNER

Computer industry research house Gartner Group has got hold of some internal IBM Ramp-C benchmarks of the proprietary AS/400 and the Unix-based RS/6000, and reckons that they show that the latter is economically dramatically the better bet - not only in scientific and technical applications, but also for general business applications. The findings, reported in the *Computer Sweden* trade weekly, suggest that while the RS/6000 530 can handle up to 100 tasks running at 19,200 transactions per hour and the AS/400 B50 manages 23,900 transactions per hour, the running costs for the latter work out at \$16 per transaction per hour, against \$10 per transaction per hour for the RS/6000 Model 530. Ramp-C benchmarks quoted by *Computer Sweden* for the various AS/400 models are 9,900 for the C10, 13,700 for the C20, 15,800 for the C25, 18,000 for the B45, 23,900 for the B50, 39,600 for the B60 and 53,800 for the B70. The four currently shipping RS/6000 models approximately line up against the C20, C25, B45 and B50 respectively, rating 14,500, 15,200, 19,200 and 22,800 transactions per hour on the Ramp-C benchmark. IBM Sweden noted that IBM is embarking on an "aggressive plan" to improve the performance of both the RS/6000 and the AS/400, with a top model double the performance of the B70 set for next year, but Gartner reckons that the AS/400 performance probably won't increase by more than 30% a year in the near term whereas the RS/6000 will have to improve at a much faster rate than that to remain competitive with rival workstations and servers - and there are many more - and cheaper - business applications available for Unix systems.

AT&T CAMP WORKS ON DISTRIBUTED COMPUTING

SOLUTION - UNIFORM DEBUT?

Unix System Labs and its cronies over at Unix International hope to have their report to the Open Software Foundation's DCE offering ready by Uniform next month. UI has been working on the specification for the last year and is slated to unveil it come the Dallas conclave. In the interim, USL is reportedly negotiating with upwards of a dozen firms, each of whom has a separate piece of the technology USL needs to realise UI's vision. These negotiations are now key. If the alliances aren't formed, there won't be anything to announce. If they do come off, then it'll be very much a case of one-upmanship. UI's model, still unnamed but officially referred to as the Distributed Computing Solution, reportedly embraces technology not found in DCE such as object orientation, transaction processing and distributed processing with components leading to fault tolerance. UI is also reportedly going to try to be a bit more true-to-life than OSF and provide interoperability among existing distributed platforms. The spec, while evolutionary, could translate into real product in the first half.

PYRAMID'S MIPS SYSTEMS "OUT NEXT YEAR"

Pyramid Technology looks to be closer towards a new generation of systems based on the Mips Computer Systems Inc processor, and is expected to release the machines some time next year. The company began development on the new line back in 1989 (UX No 259) in conjunction with AT&T, having entered into an OEM deal with Mips in May 1989 for low-end machines, (UX no 232). Whether AT&T will now take advantage of the development could now be in some doubt (see lead story). Pyramid was a pioneer in Risc technology, and launched a supermini-computer based around its proprietary Risc chip back in 1983.

This is the last edition of Unigram.X before Christmas. Issue number 314 will be dated 31st Dec to 4th Jan. In the meantime we would like to wish our readers a Happy Christmas and a prosperous 1991.

US DEFENSE INTELLIGENCE AGENCY ENDORSES ADDAMAX'S SECURE UNIX

Addamax, the company whose security system was rejected by the Open Software Foundation for inclusion in the OSF/1 operating system (UX No 275), has been formally accepted by the US Defense Intelligence Agency (DIA) as a participant in the government's official evaluation of secure Compartmented Mode Workstations (CMW). Addamax is the only company seeking a B1 security rating from the US government with a System V/386 CMW implementation. The DIA, which is supposed to be underwriting some of the development costs, originally selected five companies to come up with a CMW: IBM with the RS/6000, DEC on the VAX, Sun on the Sparcstation, Secureware on a Mac II and Harris on 386. Several months ago Addamax, which was a co-developer on the Harris project since 1989, took over the Harris development contract, effectively buying Harris' slot in the evaluation procedure, a situation the DIA has now sanctioned. According to its president, Addamax's CMW is currently in design analysis, the second of a three-phase evaluation procedure, and awaits a decision in the third quarter. Addamax has delivered 14 beta versions of its technology to various sites and received its first production order, valued at \$600,000, late last month. Although the software should run on almost any properly configured 386/486 workstation, Addamax expects both Tempest and non-Tempest 386 configurations from Zenith, Delta Data, Unisys, Datawatch and Wang to be among the first platforms formally approved by the government.

FRAME MAKES MOVE INTO EUROPE - ADDS INTERNATIONALISATION...

Frame Technology Corp, author of the FrameMaker workstation publishing package, is making its push into the European market with plans for two new European operations to open next year - locations have yet to be decided. Frame's CEO Paul Robichaux said that Europe, which currently accounts for 17% of Frame's revenues, would represent "one of our highest growth markets", anticipating a rise of business from Europe to 30% by 1992. There will be new support and sales operations, creating around 50 jobs in Europe by 1993. The announcement coincides with the launch of FrameMaker 2.1-X, an international version of the package that runs under the X-Window system and OSF/Motif interface on six different Unix platforms: workstations from Apollo, DEC, HP and IBM, Intel-based PCs and machines running SCO's Open Desktop 1.0 operating system environment. Frame has already produced French and German interfaces for its SunView version of FrameMaker, and promises that they will be available for its Unix and Macintosh versions in the first quarter of next year. Other OEMs interested in the new version include Altos, Cadence Design Systems, Cetia, Data General, Intel, Motorola, Pyramid, Sequent, Siemens, Sony, Tektronix and Toshiba. The product includes an international dictionary package with eleven languages. Upgrades for existing customers are available. In the future, Frame plans WYSIWYG table editing, support for conditional text, and an MS-Windows version, probably supporting the Dynamic Data Exchange facilities of Windows 3.0. Frame will also support Open Look in a NeWS version for Sun workstations in the second quarter of next year. A proposed OS/2 Presentation Manager version looks to have stalled due to lack of market demand.

...AS SEQUENT PLANS EUROPEAN DEVELOPMENT CENTRE FOR EARLY 1991

Sequent Computer Systems is to open a European research and development centre in Sophia Antipolis, near Nice, France, early next year - at present all development takes place at Sequent's Portland, Oregon, headquarters. According to the firm it paves the way for a systems integration and manufacturing facility in Europe sometime in the future - the centre will be headed by David Rodgers. Sequent plans to employ 250 people there by 1995, and new software products will start shipping during the second quarter of 1992.

IBM BELGIUM ADOPTS ARMY METHOD OF ASKING FOR REDUNDANCY VOLUNTEERS

While insisting that it will not be making any compulsory redundancies, IBM Belgium has taken a proactive approach to ensure it gets as many "voluntary redundancies" as it wants: for employees whose career paths and ambitions don't quite fit in with the aspirations of the division as a whole, the Brussels-based operation is going out and finding them jobs outside the company. The company stressed that under the new outplacing policy, victims will retain their jobs at IBM until a new job has been found for them. "There will be no deadlines, and it will be done by mutual agreement," an IBM Belgium spokesman said, conceding that the policy could still cause "disappointment" among employees that persisted in the belief that their career paths were compatible with the division's ambitions. IBM Belgium, with 2,400 employees, looks to shed 80 this year and another 80 next year.

IMPERIAL SOFTWARE REAPING X REWARDS

Imperial Software Technology, Reading, Berkshire, says it has taken over \$250,000 in orders for X-Designer, its Motif-based graphical user interface builder, (UX No 308), which runs on Sun Microsystems workstations, DEC's DECstations, Data General's AViiON machines and Hewlett's HP 9000/300. Motorola Delta, HP 9000/800, Apollo Domain and IBM RS/6000 ports will follow, and IST says an Open Look version will be out in the second quarter of next year. X-Designer costs from £5,000 for a single-user licence - it has appointed Interactive Development Environments Inc, San Francisco, California, and Beech Tree Systems GmbH, Winterburg, Germany, as distributors.

INA HAS NEW NETWORK MANAGEMENT SOFTWARE FOR SPARCSTATIONS

Intelligent Network Applications, Menlo Park, California, has announced a new tool for creating network management systems. NetMapper is integrated with Sun Microsystems' SunNet Manager and Novell's LANtern software. It locates workstations, bridges, printers and other peripherals attached to a local area network, creates a graphical map of the network and monitors the set-up for changes. The software requires SunNet Manager running on a Sparcstation and costs from \$2,000.

SYBASE SIGNS UP WITH UNIFY FOR ACCELL 4GL TOOLS

Sybase Inc is the latest database company to sign up with Unify Corp for Unify's software development tools, which Unify unbundled from its database a few years back. Under the cooperative sales and support agreement, the two will be offering what is described as a high performance software development environment for client/server and on-line transaction processing applications. The product, part of the Sybase Open Tools initiative, is called Accell/SQL for SQL Server, and is the result of a two year joint development effort. It is Unify's Accell 4GL technology combined with the Sybase client/server relational database management system. Sybase chose Accell as one of the first of a proposed new set of "open tools" from multiple vendors, because of its strong graphical user interface technology (including native support for X) and SQL server integration. The Accell tools also work with Oracle, Informix, SCO Integra and Unify 2000 databases, while Sybase offers its own 4GL products, as well as the UniFace 4GL under the name Fast-build. Prices range from \$1,770 to \$251,625, depending on the hardware and number of users. Sybase recently announced its availability on 386/486 PC platforms running Unix.

PLAN TO PUT MS-DOS ON MIPS RISC SEEN WINNING ENDORSEMENT OF COMPAQ

Compaq Computer Corp is playing its RISC cards very close to its chest, saying only that it has no immediate product plans involving RISC CPUs, but **Electronic News** believes the company is close to making a decision to bring out a line of workstations using the MIPS Computer Systems Inc R-series RISC. The US trade weekly hears that Microsoft Corp is developing versions not only of OS/2 but also of MS-DOS for the MIPS RISC, enabling Compaq to stay with its roots in the desktop and portable computer market, although a software emulation of the iAPX-86 chip family would be needed on the R-series if users were to be able to move existing MS-DOS applications across to the new machines. Although the Sparc is not thought to be completely out of the picture at Compaq, the possibilities for differentiating its offerings from the rest of the workstation world rather than going head to head with the slew of Far Eastern Sparcsystems coming to market is thought likely to win the day for MIPS at Compaq.

HEWLETT'S HIGH-END MULTI-PROCESSORS "DUE IN MARCH..."

US reports suggest that Hewlett-Packard's new high-end three and four processor systems, (UX No 312), will be out next March. The Unix-based HP 9000 Models 870S/300 and 870S/400, and HP 3000 Series 980/300 and 980/400, which run the proprietary MPE operating system will likely top 200 MIPS performance, according to the same reports. Although these will be built around Hewlett's existing CMOS Precision Architecture Risc technology, the firm is unlikely to move beyond four processors as it is expected to move to some form of gallium arsenide-based multi-processing unit around 1993. Hewlett shelved plans for an ECL processor design some time ago.

...\$10,000, 50 MIPS, OSF/1 BOXES SLIP TO NEXT YEAR...

Hewlett-Packard's next generation of desktop workstations built around its PA Risc chip are expected to be the flagship of its OSF/1 operating system effort, (UX No 306), but last week it emerged that its HP-UX or Apollo Domain Unix variants would likely be offered on the boxes initially, (UX No 312). Now **Electronic News** hears that Hewlett has pushed the announcement of the new workstations back to the first quarter of next year from the end of this year, citing extended development time. Entry-level performance is reckoned to be around 50 MIPS, with a base price of \$10,000. First out will be uni-processor models, though the PA chip they will use includes multi-processing hooks, and multi-processing versions will follow.

...WHILST US REVEALS MISSING LINKS

Missing from Hewlett-Packard's UK announcements last week, (UX No 312) - but included in US versions - was the introduction of a connectivity application linking its New Wave environment with databases running on both its proprietary MPE and Unix-based systems. New Wave Access, which links users, tools and applications to databases such as IBM's DB2 and Oracle costs \$225 and is out in the first quarter of next year. Hewlett's Allbase/SQL will link HP 9000 systems with IBM's SNA network architecture.

AMDAHL SHIPS UTS UNIX 2.1 ONE QUARTER EARLY

Amdahl Corp has brought forward the general availability of Release 2.1 of its UTS Unix, the release that links mainframes with workstations, minicomputers and supercomputers. UTS 2.1 features expanded communications capabilities that enable MVS and Unix systems to coexist as equal partners and communicate in the same operating environments. Security and reliability are also improved, and a new file system option is designed to provide users with the data integrity of fully redundant disks without their associated costs (UX No 310). The ship date was brought forward because of its success at beta test sites, the company says - it had been set for first quarter 1991 - and early users include US West Communications, Grumman Data Centers Inc in support of the NASA Johnson Space Center, and AT&T Co.

AT&T UNVEILS THE LATEST OPEN LOOK ...

AT&T's Unix System Labs has announced a new version of its Open Look graphical user interface, together with a new release of its XWin windowing system and System Strategies Ltd's Alex developers tool for converting character-based applications to run under Open Look. Open Look and XWin are offered together as Graphics Service version 4. Unlike the rival Motif offering from the Open Software Foundation - the latest version of which is incompatible with previous releases, (UX No 296) - AT&T is quick to point out that Open Look 4 is fully compatible with applications developed with earlier versions of its interface. Enhancements in version 4 include the ability to use single keys to customise the mouse, screen navigation and colour selections. Source-code licence fees for Graphics Services version 4 start at \$20,000. Separately, XWin is \$20,000 and Open Look is \$1,000. Upgrades are available to existing users at a 50% discount. Alex 1.0 for Open Look 2.0 under Unix V 3.2 will be out on January 15 next year with a \$20,000 source-tag - an Open Look 4 version will be out later in the same quarter, Unix Labs says.

...RELEASES NEW DISTRIBUTED SOFTWARE IN EUROPE...

Unix System Laboratories Europe recently released three new additions to its Open Distributed Computing range of software. CP.1 - Communications Platform Release 1 - is a Streams-based implementation of upper and middle layer OSI protocols. Its directory service will form the basis of an X.500-compliant naming service. Enhancements to the Tuxedo on-line transaction processing package include System/D, a database management system which includes a report writer, SQL interface and tools to build and administer an on-line transaction processing system. SVR4 ELS is the European language supplement to Unix V.4, which now covers most local language requirements - national character sets, local language messages, and date and time conventions - including Icelandic, Turkish and Serbo-Croatian.

...WHILST SUN UNDERCUTS MOTIF BY \$5 WITH \$995 OPEN WINDOWS PACKAGE

In its continuing battle with OSF/Motif, Sun Microsystems Inc is to offer source code for its Open Windows graphical user interface to developers and vendors, and has dropped the price of Open Windows to \$995, just below that of OSF's \$1,000 Motif pricing, which includes documentation and binary licence fee. Motif OEMs have to pay an additional \$10-to-\$40 for a binary licence, although independent software vendors can distribute applications without paying a royalty fee. Open Windows combines the Open Look graphical user interface, Sun's X11/News windowing system, font control software and the source code.

UNIX WEEK IN JAPAN

This time of year in Japan brings the first clear skies of winter and a series of Unix events, based around the Unix Fair 90, sponsored by the Japan Unix User Society. This year both the Open Software Foundation and Unix International sponsored events with visiting speakers giving updates on respective technologies. Anita Byrnes reports.

Record attendance at the Unix Fair 90 gets its first glimpse of RISC Unix lap-tops

December 4 and 5 saw the Unix Fair 90, with a record attendance of around 25,000 people and 63 companies (including the Japanese edition of Unigram-X) exhibiting. Sun Microsystems had the recently released 2GS/2GX on display, while Tandem was attracting crowds with very visible demonstrations of the fault-tolerant capabilities of its Unix-based Integrity S2 system. Toshiba was displaying its new 32-bit Sparc LT laptop computer, announced last week, which has a performance rating of 13.2 MIPS, 180Mb disk, 8Mb memory expandable to 40Mb and options of either liquid-crystal or electroluminescent display - price is some \$15,000. Sony also showed its R3000 RISC-based laptop, the RISC NWS-3260, featuring both in-built speaker and an audio interface, as well as Ethernet, SCSI RS-232 and Centronics interfaces, 64Mb of cache and 16Mb main memory, plus a 406Mb hard disk. This machine, and the NWS-3870 and 3860 desktop models, will be shipping from January running Sony's 4.0 OS which incorporates System V.4 commands on the Berkeley base, and Sony widgets which will be developed towards OSF/1. Matsushita Computer Systems was displaying the products of its tie-up with Solbourne - the S4000 64-bit Sparc workstations, and also a space-saving model S3000 measuring 17.7" wide by 7" deep by 15.8" high and a thin plasma display screen developed jointly between the US and Japan but currently only for sale in Japan. Matsushita is targeting universities with models priced between \$15,000 and \$17,400. Nissho Electronics, subsidiary of the Nissho Iwai trading company recently became the Japanese distributor for Auspex Systems Inc's NS5000 Network File Server machine, designed to optimise performance of networks based on the Sun standard, although John Dunham, product manager for Auspex in Santa Clara, said that the system could work equally well using the Software Foundation's proposed AFS. In Japan, Nissho is targeting electronic CAD, software development and financial trading system users, and has sold two systems despite the price of almost \$140,000 since the agreement with Auspex this summer. The NS5000 and NS3000 machines were also chosen by the Unix Society as the basis of its Show-wide network. Another organisation with a network was Unix International, demonstrating the connectability of its members' workstations - including machines from Oki, Sharp, Toshiba, NEC, Nippon Sun, Sony, MIPS, PFU and Fujitsu - at the Unix International booth. The new Unify Japan was demonstrating its Image-mate binary data and image retrieval linked to Unify and previewed its adoption of Motif and a new graphical designer tool for forms-building in Unify. John Mashey, MIPS Computer vice-president of research and development, was seen checking out the state of alignments in the Sparc versus MIPS RISC Wars in the Japanese market, and indicated that MIPS was starting to be more open about the R4000 chip - R4000 being seen as useful for three to four different configurations, from simple uniprocessor through embedded control applications to high-end uniprocessor and multiprocessor servers.

Foundation highlights its microkernel

The Open Software Foundation led off the events with its Grand Pacific Symposium on December 3, followed the next day by a series of more detailed seminars on the technology. Entitled the Dawn of a New Computing Era, the symposium attracted more than 200 to hear the latest about the Foundation's research directions in the three areas of the OSF/1 microkernel architecture, Distributed Computing Environment and Transarc Corp's AFS distributed file system. Dr Rob Morel, managing director of the Software Foundation in Japan, claimed that "OSF has changed the way the industry does business" since its start in 1988; the Foundation has 37 members in the Pacific region and 21 member organisations in Japan - the demo room next door had companies such as Hitachi, IBM Japan, software houses CSK and ASCII, Omron, Sumitomo and Nippon DEC demonstrating Foundation technology. Dr Ira Goldstein, Foundation vice-president of research and advanced development, speaking about OSF/1 as an operating system for the 1990s, stressed the benefits of the OSF/1 microkernel architecture - fully symmetric and fine-grained, as well as compatible with XPG-3, Posix, Berkeley and System V.3.2; and its evolution into a trusted real-time microkernel. In terms of security functions, B1 security is currently being developed and the micro kernel will be the base of further B3 development in a programme funded by the US Defense Advanced Research Projects Agency and Trusted Information Systems. In terms of dates, 1991 will see the development in these two areas of real-time and trusted functionality, with shipping of OSF/1.1 Enhanced Multiprocessor Product, and the advanced research being completed by the end of 1991 and implemented in prototypes of real-time and trusted OSF/1, along with a prototype of DCE/Distributed File System on the microkernel. This is to lead in 1992 to the release of OSF/1.2 single server with real-time functions, and an OSF/1.2 trusted multi-server. Doug Hartman, director of requests for technology and validation engineering, reviewed the Distributed Computing Environment, stressing availability of Snapshot 2, and the mid-January release of the developer's kit. Transarc president Dr Alfred Spector highlighted claimed benefits of AFS 3.0 over Network File System V.2 in terms of performance on a Sun 4 with Sparcstation clients, gains to be even more emphatic in AFS 4.0.

Unix International fights back,

dismisses Mach as 10-year-old technology

Unix International concluded three days of events with the latest in its series of System V.4 Technology Seminars. Peter Cunningham reiterated the commercial success of System V.4, catalysing the Unix market in general, which has grown at 26% over the last year to 2.5m Unix licensees and estimated 16 million Unix users; 323 companies are already shipping System V.4 products, including 22 in the Asia/Pacific region. Dr William Cox, technical staff at Unix Systems Engineering, spoke about multiprocessing technology as viewed by Bell Laboratories. System V.4 Extended/Multiprocessing (ES/MP) will be available in early access in 1991 and a product including System V.4 enhanced security (B2, B3) shipped in 1992. He was at pains to point out that multiprocessing is not a new concept, with the AT&T 3B2 being the first true Unix multi-processor. He provided a Buyer's Guide to blast away some of the other "myths" about multiprocessing - the myth of "low weight" equalling high performance - he cited a firm that ran Mach 2.5 on a 80386 machine and compared it with System V.3.2, which was considerably faster; the myth of the microkernel - the System V.4 core kernel being only 50,000 lines in length; and the myth of multithreading - data sharing being more fundamental than "threads", and contended that Mach is really a 10-year old Berkeley 4.3 kernel with communications added and virtual memory system replaced, providing minor performance increase; in short the promises for the microkernel do not always stand up. He also emphasised working with partners - the Unix International Multiprocessing Working Group includes three or four people from Fujitsu and one from Pyramid, who spend time in Bell Labs to provide feedback and technical input. Valerie Miller, of the Network Architecture and Systems Engineering Division of Unix Labs described the open nature of System V.4 - including interoperability service, file services, remote execution, directory and Tuxedo distributed transaction processing, and emphasised that users say that above all they want compatibility and maintainability. She looked forward to peer-to-peer processing in which clients and servers could dynamically swap roles via a conversation manager.

PROCESS CONTROL GOES OPEN, RISC IN FOXBORO-SUN TIE

Siebe Plc's Foxboro Co in Foxboro, Massachusetts will bring open systems and RISC to the process control industry under an agreement signed with Sun Microsystems Inc. Foxboro plans to incorporate the Sparc RISC and other Sun computer technologies into its I/A Series industrial process management and control system on an ongoing basis. The agreement also includes an exclusive marketing arrangement under which Foxboro will provide an integrated system to meet the needs of the two companies' industrial automation customers. The first three products under the agreement, to be available February 1991, will support bidirectional exchange of information between I/A Series systems and Sun's Sparcstations and servers, MS-DOS personal computers running Sun's PC-NFS software, and other machines. They are the I/A Series Application Interface Software; the I/A Series Open Application Platform, which bundles the application interface software with a Sparcstation; and the I/A Series Open Information Server Sparcserver-based networked hardware/software combination. The products are designed to give engineers, managers and other supervisors direct access to plant production data, and process operators with any engineering or business data that they need.

GENERAL AUTO GIVES MOTOROLA MAJOR OEM DELTA ORDER

Pick-popper extraordinaire General Automation Inc, Anaheim, California is broadening its diversification into the Unix market with a major OEM agreement valued at \$36m - controlling share holder Sanderson Electronics Plc says it thought the value would be nearer \$70m - with Motorola Inc for 68030-based Delta Series 3000 and 88000 RISC-based Series 8000 machines to be offered with Pick under Unix and straight Unix. Orders for systems to be shipped to Australia and the UK have already been received by General Automation. According to Sanderson, General Automation plans to offer the new machines alongside the Pick systems that it builds itself - creating combination machines to be linked via the SCSI disk interface; the General will also implement its R91 Enhanced Pick Application Environment on the Delta Series systems in the future, "thereby assuring customers of migration path alternatives as technology advances". New distribution channels in the Unix world are also being sought for the new machines, which will ship from early next month, Sanderson adds.

NETFRAME SYSTEMS LAUNCHES TOP-END 80486-BASED NF200 MODEL

Milpitas, California-based NetFrame Systems Inc has expanded its family of multiprocessor network computer systems with the model NF200. The new machine uses the 80486 and runs NetWare 386 from Novell Inc and Microsoft Corp OS/2 LAN Manager, and is aimed at environments where local nets are growing to support more users - typically up to 250 - and evolving beyond file sharing and communications applications to encompass SQL database processing. Two separate input-output buses combine with specialised memory and CPU data paths to achieve peak internal transfers up to 200Mbytes per second. It has expansion room for up to three input-output processor boards, and can connect three separate local nets, scaling in throughput to sustain data rates approaching 15Mbytes of data per second. It features as parity checking on all data paths, error correcting memory, power module redundancy and automatic restart/retry to provide mainframe-class reliability and data integrity levels. In the same cabinet as used for the NF100, it comes with 8Mb shared main memory, 380Mb disk and one input-output processor board with connections for SCSI-II, RS-232 SDLC, RS-422 and either Ethernet or Token Ring. It can grow to 32Mb memory, 16Gb disk, and starts at \$26,950, immediately. NetFrame also said that standard Microsoft OS/2 Version 1.21 for the NetFrame family will be available in January 1991 and will run LAN Manager 2.0 and all off-the-shelf applications written for LAN Manager, which can be had from Microsoft at \$6,490 for unlimited number of users.

SCO UK TAKES CHARGE OF OPERATING SYSTEM DEVELOPMENT

The evolution of Application Binary Interface standards for Unix, (UX Nos 287, 255), and the gradual move towards a bug-free, well-supported version of the latest V.4 operating system release from AT&T means that traditional Unix operating system vendors like Santa Cruz Operation and Interactive Systems are increasingly having to diversify their core business activities with value-added offerings and application-orientated products in search of new Unix customers. SCO is still trying to attract support for its formative Open Desktop package and Interactive has only recently indicated a willingness to move from its Unix operating system and connectivity technology ground for new pastures, (UX No 306). Now Santa Cruz has completed a re-shuffle of its research and development operations that sees the UK division take over sole responsibility for development of the basic operating system releases - 65 engineers will be working on the task - freeing-up resources in the US to concentrate Open Desktop, application and Risc-level development. Networking - previously a pan-Atlantic effort - moves to the US. Whether SCO will eventually do a vanilla implementation of Unix V.4 remains to be seen, "it is a difficult question," admits Lars Turndal, managing director of SCO UK. The next release of SCO Unix - 3.2.2 - will include some V.4 technology but, says Turndal, the transition from the existing SCO Unix 3.2 to Unix V.4 would require "an enormous amount of work because of the way AT&T designed V.4." Instead SCO is likely to concentrate on modularising its existing offerings.

SWEDES PORT GUDA MANAGEMENT SOFTWARE TO IBM'S RS/6000...

Swedish Computer manufacturer Nokia Data and computer consultant Programmer have formed a joint-venture to port and promote Unix administration and management applications on IBM's RS/6000 and other Unix platforms. Known as Guda, and claimed to be the most popular Unix management software in the Nordic countries, the package was developed by Ericsson Information Systems prior to its acquisition by Nokia Data. Guda was initially ported to Nokia's Intel and Sparc-based Alfaskop systems, and the new venture will move it on to the RS/6000, then other Unix systems, Ulf Lundal, manager of Nokia Sweden says. The venture is Programmer's first move into the Unix market, Programmer's Anders Skarin admits, but Guda is also being used as the consultant's development platform for other customised Unix management systems. The aim is to fully internationalise Guda - English, German and Nordic language versions are already available.

...WHILST TELI, ADRA, OFFER UNIX, MS-DOS INTEGRATION

Swedish software houses Teli, from Nynashamn south of Stockholm, and Adra Datasystem of Malmoe, in the south of the country, have developed a network application allowing Unix-based systems to act as servers in a personal computer local area network environment. The Teli system is based on Locus' PC-I and runs on Interactive Systems' flavour of Unix, whilst Adra's runs on SCO Unix. Both applications transparently connect personal computers with Unix servers over local area networks using Microsoft Windows as the interface. Neither use terminal emulation to integrate Unix services into the personal computer environment, instead, the personal computer user sees shared disks, printers and other peripherals as local resources, exactly as on local area networked personal computers. Both applications allow users to access Unix through Windows.

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Unisys Corp has announced a £3.8m sale of Unix equipment to the Crown Prosecution Service, involving some 70 U6000s, 1,300 terminals and 800 printers, spread over 31 sites in the UK: the contract is thought to have been won in competition with Olivetti, Hewlett-Packard, Siemens and Apricot.

DEC may be about to order its first ever lay-off after its latest voluntary redundancy programme has failed to generate the necessary response and the company is facing demands that it make radical cost savings. According to the Wall Street Journal, DEC has been reorganising senior management and looking at further rationalisation measures after only 600 people out of a possible 7,000 have taken up the offer of voluntary redundancy.

Z/Max Computer Solutions Inc, Clay, New York, has released Z/Max XChange, an information management system for administering Unix communications and mailing systems: available running on 80386-based Unix systems, AT&T's 3B2, Sun Microsystems' Sparcstation, NCR Towers and Data General's AViiON platform, prices start at \$1,500.

Prentice Hall has signed up with Phoenix Technical Publications Ltd, Wokingham, Berkshire, to produce all AT&T's Unix V.4 documentation in French: a German version has already been published, and other languages will follow.

Saratoga Systems, Staines, Middlesex, has launched a new version of its mainframe and personal computer application for IBM's Systems Application Architecture environment: Sales and Productivity System - SAA - is written in C and can use DB2, SQL or its own database as a repository, it is available for linking Unix, MS-DOS and OS/2-based personal computers to a range of IBM mainframes, prices start at £8,500.

And Attachmate Corp, Wokingham, Berkshire, is now shipping Extra!, its personal computer-to-mainframe connectivity software for Microsoft Windows 3.1, which includes file transfer, printer sharing and emulation facilities: Extra! costs £375.

The Spanish telephone company Telefonica, and GE Information Services are the latest additions to X/Open's User Council, whilst Stratus Computer has joined the System Vendor Council.

Coventry-based Systems Resources Ltd says version 3.0 of its C++ interface builder for applications developed for Microsoft Windows 3.0 with Glockenspiel Ltd's C++ CommonView is now available: CASE:W runs on Intel 80286 and 80386-based platforms priced at £600.

UK X-Windows specialist IXI Ltd, Cambridge, has joined Unix International, more than a year after it joined the rival Open Software Foundation, (UX No 243): IXI, which already has UI members like Dell, NCR, SCO and Unisys under its belt as users of its X.desktop window manager claims that licensing deals with other UI members will be announced soon.

The first conference of the Soviet Unix System Users' Group at the beginning of last month attracted 250 delegates from Moscow, Leningrad, Novosibirsk, Taganrog, Vilnius and other cities - Western speakers included Bill Joy of Sun Microsystems and Edward Gould of Mt Xinu: next year's conference will be held in September, for more information contact Ostapenko G.P., Ineum, GSP-1, Vavilova St., 24, Moscow, USSR.

NCR Corp is to unveil a Unix version of Novell Inc's NetWare that will run on its Intel-based System 3000 machines called NCR NetWare/X.

National Expositions' Unix Expo West Show - May 7-9, 1991 - has been moved from last year's Los Angeles site to the nearby Anaheim Convention Centre.

AT&T's Unix System Labs will be opening an SVR4 ABI access centre at its new headquarters in Summit, New Jersey in the first quarter: They're hoping the place will be chock full of Intel, Sparc, Motorola and maybe MIPS platforms so software guys can come in, run their applications and verify they work.

Tatung Company of America (TUS), one of the two Tatung units in the states - and reputedly a more promising vehicle than its sister operation for distributing the firm's new Sparc clone (UX No 310) - reportedly has a reseller interested in buying several hundred machines if TUS can supply them: TUS is hoping these kinds of results will impress the firm's Taiwan headquarters enough to give it the franchise.

In one of the more dramatic examples of downsizing, Merrill Lynch & Co, New York has dumped a top-end IBM mainframe, model not specified after it decided it was wasting \$1m a year on service and leasing charges for a glorified library system, and has replaced it with a \$500,000 Unix server from Sequent Computer Systems Inc: Joseph Freitas, director of investment banking systems, told BusinessWeek that since more and more data and applications have been brought down to the personal computer, the mainframe has been reduced to a database for the 1,100 connected workstations - and was giving an inadequate response time.

Minicomputer industry pioneers Edson de Castro and Herb Richman, two of the five-man team that founded Data General Corp in 1968 are to retire from the company, apparently following the wishes of the Data General board. De Castro will quit as chairman at the end of the month, and Richman will retire from the company in September 1991.

DEC has made the eminently sensible move of signing a complementary technology agreement with the Dutch company Uniface International BV to provide each other with early access to new developments, alpha versions of new products and releases: DEC is particularly interested in pulling Uniface's PolyServer and Universal Presentation Interface into its Information Network strategy, since Uniface has a very strong reputation as a portable fourth generation language able to access a large number of database products and file systems; it is worth noting in this context that Uniface's US operation is headed up by Mike Wilson - ex-vice president of Ingres, the company that developed Ultrix SQL, and that a little help from Uniface could go a long way to helping DEC get both its VMS and Ultrix applications to access any new database technology that it is now developing.

NeXT Computer Inc is working on expanding the networking and communications capabilities of its computers, according to comments made by chairman Steve Jobs in Boston the other day, reports Microbytes Daily: by next summer, NeXT computers will support Novell NetWare clients and links to AppleTalk via EtherTalk; a new interface for SMTP makes the Simple Message Transfer Protocol that NeXT uses "something that's useable by mere mortals," Jobs said; Jobs also showed a sample NeXT electronic mail document and demonstrated how to put elements such as sound, graphics, text, and data in one message just by cutting and pasting - with full motion video support as well planned for summer using Joint Photographic Experts Group compression.

Hyundai Electronics Industries is to assemble and market Unisys Corp's Intel iAPX-86 family U6000 Models 51, 55 and 60 Unix boxes under licence at its Icheon, Korea factory and will market them locally as the Hyundai Super 6000 Series, going after financial, insurance and government business.

Here's a little stocking stuffer arrived in time for the holidays: the first book about Sun written by Mark Hall and John Barry, a couple of ex-employees, and called Sunburst: The ascent of Sun Microsystems, a tale of how Sun succeeded where others failed. We warn you though its distribution is not brilliant. You'll probably have to order it from the book store so here's the rest of the citation: Contemporary Books, Chicago 1990. 297 pages, \$19.95.