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AT&T CREATES NEW UNIX SOFTWARE DIVISION

AT&T this week finally announced the long awaited spin-off of its Unix activities with the formation of the Unix Software Operation, a separate business unit that will be responsible for the development, marketing and licensing of Unix System V software. AT&T named Larry Dooling, currently vice president of marketing for the Data Systems Group, as president of the new division. The move was spurred by the worries of Unix vendors that AT&T's hardware interests were compromising the hardware independence of Unix. Accordingly, Unix System V product planning and management, licensing and marketing will be separated from the computer business and transferred to the Unix Software Operation - which will also include AT&T's Unix Pacific and Unix Europe operations. The division will work with the newly formed Unix International Inc, which according to AT&T will "provide direction to the new business unit on product definition, licensing policies and product release schedules". Although planning for Release 4.0 is already complete, Dooling said he expected Unix International "to advise us on related issues for that release". Unix Inc is currently concentrating on formalising the process for input and review between the two groups, and developing a plan on how to provide early access to the source code of V.4. The Unix Software Operation, which will also deal with system software such as the C compiler and the Open Look graphical interface, will be headquartered in Morristown, New Jersey, and will be the licensing agent for AT&T Data Systems Group source products: the computer business will retain development responsibility for all AT&T software products used on its own systems. Dooling reports to Data Systems Group president Robert Kavner. But Unix vendors may not be satisfied with the level of independence given to the new division: OSF director of European Operations said back in October that a 100% owned subsidiary operation controlling Unix would not be a significant concession as far as OSF members were concerned (UX No 203).

OSF CHOOSES HP/MICROSOFT STYLE GUIDE, WINDOW MANAGER WITH DEC TOOLKIT

Keeping its promise to come to a decision on the user interface component of its "open operating environment" by the end of the year, the Open Software Foundation chose December 30th for the announcement of the final technologies chosen - from DEC and Hewlett-Packard/Microsoft. And OSF has also expressed its intention to make the technology available on AT&T's rival Unix System V.4 implementation in addition to its own environment, and as an unbundled offering. From the twenty three submissions which passed the requirements of the OSF request for technology issued in July last year (UX No 190), OSF used its "open process" of member evaluation to select a combination of the DEC and HP submissions - namely the style guide, window manager and some of the toolkit "widgets" from Hewlett's CXI product shown at Comdex in November (UX No 207) along with the toolkit Application Program Interface and User Interface Language - but not the screen presentation and style guide - from DECWindows. Conformant interfaces will retain the 3D appearance and Presentation Manager compatible behaviour of the HP product, according to the OSF. A team of DEC and HP engineers will work to complete the development, which includes the integration of features from the DEC window manager, such as icon grouping, into the HP product, and OSF members will receive "snapshots" of source code by the end of January, with a fully tested and supported version scheduled for the summer of this year. HP said it would use the OSF interface as the basis for its NewWave product on Unix hardware - it also has NewWave offerings for MS-DOS using MS- Windows and OS/2 using Presentation Manager. Ray Anderson, managing director of IXI Ltd, Cambridge, which submitted the X.desktop graphical shell to the OSF, said that the Foundation had "held back from standardising on a specific desktop - and may never do so. It was felt that members were not yet ready to standardise in this area". According to Anderson, the choice of the "feel" of Presentation Manager is a good one. "The only party with its nose seriously out of joint might be AT&T, with its rival Open Look product". But DEC might also have to change its tack over DECwindows if it wishes to fully support the OSF decision - DEC spokesman Chuck Malkiel said that DEC "was happy with the decision. The bulk of the work has been preserved, and third parties can continue development. When the OSF product comes out we will evaluate it".

DEC TAKES NCS FROM APOLLO

Apollo Computer was celebrating a further endorsement of its Network Computing System distributed computing software this week with the announcement that DEC had licensed the software for evaluation and possible inclusion within future products. In recent months, IBM and Hewlett Packard have also licensed the software, which allows users to distribute parts of a single application program across a multi-vendor network to the computer most suited to the task. And according to Apollo spokesman Jim Barbagello, there will be a fourth announcement "in the next few weeks". Introduced in 1987, NCS has now been implemented by over 100 users, according to Apollo, and now supports Unix-based hardware from Alliant, Convex, Cray, DEC, Hewlett Packard, IBM, Multiflow, Prime, Stratus and Sun Microsystems. Barbagello said that NCS would allow DEC VAX hardware to be used as the host system for a multi-vendor networked computing solution. Sun has recently unbundle the Open Network Computing component of its Network File System (NFS) as a direct competitor to NCS, but does not include a "location broker" for automatic compute distribution, or automatic data translation between machines.

OSF PROGRAM CATCHES "ADDITIONAL TECHNOLOGIES"

Along with the user interface announcement, the Open Software Foundation has launched what it calls the Catalog Technology Program, for several technology areas identified as "of interest to the membership but not yet appropriate for standardisation". The scheme calls for ongoing review of products likely to be eventually included in an OSF core offering. Initially, technologies identified have arisen from the user interface request for technologies, including products in the user interface management systems area, such as Apollo's Open Dialogue and a similar development from the Swedish Telecom Group. And the OSF Research Institute will also provide exposure to "important research technologies" under the scheme, and is looking at interface technology submitted from Carnegie-Mellon University's Andrew project and at window management specification software from Groupe Bull.

UNIX IN 1988

RISC AND REBELLION

January: The year begins with RISC fever as rumours mount of the imminent launch of a top-end superworkstation from Apollo Computer, even as rivals Ardent (nee Dana) and Stellar shuffle noisily in the wings. The UK's Apricot Computers, having had its fingers burnt too often at the low-end of the market, changes its focus up-market with an OEM deal from Sequent Computer Systems Inc. Prime Computer begins its battle for Computervision Corp, in its bid to gain a larger slice of the CAD/CAM marketplace - and says its after more acquisitions in other areas of the computer industry. And Prime enters the minisupercomputer market by re-badging Cydrome Inc's "directed dataflow" computer. X/Open opens up with the formation of user and software vendor councils to keep the hardware sponsors on the right rails, and adds new members Sun and Apollo, bringing membership up to thirteen - but even as it does so, some of the members emerge in a separate grouping - nicknamed the **Hamilton Group** - which voices its objections to the increasingly close relationship of AT&T and Sun Microsystems, and the effect that might have on the future independence of Unix.

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February: As Prime wraps up its Computervision buy, Ericsson announces the sale of its computer operations to Finland's Nokia Oy to concentrate on Telecoms. Datapoint Corp tries for another attempt at a slice of the Unix pie with an OEM deal from the Norwegian NCI Norsk Computer Industri. NCR beefs up its Tower line, taking the top-end up to a six processor, 512 user system, and adding the tiny 4-user Tower 32/200. ICL's parent STC buys the complete UK operations of the Canadian Northern Telecom, giving ICL access to the Vienna range of office systems. And Apple Computer launches its long-awaited A/UX Unix Macintoshes at a packed and well-healed Uniform in Dallas, Texas, to general disillusionment about its large size, poor performance, and lack of friendliness. At Uniform, AT&T attempts unsuccessfully to assure the Hamilton Group that its Unix intentions are honourable, and show visitors walk round with anti-Sun badges saying "No NeWS is good NeWS".

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March: Apollo's RISC-based Prism Series 10000 workstation is launched in Boston, almost simultaneously with Ardent's Titan workstation and Stellar's GS1000, all aimed at the high-performance scientific "visualisation" market. Meanwhile, AT&T and Sun gain a bit of welcome support after the criticisms of the Hamilton Group, with Motorola and Unisoft collaborating with AT&T on a binary standard for 68000 and 88000 Unix, and Unisys Corp coming out in support of both AT&T's Unix developments and Sun's SPARC processor. IBM introduces its AIX Family Definition based on Unix V.2 with Berkeley 4.3 compatibility - standardising its AIX offerings across the PS/2, RT (6150) and 3070 to 3090 mainframes. And Eastman Kodak Co moves to protect its own Unix future with the acquisition of Interactive Systems Corp. Lawsuit of the month comes from Apple Computer, which effectively shakes the industry with an action against Hewlett Packard and Microsoft, claiming infringements of the "look and feel" copyrights of its acclaimed Macintosh interface.

April: Reduced Instruction Set Computing is all the rage again this month, with the long-awaited introduction of Motorola's Risc effort - the 88000 - and a string of companies such as Data General, Convergent Technologies, Encore, and Stratus announcing plans to use it. Both Motorola and rivals MIPS Computer Systems say they are working with AT&T on binary compatibility standards for their chips, and other Risc vendors are quick to follow. Meanwhile, ICL, the UK's largest system manufacturer, opts for Sun's SPARC processor, and Computer Consoles Inc enters the fray by announcing plans for its own 25 mips Risc - with an interesting binary compiler from Hunter Systems Inc to endow it with SPARC compatibility. At least one company with Risc products - Whitechapel Workstations - is less happy as its sources of funding fail, and staff are laid off. The other main event of the month is Open Look - AT&T's graphical user interface, developed with Sun, but cleverly licensed from Xerox Corp in an effort to stave off a lawsuit from Apple. And ominously, Vittorio Cassoni, credited with setting up AT&T's controversial association with Sun, returns to his original post at Olivetti, amidst rumours of worsening relationships.

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May: As summer approaches, things really begin to hot up in the Unix world, with the announcement on May 16th of the Open Software Foundation - seven major computer companies, including IBM and DEC - that plan a "vendor independent" Unix-based software development organisation with control in the hands of its members. The press conference features IBM chief John Akers sitting on the same platform as arch-rival Ken Olsen from DEC, although the pair won't go so far as to be photographed standing next to each other! The most controversial decision of the Foundation is to take IBM's AIX kernel as the basis for its alternative Unix implementation. Too late, AT&T begins to make concessionary noises, with new Data Systems Group president Robert Kavner promising an independent spin-off of AT&T's Unix activities, and more involvement from outside vendors in future Unix developments. Meanwhile, MIPS Computer Systems announced the setting up of an independent software consortium to promote software for its chipset, Sybase began to make noises about the transaction processing performance of its Release 3 database, and DEC revealed that it would be ready with a RISC-based Ultrix workstation by the end of the year.

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June: Rumours begin to fly about the imminent release of Apple founder Steve Jobs' Next Inc workstation, three years in the development - but the "firm" release date of June 16th turns out to be only the first of a series of false alarms after Jobs reportedly finds that the Postscript-based graphics on the 68030-based machine will not run fast enough. Siemens announces a mysterious joint development with Intel to produce a new range of fault tolerant transaction processors under the computer generated name Biin! AT&T shows off early versions of Unix V.3.2 for the 80386 processor - the first to combine Unix and Xenix functionality into a single operating system. C++ becomes available on PCs, with compilers from Oregon Software, and Zortech Ltd, which offers its version for \$99.95. And the first systems to be based on Motorola's 68030 begin to be talked about, with machines in the pipeline from Hewlett Packard, Apollo Computer, Apple and Sony Corp.

UNIX IN 1988

ORDERS AND TAKEOVERS

July: Philips becomes the eighth sponsoring member of the Open Software Foundation this month, as the Foundation, which now has permanent staff but no permanent headquarters, issues its first Request for Technology. Interested parties are asked to submit proposals for user interface technology based on X Windows, which will be chosen in open competition by the end of the year. Meanwhile, the first speculation breaks about "Unix Inc", an alternative to the OSF planned by Unix licences supporting AT&T's V.4 efforts. IBM comes to the fore this month: first by frightening everyone by pointing out that it holds fundamental patents on RISC technology, for which it may demand royalties; then by launching enhanced versions of the PC RT, and claiming that it is now aiming the systems squarely at the business market. Rumours mount that Steve Jobs' Next user interface will be licensed by IBM for its AIX systems, and IBM, along with Japanese giant Fujitsu, joins X/Open, boosting the combined revenue of X/Open members up to \$108 billion. DEC confirms that it is talking to MIPS Computer Systems for its RISC systems, and may take a stake. And Prime withdraws from the increasingly overcrowded supercomputer market by pulling out of its investment in Cydrome Inc.

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August: The month is dominated by mergers and take-over bids, as Masscomp buys Concurrent Computer Corp and Unisys bids for Convergent Inc for 332m - while John Cunningham of CCI hints that his company too might be up for sale. But in Australia, Today 4GL authors BBJ fall into financial difficulties, and sell the software onto the Rupert Murdoch-owned Computer Power Group. Oracle releases version 6 of its relational database, amidst so much hype that the rest of the industry is offended into setting up the Transaction Processing Council, to set up and regulate meaningful performance benchmarking. British Telecom says it will be implementing an internal office automation project involving 60,000 Unix systems, using its own machines alongside those from Nixdorf and Honeywell. Sun chalks up a \$280m five year pact with Fujitsu to supply the Japanese company workstations, initially in Japan, but later worldwide. And the long awaited, long delayed POSIX portable operating system standard is finally approved by the IEEE, with DEC choosing the same day to release its Posix compliant Ultrix Release 3.

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September: The two finalists for the UK's Corporate Headquarters Office Technology System (CHOTS) are revealed as British Telecom, heading a consortium of Honeywell Bull, Nixdorf and SISL, and ICL's Topix consortium with BICC, Coopers and Lybrand, Data Logic and Hewlett-Packard: the contract could eventually be worth some \$300 million. Texas Instruments enters the Sparc marketplace with plans to both fabricate the chip and to use it for future systems aimed at artificial intelligence work. And Solbourne Inc, in conjunction with Matsushita Electric, announces plans for a Sparc-based superworkstation due out early in 1989. The OSF and AT&T begin talking on the possibility of a reconciliation. And X/Open announces its branding policy, which will allow compliant hardware and

software to be tested, and to sport an X/Open tag to prove conformance. The Japanese Nippon Mining Co Ltd buys Gould Inc, leaving the position of the Computer Systems Division unclear. And the UK's Integrated Micro Products buys General Automation's Parallel Computer Inc subsidiary to boost its interest in Motorola-based parallel systems technology. Motorola Inc sues as key members of its Risc design team leave to form Ross Technology Inc under the umbrella of Cypress Semiconductor.

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October: The contenders in the Open Software Foundation's user interface contest are revealed, following a three day evaluation meeting attended by OSF members in Boston, Massachusetts: DEC's DECwindows is the hot favourite. And DEC confirms its commitment to MIPS Computer Systems, saying it will take a 5% stake, with the option of up to 20%, and that a Risc-based Ultrix-only workstation will be released at the turn of the year. Honeywell Bull adds an 80386 co-processor for the DPS 6 to run Unix. Hitachi becomes the ninth sponsor member of the OSF, and the first from Japan. Next Inc finally announces its NeXt workstation, running the Mach operating system, NextStep object-oriented user interface, music and educational software, and a Motorola digital signal processor to handle sound and communications - and as expected, IBM takes the interface for use on AIX. The Siemens/Intel owned Biin comes out with its promised machines, using Intel's 80960 quasi-Risc chip. And AT&T goes out on the road to convince programmers of the benefits of Unix V.4, as its supporters, including Unisys, NCR, Fujitsu and ICL, group together as the oddly nicknamed Archer Group to lobby OSF.

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November: AT&T celebrates November by winning the US Air Force AFCAC contract - billed as the largest Unix contract ever, with a potential value of up \$4.5 billion - a much needed shot in the arm for AT&T's not wildly successful computer systems business. Plexus, however, takes the opportunity to withdraw from the general computer market altogether, selling its service and support operations to Motorola Computer Systems to concentrate on specialised XDP mixed media image processing systems. Hewlett-Packard and Microsoft reveal their plans for Presentation Manager under Unix. MAI Basic Four mounts its bid for the much larger Prime Computer Inc. And talks between OSF and the Archer Group begin to look increasingly fruitless.

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December: The Archer Group becomes the nineteen member Unix International Inc, completing the Unix schism, which is further sealed by OSF calling off talks with AT&T, claiming they have become "non-productive - but both groups say they will stick to X/Open and Posix base standards. STC, and its subsidiary ICL says it plans to acquire Computer Consoles Inc, at last giving ICL a solid foothold into the US marketplace, further strengthened by the acquisition of Datachecker Inc the following week. All in all, a year dominated by Unix wars, but revealing the seriousness with which many of the established computer giants now regard Unix.

COMPANIES SPONSOR X WINDOWS PHIGS EXTENSION

Thirteen computer companies are now reported to be sponsoring the development of 3-D functionality for MIT's X-Window user interface, with undisclosed sums of money. Originally mooted back in 1987 by Sun and DEC, the PHIGS Extension to X, or PEX, will allow X-Window users to run 3-D graphics applications across a network. PEX is to incorporate both PHIGS, the Programmers Hierarchical Interactive Graphics System 3-D standard, and PHIGS +, a proposed extension adding support for such features as lighting, shading and curve and surface primitives. Currently only two dimensional and limited 3-D graphics images incorporating wire-frame and flat shading can be exchanged on networked systems using X-Windows. According to Computer Systems News, X-Windows running the PEX standard will support full 3-D images, incorporating such features as Z buffering, Gouraud shading and double buffering. Sun was originally awarded the contract to develop PEX, but the MIT X Consortium is co-ordinating and controlling all the work. Eventually the extension will be available as part of MIT's software release at cost, with no licensing restrictions. For their part, the companies sponsoring PEX are also contributing to its development, and will receive a preliminary release of the software and documentation next summer. The first public release of PEX is scheduled for late 1990. The PEX sponsoring committee includes Sun and DEC, along with Apollo Computer Inc, Ardent Computer Corp, Data General Corp, Hewlett-Packard, Fujitsu Ltd, the Open software Foundation, Solbourne Computer Inc, Stellar Computer Inc, Tektronix Inc, Unicad Inc and Evans and Sutherland.

TEXAS, HITACHI TO SHARE MEMORY CHIP RESEARCH

Following the comprehensive agreements on semiconductor technology and products between Motorola Inc and Toshiba Corp, Texas Instruments Inc has agreed to join forces with Hitachi Ltd in a rather more narrowly focussed venture. The two companies have taken quite different approaches to the design of 4M-bit memory chips, and have agreed to pool their technology to decide the most appropriate approach to the design of 16M-bit parts, expected for 1992. The agreement runs for three years, and the results will be jointly owned, but will be applied separately by each company.

RTI PORTS INGRES TO THE MAC

Database vendors are becoming increasingly interested in gaining a slice of the workstation market, and now Relational Technology Inc has ported its Ingres database to run on Apple's Macintosh II under the A/UX Unix implementation. And by using RTI's Ingres/Star networking software, Apple users will be able to include Mac IIs within corporate-wide mixed computing environments, which allows transparent and distributed processing and databases across the network. When used with Ingres Gateway products, Mac users will also be able to access data in non-Ingres data management systems, according to RTI.

TETRA WINS £40m CHAMELEON DEAL FROM SIEMENS

Tetra Business Systems Ltd, Maidenhead, Berkshire, has won a prestigious multi million pound deal with the West German industrial group Siemens. Tetra's business and accounting software, including Chameleon, and the Materials Resource Processing (MRP) system, will be sold under license throughout the world by Siemens in the deal - expected to be worth £40m over the next twelve years. Siemens is to market the packages on its range of Unix systems, and has the added option of marketing any new software developed by Tetra during this period. According to Sean Dowling, Tetra's managing director, work began on the Chameleon application three years ago with the explicit intention of addressing the European market, and the deal is regarded as important step in the company's preparation for the single European market in 1992. From Siemens' point of view it gives the company an international business product that can be used in many countries without expensive alterations to suit local requirements. Siemens has already paid Tetra £1.5m in advance royalties, and managing director of sales, Mr Helmfrid Fulling described Tetra's software as providing "the most flexible solutions."

OPEN SYSTEMS SHOW RE-SCHEDULED FOR NOVEMBER

The UK's new Open Systems exhibition, originally set to take place later this month, has been re-scheduled to the end of the year, and will be held at Olympia 2 for three days from November 1st. Open Systems '89 is now being organised and promoted by Cahners Exhibitions, Richmond in Surrey, which claims that companies such as Unisys, Motorola, Prime, Oracle, Santa Cruz Operation and Honeywell Bull have already expressed an interest in attending the show. Although the UK already has an annual Unix event in June - EMAP's European Unix User Show at Alexandra Palace - Cahners says that their show will specifically address multi-vendor integration, including networking and communications, and will be of particular relevance as 1992 and the Single European Market initiative gathers momentum. A conference will run concurrently with the show.

OSF, UNIX INC SET DATES TO TALK TO USERS

The Open Software Foundation is planning two meetings to discuss its choice of user interface technology with members and interested parties. The first will be held in the Boston, Massachusetts area on January 11th, with a European meeting two days later at the Sheraton Hotel, Frankfurt Airport in West Germany. The team for both meetings will include OSF chiefs David Tory and Donal' Oshea. And later in the month the Usenix Association of Unix users says it will be hosting information sessions by both the Open Software Foundation and Unix International at its 1989 Winter Technical Conference in San Diego, California, between January 30th and February 3rd. OSF will field a technical team for its January 31st session, including director of research Ira Goldstein, and will offer a technology update. Unix Inc, in its first open meeting with Unix users, says it will discuss the role, objectives and purpose of the new organisation at a session on February 2nd, which will be attended by "senior technical representatives from Unix International and member companies".

DEC, MATSUSHITA, TO DESCRIBE 64-BIT MICROPROCESSORS...

DEC and Matsushita Electric Industrial Co have been collaborating on the development of a 64-bit RISC microprocessor to the sample stage according to the Japan Industrial Journal, which says that the US and Japanese companies will describe the fruits of their efforts at the International Solid State Circuits Conference in New York next month. Both companies are said to have sampled their versions of the 50 MIPS part, DEC doing one with 64-bit registers but a 32-bit bus with cache controller, integrating 300,000 transistors, Matsushita a 64-bit internal and external version using 450,000 transistors with memory manager and floating point arithmetic unit. It is not clear whether the part bears any relationship to the 64-bit version of the Sun Microsystems Sparc being developed by Matsushita in partnership with its Solbourne Computer Corp affiliate - or to the MIPS Computer Systems Inc RISC that DEC has chosen for the forthcoming 10 MIPS Ultrix-only workstation.

...AS DEC PREPARES PC/RISC LAUNCHES FOR NEXT WEEK

DEC seems to have learned the bitter lesson of its first foray into the personal computer market - it unveiled three machines in May 1982 in what was proclaimed at the time as a mission to "bury Apple", and the specs and the pricing on the three looked superb - except that DEC wasn't able to ship most of the things for nine months to a year, by which time the profile of the market had changed completely, and DEC had missed the bus. Now it is set to try again in the personal computer and desktop market next Tuesday, again with three lines - MS-DOS micros made for it by Tandy Corp, its own Personal VAX, and the Unix workstation based on the MIPS Computer Systems Inc RISC. But this time, the company is indicating that not only will pricing be keen, but the machines will be out there in volume within weeks of the announcement.

DATA GENERAL TURNS ITS DASHER/386 INTO LOW-END UNIX BOX

Data General Corp has turned its Dasher/386 personal computer workstation into an entry-level, multi-user Unix system by fitting it out with 386/ix from Interactive Systems Corp, Santa Monica, and languages from Language Processors Inc, Framingham, Massachusetts. The 16MHz 80386-based machine comes with up to 16Mb memory and 318Mb disk, and intelligent eight-line serial controllers for up to 26 asynchronous serial terminals, modems or printers, plus an integrated parallel printer port. Language Processors is supplying Basic, Cobol, Fortran, Pascal, PL/I and the LPI-Debug interactive source-level debugger. Language Processors will also supply the compilers for Data General's planned Motorola 88000 RISC-based Unix machines. The Dasher/386 Unix system with 4Mb CPU, 40Mb disk, and 386/ix runtime system is \$7,320, \$8,020 with 70Mb of disk.

OPTIM BUYS OFFICE EQUIPMENT FIRMS

Optim Group Plc, which includes ambitious Unix systems house Optim Computers of Letchworth, Herts, has acquired two office equipment firms: LPR Office Supplies (Herts) Ltd and JPR (Office Equipment) Ltd for £370,000 satisfied by £170,000 in cash and the rest by the creation of 350,000 new shares, placed at 57.25 pence.

SIEMENS AND BULL FIGHT OVER PICK VENDOR IN2

Underlining the new aggressive approach at Munich's former sleeping giant Siemens AG, the West German is reportedly about to take a controlling interest in French Pick, and soon-to-be Unix microsystems vendor, IN2, Intertechnique Informatique SA. At present a subsidiary of Intertechnique SA, IN2 employs 1,335 people, and had consolidated net profit last year of \$6.1m on turnover of about \$162m. And the offer has mobilised the nationalists at ambitious and hungry Bull SA, and France's flagship computer company is expected to make a counter offer for the business any day now. Bull's interest could well turn the sale into an auction, because there is likely to be interest on this side of the channel, not only from STC Plc, which has finally decided to devote a little money to building up ICL, but also from one or two of the smaller Pick vendors. Intertechnique, which holds 70% of IN2, says that it is ready to sell the business "only because it received an offer for it": a board meeting is set for next week, and it is expected to announce its decision - thought likely to be to give Bull first refusal, on January 16 or 17. Despite suggestions to the contrary, it says IN2 will report 1988 profits up on the \$9.3m or so it did in 1987, on sales up 13.5% at \$190m or so. If Siemens does get the nod, it is likely to buy a 51% of Intertechnique's 70%, ultimately going up to 60% of IN2, leaving Intertechnique with 10%. In any event, IN2 will remain free-standing and continue manufacture.

SANDERSON ELECTRONICS LOOKS FOR 51% GENERAL AUTOMATION STAKE

Newly-public Sheffield Pick-popper Sanderson Electronics Plc is the latest company to step forward and offer a helping hand to struggling General Automation Inc, whose talks about being acquired by Alpha Microsystems (UX No 211) have come to nought. Sanderson has signed a letter of intent to provide the Anaheim, California company with a \$1.75m convertible loan in an agreement in which General Automation would also give Sanderson warrants allowing it to buy a stake of up to 51% in the General in the form of new shares, at an exercise price of 70 cents a share, against a current price in the market of 37.5 cents, the entire agreement, if fully exercised, giving the General \$4m in new equity finance. Sanderson will also get the right to name three of the six members of the board of General Automation, which would continue to operate a free-standing company. Alpha Micro is the second suitor to fail to win a definitive agreement from the troubled company - it was General Automation that ended the talks - WesPac Technologies Inc had agreement in principle for a rescue in November, but that came to nothing. Alpha Micro has also held several unsuccessful negotiations to acquire companies or to be acquired.

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Tuesday, January 10 is the date DEC has inked in for launch of its Ultrix-only MIPS Computer Systems RISC-based workstation: (UX No 210): the same day is expected to see the launch of the Personal VAX, or whatever DEC decides to call the box on the day.

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And DEC is expected to announce DECwindows under VMS early in the new year: the original announcement was apparently scheduled for the very end of November: DECwindows is already available for Ultrix software developers.

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Alliant Computer Systems Corp may have picked up some good business in Japan (UX No 211), but things are not so hot back home, where it has cut its direct sales arm to 20 from 30.

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For Britton Lee Inc read Sharebase Inc - the Los Gatos, California company is rechristening itself.

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Mitac International Corp's Series 400 Xenix system will make its first appearance in Europe at the Which Computer Show in Birmingham's NEC next February (21st-24th).

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Uniplex Ltd, Hemel Hempstead, Hertfordshire, has announced that it users of SCO Xenix from the Santa Cruz Operation can now make full use of its Advanced Graphics System, an add-on package to the Uniplex office automation suite: users with SCO 386 Xenix System V running PC-compatibles with an EGA card and a minimum of 2Mb memory and 40Mb hard disk can run the package.

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The single-board microcomputer GESBDS-6 from Gespac of Mesa, Arizona, is now available in the UK from Pronto Electronic Systems, Alderley Edge in Cheshire: the multi-user system is aimed at those building simple real-time control systems, and includes 512k or ROM resident software, allowing two users to program directly in C or 68000 assembly language under the OS-9 operating system.

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Uniras Ltd, Farnham, Slough, has ported its graphics software onto Sequent hardware, a port arising out of an agreement between Uniras and the Department of Education and Science, which selected the software for use at technical Universities and other organisations involved in research.

C-Scape-3, a programming tool generating C source code from Oakland C Tools Inc, has been launched in the UK by Systemstar Ltd of Hertford: it supports OS/2, DOS, Unix and Xenix hardware, including the Microsoft C, Quick C, Lattice C and Turbo C compilers, and prices start at £300 for the DOS version.

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Tadpole Technology plc, Cambridge, UK, says that its TPIX/68K System V.3.1 operating system for 68020/68030 hardware is now available, in binary and source code implementations: Tadpole sells it on its range of VME bus and Multibus II processor cards and single-board computers.

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Encore Computer Corp has a new menu-driven user interface for its Multimax parallel processing systems: called MAXuser, it provides a menu-driven interface to office functions, user applications and communications facilities, and can be tailored for individual users - price \$7,500 for a 64-user configuration.

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Unisys Corp has introduced a Unix-based transaction handling system for transferring business data in standard formats using electronic data interchange communications between Unisys 1100/2200 and A Series mainframes and the Series 5000, 6000 and 7000 Unix machines: EaDI Easy Access Data Interchange will automatically pick up and transfer data from the user's mainframe to the Unix-based platform where the data is then remapped for presentation to the translation software package.

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The Common Unix Environment (CUE) Group of small, mostly UK computer companies founded by Eddie Bleasdale of Bleasdale Computers (UX No 182), is currently working on an implementation of the European Government Open Systems Interconnection Profile (GOSIP): CUE members include Acorn Computers, BenchMark Technology, Bleasdale Computers, Cyfer, Ferranti, IMP, Instruction Set, ITL, Lynwood Scientific, Motorola Computer Systems, ROCC, and Unisys, and according to Bleasdale were set up to carry out "pre-competitive research".

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Micro Focus Cobol/2 is now available for The Santa Cruz Operation's Xenix System V/386 and Unix System V/386.

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And The Santa Cruz Operation has announced availability of the Telesoft Telegen2 Ada Development System for SCO Xenix 386, which will be available during the first half of 1989: the compiler costs £1995, with an optional toolkit set at £1495, and an optimiser package at the same price.

Harris Corporation, Fort Lauderdale, Florida, has won a slice of the \$421m Aircrew Training System contract awarded by the US Air Force to McDonnell Douglas Corporation: Harris will supply a minimum of 40 Night Hawk 3000 supermicros (UX No 199) for use in McDonnell Douglas training systems to support the Air Force's new C-17 long range, heavy lift transport aircraft - Harris says it won the contract because of its Ada and real-time expertise.

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Arix UK is now offering customers PC and Macintosh connectivity options, with Arix PCworks and Arix Macline: also introduced is Arix's Unihost software, which runs on the Arix system and acts as a command server to support both packages.

- 0 -

And NCR is to use 386/ix from Interactive Systems Corp for its 80386-based NCR PC916 systems, which includes three modules: 386/ix itself, a user friendly software development environment, and VP/ix for running DOS applications under Unix - the software will be shown for the first time in the UK at the Which Computer Show in February.

- 0 -

Silicon Graphics in the UK has won over £1 million worth of orders for its Personal Iris workstation launched back in October last year (UX No 200): over fifty machines have been sold in the UK into application areas including animation, architecture, scientific analysis and industrial design: although £15,000 is the entry price for the 4D/20 machine, the company says that the average price of configurations ordered so far has been £23,000.

- 0 -

Nixdorf Computer AG intends to cut its workforce by 1,200 the end of this year, but the cuts will be achieved by attrition, and it refutes suggestions that 5,000 are to go and that lay-offs will be needed: the company is not commenting on suggestions that it will eliminate its dividend altogether this year, or that it expects to report a loss for the year just started.

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Compagnie des Machines Bull SA duly bought 22.6% of Honeywell Bull Inc from Honeywell Inc on undisclosed terms, giving it 65.1%; Honeywell now has 19.9% and NEC Corp has 15%.

- 0 -

Billerica, Massachusetts-based developer of legal accounting applications to run under Unix, Cognition Technology Corp has failed to raise the third round financing it needed to keep going and is seeking a buyer for its applications portfolio.

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DEC INTRODUCES NEW WORKSTATIONS -MIPS BASED ULTRIX, AND NEW VAXSTATIONS

DEC finally revealed its long anticipated RISC workstation on Tuesday - along with an upgraded entry level VAXstation and the promise of two high performance multi-processor VAXstations to come. The DECstation 3100 desktop workstation is the first in a family of systems based on Risc processors from Mips Computer Systems Inc - in this case the 16.67MHz R2000 - which DEC is aiming squarely at what it calls the "Unix committed workstation market". And to prove it is serious, DEC is claiming that the new system offers twice the performance of a comparable Sun 4/110 for around half the price. Running Ultrix version 3, the DECstation 3100 is rated at 14 MIPS using the Dhrystone benchmark, and costs from £8,000 for the diskless monochrome version, £13,200 for the colour version - a server 3100S configuration is also available. Alongside the DECstation, DEC also launched a VMS and Ultrix VAXstation 3100, using the same CMOS VAX processor as the current VAXstation 3200 and 3500 systems, but reduced down to a single board design. There are two models, the diskless Model 30 with an entry price of £5,800, and the fully configured Model 40 with 315Mb disk, 600Mb CD-ROM, 95Mb streamer tape and 16Mb memory, starting from £20,400, and DEC claims that they offer three times the power of the existing entry-level VAXstation 2000, at 50% more cost. And DEC says it is working on two mid-range VAX-based workstations, the 3520 and 3540 2D and 3D systems, offering symmetrical multi-processing over two and four processors respectively - no dates or prices. Announced in the US, but not in Europe, were three DECstation PCs, based on Tandy Corp hardware, but DEC Europe said it had not yet decided on its own PC policy, and would be announcing further details in April.

...AND DEC REVEALS DESKTOP STRATEGY,

DECWINDOWS FOR VMS AND ULTRIX, POSIX COMPLIANT VMS

Although the hardware attracted much of the attention at the DEC event, the company also introduced a wealth of new software, and attempted to clarify its long term desktop strategy. The centerpiece was DECwindows, finally announced for VMS as well as Ultrix - it was originally expected at the beginning of December. DEC also announced its plans to provide an MS-DOS based DECwindows Display Facility for PCs, a DECwindows version of the All-in-1 office software, and VAXpc, an emulation package for running MS-DOS software under VMS, on which DEC is working with Phoenix Technologies Inc, Norwood, Massachusetts, for availability in March. The DECwindows Display facility will allow users to access DECwindows applications residing and executing on other systems, and will be part of a future release of DEC'S PC- integration software later this year. And DEC took the opportunity to confirm that it is working on a Posix interface to the VMS operating system, giving DEC a common platform for application development - no dates were given. Amongst the software houses willing to commit themselves to support DECwindows at the announcement were London-based Aregon International, which produces VAX/VMS financial trading system software. Oracle Corp, graphics specialists Precision Visuals, Boulder, Colorado, and the SAS Institute, Cary, New Jersey.

UNIX INTERNATIONAL ANNOUNCEMENT DUE

Unix International Inc is to "formally introduce itself to the world," at a press conference to be held on January 31st, either in London or Brussels. The group will formally set out its intentions and objectives at the meeting, which euphemistically implies a strategy to deal with rivals the Open Software Foundation (OSF). The chances are that new members of the group will also be announced around the same time - these are likely to be Japanese companies and possibly OSF waverers in Europe. Apparently Jeremy Thomas, now of Unisoft Group, New York, has been globe-trotting on behalf of Unix International Inc in what appears to be a determined membership drive.

US TREASURY ASKS FOR 2,500 POSIX SYSTEMS

The US Treasury Department last week released the Request for Procurement (RFP) specification for its giant TMAC - Treasury Minicomputer Acquisition Contract - said to be worth around \$1.8 billion over a seven year period. Administered by the Treasury's Internal Revenue Service, for which the RFP is mandatory, the document calls for the supply of up to 2,580 multi-user, Posix compliant systems with the additional Fips requirements, for use at the local workstation and departmental level throughout the Treasury's twelve divisions. The RFP closing date is May of this year, and IRS spokesman Henry Philcox said that the contract was expected to be awarded in April 1990, following an extensive evaluation process.

HEWLETT-PACKARD HAS NEW WORKSTATION AND NEW PRICES

Hewlett-Packard has entered the fray this week and introduced a new 3D-graphics workstation for under \$15,000. The 68030 based HP 9000 Model 340SRX is source and object code compatible with existing HP 9000 Series 300 systems, and is priced at \$14,900. In a round of price cuts, the HP 9000 Model 360SRX system has been reduced by nearly 50% to \$19,900, the HP 9000 Model 360 is now \$14,400, the HP 9000 370SRX comes in at \$41,900, and the HP 9000 Model 825SRX is down to \$56,500.

BENCHMARK BECOMES DU-PONT

The giant Du Pont Corporation is gearing up to address the volume co-processor market, following the acquisition of tiny UK company benchMark Technology last year (UX No 177). Du Pont has merged the company into a new division, DuPont Pixel Systems, and says it is currently moving development efforts from the benchMark offices at Kingston in Surrey over to the Du Pont headquarters in Wilmington, Delaware. The new division is concentrating on benchMark's bRISC VME-based co-processor board, which uses the Intergraph Clipper cpu, and is currently upgrading the boards to use Intergraph's C300 processor (UX No 208). Du Pont says it will officially launch the new division "within a few months", but is already selling the products to system integrators and OEMs: a major customer is Ampex in Europe. The C300 bRISC board, with 4Mb RAM, Intel 80186 I/O processor, 10 serial channels, with SCSI and Ethernet on board costs \$6,500 for quantities of 50 and over, and a fully configured development system is available for \$18,500. Du Pont recently order 50,000 of the 10 MIP processors from Intergraph (UX No 209), but would not confirm rumours that these were to be used to supply co-processors as part of AT&T's recently won Air Force AFCAC contract (UX No 204).

APPLE ADDS AI STRENGTH - PROMISES MACOS FOR THE 68030

Apple Computer Inc has strengthened its toolset for developers of software for the Apple Macintosh with acquisition on undisclosed terms of the assets of Coral Software Corp of Cambridge, Massachusetts. Coral, founded in 1984, develops and markets programming languages and artificial intelligence tools for the Mac, and Apple will incorporate the technology and the five key members of its engineering team into its Advanced Technology Group, and establish a research laboratory in Cambridge to explore new approaches to programming and advanced development environments. Coral has three Mac products: Allegro Common Lisp is a complete Lisp programming environment; Pearl Lisp is a low-cost, entry-level Lisp development system; and Object Logo is an object-oriented version of the educational programming language. Separately, Apple says it will ship a "major new release" of its HyperCard program for the Mac this year, and the company reports that it "is making good progress" on the new version of the Macintosh operating system, which will support the shared memory management and multitasking features of the 68030 microprocessor. According to chief executive John Sculley, the most complex part of the effort is "making it fit in with what's already there"; while a 68030 Mac will be needed to use all the features of the new operating system, full compatibility will be maintained. The company says it regards it as more important to get it right than to get it out quickly, and while it should be ready sooner, it is unlikely to be widely used before 1991.

...AND PREPARES NEW MACS AS DEMAND SOARS

Apple preparing to extend its Macintosh product line in a couple of weeks, starts the New Year snowed under with demand for the various existing Macintosh models, and now has an estimated \$250m backlog, reports Newsbytes. The company has expanded its manufacturing capacity and ran the assembly lines through the holidays, as well as leasing 168,000 square feet of additional space and converting its Apple II plant in Singapore to Macintosh production. The highly automated Fremont line is said to have capacity of 4,000 Macs and LaserWriters a day; 1988 Mac sales are thought to have exceeded 800,000, and Apple is forecasting 30% growth this year. On the product front, the company is expected to unveil the 16MHz 68030-based Macintosh SE/30 at the MacWorld Expo in San Francisco on January 20. The SE/30 is expected to feature the Superdrive floppy from the IIx that reads ProDOS, MS-DOS and OS/2 files as well as native ones, 2Mb or 4Mb and choice of 40Mb or 80Mb disk, but will likely cost nearer \$5,000 than the \$3,000 of the current SE. Key difference speed Nubus. Apple may also unveil a slimmed down three-slot year, another of which is the portable Mac, which won't appear at the San Francisco bash, and may not arrive until late in the year. According to chairman John Sculley, the hold-up is the screen, which must be fast enough to keep up with rapid mouse movements, something beyond current liquid crystal displays. As a result, Apple wants an active matrix display, which are not yet out in volume. When it does arrive, the machine is expected to have 1Mb memory, 3.5" floppy, and 20Mb Winchester option.

WYSE CUTS JOBS 15% AS PRESIDENT QUITS TO RUN INFORMIX

Wyse Technology Corp is cutting its worldwide workforce by 15%, with 400 to go at the company's Far East manufacturing operations and the other 160 to be spread across all other functions of the company. It hopes to lose some people by attrition and has already lost one that way - president and chief operating officer Phillip White has quit to become chief executive at Informix Corp, and his day-to-day functions will be taken on by chairman Bernard Tse.

17% WILL HAVE TO GO AT ALLIANT COMPUTER SYSTEMS

The Littleton, Massachusetts-based minisupercomputer manufacturer Alliant Computer Systems Corp is having to take some drastic measures in a strenuous effort to restore itself to profitability. The company will reduce its workforce by about 75 people, 17%, in what it describes as a further consolidation of its Raster Technologies acquisition with its own operations. As a result, it will see a fourth quarter loss "significantly larger" than the \$2.5m to \$3m Wall Street had been expecting. It reported a loss of \$8.7m for the first nine months of 1988 after an extraordinary gain of \$3m on sales of \$49.1m. On the up side, the company says its installed base rose to over 330 systems from 200 in the past year.

SONY DECIDES TO BACK BOTH CAMPS IN THE UNIX BATTLE

Rather than declare a plague on both houses and stick to its current Berkeley implementation of Unix, Sony Corp has decided to hedge its bets and exploit its erasable optical disk technology to offer users the option of running either AT&T's Unix System V.4 or the Open Software Foundation's variant of IBM's AIX on their News workstations. "It appears there is going to be no resolution to this, so it is important for the hardware manufacturer to support both", Sony said. Under the plan, the operating system will be "separated from the hardware" and supplied on magneto-optical disks, and Sony hopes thereby to raise its market share in Japan, claimed to be 20%, but with a tiny base: it looks to have sold 6,000 News workstations in the year to March 31, double the number it sold in Japan in 1987-88.

HEWLETT-PACKARD TAKES 25% HILCO STAKE

Hewlett-Packard Co has strengthened its HP9000 Unix systems software armoury with an agreement to take a 25% equity stake in Hilco Technologies Inc on undisclosed terms, with agreement that for the next three years, the Palo Alto company's Monitrol process monitoring and control software for manufacturing companies will be made available exclusively on Hewlett-Packard hardware. Hewlett and Hilco will also expand development and marketing of Monitrol products, which supervise and control work cells on shop floors.

AT&T OFFERS MILITARY MACHINE AS SUPERCOMPUTER IN JAPAN

In a surprise move, AT&T Co has entered the civil supercomputer market in Japan with a machine developed for the US Navy that executes one of the standard Pentagon instruction sets, Reuters reports from Tokyo. The machine, the AN/UYS-2, is described as an enhanced modular signal processor and is rated at 1.44GFLOPS peak, which puts it into competition with the single processor Cray X-MP models and the air-cooled models of the Control Data ETA-10 - but at around \$2m, the price is highly competitive. AT&T's partner on the venture is Sumitomo Corp, and the pair hope to sell an ambitious 150 of the boxes over five years, with the primary target the Japanese Defence Agency.

SUN ADDS SEIKO TO ITS JAPANESE HAND

Seiko Electronics Industrial Co will become the sixth distributor of Sun Microsystems workstations in Japan when it starts marketing the things later this month: Seiko Electronics is the market leader in peripherals for computer graphics systems, notably a 40% domestic market share for graphics terminals, and the company intends to add value by fitting the Sun workstations with its proprietary graphics board. Last year, Seiko signed with Sun to use the Sparc RISC processor, and future plans include development and manufacture of its own Sparc-based graphics workstations, and high-power local area network servers. The other Japanese distributors of Sun workstations are C-Itoh Techno-Science, Toshiba, Nippon Steel, and Fujitsu, as well as Nippon Sun itself.

DATAMEDIA UNVEILS 80386-BASED NETMATE WORKSTATIONS

Datamedia Corp, ICL's Hauppauge, New York partner on lower-end Unix systems - ICL holds a 16% stake in the company - has introduced what it calls the the NETmate PC/Workstation family. The local area network PC/Workstation family members are based on a 20MHz 80386 processor, and initially come in two configurations - diskless and with disk - or diskfull as Datamedia puts it. They come in 15" by 15" desktop enclosures, and can come with several networking applications, including DEC's PCSA, Novell's NetWare, Sun Microsystems's Network File System, 3Com's 3-Series and IBM's PC Network, as well as NetBIOS. NETcards are available for PCSA, NetWare and Network File System, and Datamedia is a Certified Reseller for Novell's NetWare VMS for VAX systems. Availability is 30 days and list prices for the workstations range from \$4,900 for the diskless 386/20-00 through \$5,200 for the floppy disk 386/20-01 to \$7,000 for the hard disk model 386/20-08.

APRICOT WINS £2.2 MILLION NATIONAL AUDIT ORDER

Apricot Computers Plc is beginning to cash in on its recent decision to expand into the large systems market, and has now won a contract worth over £2.2m from the UK National Audit Office. Apricot will supply 300 Qi Series PS/2 compatible workstations linked via Ethernet to two Sequent-based VX9800 parallel processor systems, which will support up to 1,000 users. While one of the systems will be devoted to development work using the Oracle database, the other offers an on-line information processing system running software such as the Uniplex office automation suite, the Oracle 4GL relational database, and the BRS/Search document retrieval system. 100 of the machines will be installed this month, the rest over the next 18 months, and as part of the deal all the machines will have colour VGA graphics monitors and will be linked to 78 Apricot laser printers.

CARLTON AMDAHL OUTLINES NETFRAME SERVER COMPANY

According to its founder and chairman Carl Amdahl, newly-formed Netframe Systems Inc of Sunnyvale, California will develop high speed network servers for MS-DOS micros and Unix-based workstations. The privately-held company has received around \$5m in venture capital funding, and counts Ing C Olivetti, Ivrea, Italy and San Jose, California-based Chips & Technologies among its investors. Enzo Torresi, co-founder of Businessland, recently poached from the retail chain operator to act as Netframe's president and chief executive officer also holds an unspecified corporate stake. A range of products, due to be announced in the second quarter of 1989 and delivered in the second half, will support OS/2's LAN Manager, Novell Inc's NetWare, Banyan Systems' Vines, Apple Computer's AppleShare and Unix System 5.3. The company is also building multiprocessor servers for Novell's NetWare 386, due to be released this year.

ISI UPDATES UNIX RANGE WITH 12 MIPS RISC WORKSTATION

Unix systems manufacturer Integrated Solutions Inc, a subsidiary of NBI Inc, has just beaten DEC to the draw with the first shipments of a new workstation based around the Mips R2000 chipset, introduced on December 12th last year. Intended for the OEM, system integrator and value added reseller marketplace, the Advantage 2000 workstation is rated at 12 MIPS - with ISI claiming a price/performance ratio of \$1,000 per MIPS from a system "smaller than a personal computer". The system, which runs either the Mips RISC/os implementation of Unix or ISC's own Dual Universe port of Unix V.3 and BSD 4.3, has 32 Kbyte of on-board cache memory, 1280 x 1024 pixel graphics resolution, on-board SCSI and Ethernet controller, and an on-board 80106-compatible processor to boost input/output. X-Window system software is included. ISC says it will offer the system at various levels of integration ranging from a complete workstation down to board-level products, and will provide custom-packaged systems for customers. The Advantage 2000 is the first of a new range of Mips-based systems due for launch over the next year from ISI, which has previously concentrated on Motorola-based systems. real-time capability is scheduled for the second quarter of 1989, when the company's UniWorks software will be ported to the system. A base system, including packaged base board and video board, will ship for \$12,000, rising to \$24,000 depending on additional peripheral and memory add-ons. ISI's Isleworth, Middlesex-based office in the UK says that a fully configured, two port system with 100Mb disk and 40Mb backup tape will cost around £10,000.

MAI DETAILS DREXEL'S BIG INTEREST IN BID FOR PRIME

MAI Basic Four Inc has responded to the court order to reveal more information on the financing for its proposed acquisition of Prime Computer Inc by filing key details with the US Securities & Exchange Commission - and they may well prove enough to cause Prime shareholders to wonder whether they really want to benefit to such an extent a company surrounded by as much controversy as Drexel Burnham Lambert. If the bid succeeds, Drexels, which already holds 6.9% in MAI, will get the right to buy up to an additional 12% of the company enlarged by the addition of Prime at a discount to the market price. Drexels will also get a maximum of \$32.75m in fees in connection with the bid, and will be given the business if MAI decides to sell parts of Prime. MAI claims it now has acceptances with respect to about 50% of Prime's shares, and is reiterating that it is prepared to raise its offer price if Prime will agree to a friendly takeover.

AMD TEAMS WITH COMMUNICATIONS MACHINERY

Advanced Micro Devices Corp, Sunnyvale, and Communications Machinery Corp down in Santa Barbara have joined forces to develop and market intelligent Fibre Distributed Data Interface (FDDI) VMEbus processors. Under the agreement, Communications Machinery will integrate its Transmission Control Protocol/Internet Protocol and Open Systems Interconnection software and its expertise in high-performance Ethernet processors with Advanced Micro's Supernet chip set, which the company claims is the first commercially available integrated FDDI processor to create a complete implementation of the 100Mbps fibre optic local area network interface. And Advanced Micro plans to use the FDDI VMEbus product as an evaluation and demonstration tool for the Supernet set: the product will be available from Communications Machinery this quarter. The partners hope that the agreement will hasten market acceptance of the FDDI standard by speeding the development of high-throughput, commercially available FDDI solutions. The FDDI network protocol is designed to support both high-speed computer communications and backbone network applications. Running at 10 times the speed of Ethernet networks and 25 times faster than the currently available IBM Token Ring networks - and over six times as fast as the new version announced by IBM last November - it supports networks of up to 40 miles in circumference, 35 times as far as you can string an Ethernet.

...AS COPERNIQUE ADOPTS THE Am29000 DISK CONTROLLER LINE

The Sun Microsystems Sparc, the MIPS Computer Inc R2000 and the Motorola 88000 are picking up most of the glamour design wins in the reduced instruction set computing world, with the Intergraph Clipper tagging on gamely behind - but in less glamorous fields, Advanced Micro Devices Corp's Am29000 is still making wavelets, and the company claims that the part delivers 17 MIPS sustained performance, with burst speeds up to 25 MIPS, making the part the most powerful 32-bit RISC microprocessor available. The Unisoft Group is currently porting its Uniplus implementation of Unix to run on the chip, due out shortly, but in the meantime the company is looking at other applications. Late last year the company picked up Copernique SA in France as a committed customer: Copernique, based in Paris, where it makes disk accelerators and multimedia database and communication servers, says that it will build its new generation of disk controllers around the Am29000. Advanced Micro is now saying that the Am29000 was designed to enable manufacturers of embedded controllers to take advantage of RISC technology - the ever faster computers coming along will require that peripherals such as disk drives can keep up with their super-fast processors.

MITSUBISHI TO LAUNCH 68030-BASED WORKSTATIONS

Two new 68030 based Unix workstations are to be launched by Mitsubishi UK Ltd, Hatfield, Hertfordshire, during the forthcoming Which Computer? Show at Birmingham's NEC in February. Both the ME 200 and ME 400 use a VME bus, run Unix V.3, and support Fortran, C, Cobol, X-Windows, TCP/IP and the Network File System. They are supplied with Mitsubishi's own colour monitor - the ME 200 operating at 20MHz with 16Mb of memory, and the ME 400 at 25MHz with 32Mb and 64Kb of cache. According to Mitsubishi's Bryan Martyr, the systems are aimed at the Apollo and low end Sun workstation markets, although the ME 400 can also be reconfigured to operate as a Unix business system. Both have been rebuilt from Japanese language versions which have been in use for some time in the Far East. The basic four slot ME 200 is priced at £14,000, with the six slot ME 400 coming in at around £18,000. They keep up with their super-fast processors.

OMRAN READY WITH SIGMA, UNIX WORKSTATIONS

Omron Tateisi Electronics, best known for its electronic cash registers, is expanding its presence in the engineering workstation market with two new products, the Mister, based on Sigma workstation specifications, and the Luna, which runs Unix System V. Omron will be making Lunas at a rate of 500 a month this year, having built 1,000 in 1988, and hopes to have 300 applications available; a RISC machine and a lap-top are also in the works, and Omron's immediate target is to triple its annual turnover from workstations to \$72m.

ADVANCED MICRO TO SELL ITS PHILIPPINE ASSEMBLY UNIT

Advanced Micro Devices has reached agreement in principle to sell its assembly unit in Manila, the Philippines, to Amkor Electronics Inc, subject to Philippine government approval. Advanced Micro says the move is part of its long-range plan to develop new assembly and test operations at a highly-automated facility in Bangkok, Thailand. AMD will sign Amkor to do assembly at the Manila plant for at least three years after the sale. The two companies have had a long-term relationship for subcontract assembly. Amkor plans to retain the 1,500-strong employees with no reduction and no change in employment terms.

SANDERSON WINS DEFINITIVE PACT FOR 51% OF GENERAL AUTO

General Automation Inc now has definitive agreement for Sanderson Electronics plc for the Sheffield, Yorkshire company to lend it \$1.75m in return for warrants that on full conversion and exercise of warrants would give Sanderson 51% of General Automation, conversion price being set at 70 cents per share. Sanderson shareholders will have to approve the agreement at an extraordinary meeting later this month. Sanderson authorised and made an advance of \$500,000 on the loan on Friday. With the warrants for 2.9m new shares, Sanderson will be in for \$4m altogether for the 51% of the General, which also says it is cutting its annual operating expenses by over \$2m in the US and the UK - presumably by making significant layoffs, though that was not specified.

UNITECH SELLS RAPID RECALL TO METROLOGIE SA

French interest in the UK distribution market is growing, and after the buy-in at CPU Computer Group Plc from across the channel, the big Rapid Recall group is to become wholly French-owned. Unitech Plc, which put Rapid Recall, its Celdis Italiana SpA subsidiary in Italy and its Nye Enatechnik GmbH in Germany - together doing a profitable £100m a year - on the block in November (UX No 208), is selling the lot to its former French partner, Metrologie SA of Paris for £45m, making the firm a major European player - and is also selling Metrologie stake to French investors.

HONEYWELL BULL TO CUT 1,600 JOBS IN US

Honeywell Bull Inc is starting the new year with a major cost-cutting exercise in the US, saying that it wants to shed 1,600 of its 8,900 employees or about 15% of the US workforce. In recognition of the fact that more and more of the firm's big mainframes will come from 15% shareholder NEC Corp in Japan, Honeywell Bull wants to cut its research and development spending to about 10.5% of the annual \$2,200m turnover from the present 11.3% to bring it more in line with that of competitors. Moreover a major exercise is under way to harmonise the product line with that of 65% shareholder Groupe Bull SA of Paris, reducing the amount of separate development the two firms do on the DPS 6 minicomputer family. The cuts will be in manufacturing and administration, and not sales.

UNIX USERS CALL FOR NETWORK VIRUS ANTIDOTES

The US Unix trade association /usr/group, Santa Clara, California, has called for stronger measures to be taken in response to the recent rash of virus attacks that affected Unix-based system installations at the end of last year. According to the groups technical director, Frederick Clegg, open networks, whilst providing a whole range of powerful tools for users, are also fertile medium for viruses. As Unix has "unparalleled ability to serve as a host for such networks" the group is urging systems managers to apply security tools to prevent these networks being compromised, and vendors who market systems with known weaknesses to pass on fixes to customers. Sun has recently undertaken such a programme, sending out repair kits to users in the US to protect vulnerable systems, and has promised that all future releases will have added security features built in. The /usr/group is also critical of industry attitudes that seem to condone hackers' attempts to undermine computer security, and calls for a centralised effort to enhance security standards and communicate during computer emergencies. In particular the costs of virus attack are highlighted. In financial terms these can run into millions of dollars - for example lost computer time and clearing up efforts are estimated to have cost \$96m in the recent Arpanet 'worm' attack (UX No 205), according to the Computer Virus Industry Association. /usr/group is to sponsor a series of presentations to highlight all these issues at UniForum 1989, in San Francisco at the end of February. Hard on the heels of these intrusions, a Computer Emergency Response Team (CERT) has been set up by the US Department of Defence to deal with virus attacks. In view of all this, /usr/group should be pleased to hear that a recent invader of unclassified computers at the Lawrence Livermore National Laboratory in California has now been identified and might be prosecuted, according to the FBI. The hacker, who gained access to some of Lawrence Livermore's 800 computers during the first week of December was traced with the help of "colleagues in the computing community," according to Lab spokeswoman Jean Madden.

NOKIA HAS LOW RADIATION TERMINALS FOR VMS AND UNIX

Finnish giant Nokia Data's workstation division has come out compatible terminals with paper-white displays that refresh at 75hz, and which are said to be among the first to limit electromagnetic radiation and eliminate electrostatic field on the screen. The Nokia VDU 220 text and VDU 220G graphics terminals can be used as stations attached to PDP, VAX and Unix computers, and include non-volatile set-up menus. Displays provide 24 lines x 80 or 132 characters, and offer downloadable character sets and attributes including underline, bold, reverse video, blinking or invisible. ANSI X3.64, DEC VT220, VT100, VT52 and full duplex communications are supported in addition to serial asynchronous, RS232C and RS422 interface support, and Nokia claims "exceptionally fast" data transmission speeds of up to 19200 bits per second over line channels.

ALPHATRONIX TARGETS SUN, DEC OPTICS

An erasable optical storage system designed to support Sun and DEC workstations as well as IBM PC-ATs has been introduced by Alphonix, Research Triangle Park, North Carolina. Offering up to 4,550 Mbytes of storage in a seven-drive configuration of standard 5.25-inch sized CDs, Inspire can accommodate up to 1 million pages of ASCII text. According to Alphonix president Robert Freese, Inspire provides "transparent integration with host disk controllers and operating systems, with no new commands to learn, no software adaptation and no databases to convert." Inspire for the PC is \$14,950 for the dual-drive unit and \$9,995 for the single-drive unit. Although this type of storage medium seems set to make traditional magnetic tape redundant in the future, this is still some way off. Erasable optical storage systems are slow in comparison with others - for example Steve Jobs' NeXT system has an optical capability, but many of the early users have reportedly opted for the optional, but much faster, magnetic disk.

SUN AGREES TO TOKEN RING ROYALTIES, APOLLO HOLDS OUT

Sun Microsystems Inc, Mountain View, California, and five other computer companies are to enter the token ring market, having signed agreements with Willemijn Holding BV, Rotterdam, Netherlands, owner of Soderblom token ring patents. They join more than 30 other previously licensed token ring producers. However, long-term token ring user Apollo Computer Inc of Chelmsford, Massachusetts, has refused a licence and has been sued by Willemijn for infringement of the Soderblom patents in the U.S. The five additional licences have gone to the Massachusetts based companies Fibronics International Inc of Hyannis and Stratus Computer Inc of Marlboro, McDATA Corp of Broomfield, Colorado, and Californians Racore Corp of Los Gatos and Netronix of Petaluma. An Open Token Foundation, formed last month by 3Com Corp, Santa Clara, and Madge Networks Ltd, London, aims to bring producers and users of token ring products together to ensure interoperability. Texas Instruments, Memorex Telex, National Semiconductor Inc and Western Digital are amongst those who are supporting the foundation, whilst Sun, which demonstrated a token ring product at Comdex in November, says it is "actively monitoring" the situation, with a view to joining.

NEW ADA TOOLS FROM READY SYSTEMS

A range of new tools for Ada based embedded systems software development have been announced by Ready Systems, Sunnyvale, California. They are intended to span the entire software development lifecycle from front-end design and cross development tools to reusable runtime software components. RTAda-Sim is a run-time simulator which recreates the embedded systems hardware and software environment, enabling a software designer to simulate the actual target application on a host development system. Other applications include CARDtools support for Requirements Traceability, State Transition Diagrams, Open Systems/Database Access, and enhanced automatic DoD-STD 2167 Documentation Generation. The RTAda development and runtime system runs on Sun-3 and VAX/VMS systems. RTAda-Sim prices begin at \$9,500. The RTAda/OS components, RTAda-Net, RTAda-MP and RTAda-IO are also available for \$9,500 each. CARDtools are available for the VAXstation 2000, VAX/VMS using VT100, Sun-3, and IBM PC host environments. Prices range from \$10,000 to \$60,000.

T-CUBED VME TRANSPUTER BOARD FROM HAWKE

UK engineering system specialists T-Cubed Ltd, Woking, Surrey, a 1987 start up, is now offering its VME digital signal processing board through Slough based distributors Hawke Systems. The VME-T3A4, which uses four Inmos IMS A100 DSP processors, is claimed to deliver easy programming - all functions being initiated from a simplified control register. Optional plug-in modules enable the board to be used for data acquisition applications where programmable digital filtering is required - these can be specified by the user. Applications software written in C for VME operating systems such as OS-9, VERSAdos, Unix and Pdos are available for the boards. Hawke is offering them at £3,500 each. A new version, the VME-T3XX, which uses a Honeywell chip set, is to be released in March, and is claimed to transfer data at six megabytes per second. T-Cubed has also launched the DDRx Interface, providing communication between DEC-VAX MICRO and PDP systems and the AMPEX DCRSi high speed digital tape recorder. The DDRx is currently being used by the Ministry of Defence. T-Cubed's John Cushion says the company's turnover of £40,000 for the whole of 1988 should be exceeded in just the first quarter of 1989.

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AT&T's Data Systems Group has formed a separate section within DSG to oversee Unix software development and licensing issues - Larry Dooling becomes president of the newly formed **Unix Software Operation (USO)**, which, with several hundred staff, is to develop and market Unix System V, and software products such as the Open look interface, working closely with **Unix International Inc**: USO expects to begin shipping early System V.4 code by the end of March.

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CAD/CAM, CAE industry sales and profit soared in 1988 according to market research company **Daratech Inc**, Cambridge, Massachusetts - it expects last years figures to reveal an 18% growth to \$5.3 billion, up from 9% last year: **Sun, Apollo, DEC** and **IBM** are said to have done best in the market surge - but it seems to have done little to stem the rash of mergers and acquisitions in the industry: **CAD/CAM, CAE Survey, Review and Buyer's Guide** costs \$495, from **Daratech Inc**, telephone 0101 617 354 2339.

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ACTC Technologies Inc, Calgary, Alberta, is to receive \$16m from its owner **Honeywell Bull** over the next five years to develop tools which will enable Honeywell's Multics operating system customers to migrate to Secure Unix, (UX No 179): Honeywell says the first beta tested version of Secure Unix is now ready, conforming to B1 C2 security level.

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Sun Microsystems has opened up a new European subsidiary in Madrid, saying that the demand for Unix workstations in Spain now warrants the move.

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National Advanced Systems Corp, Santa Clara, California, a former **National Semiconductor Corp** subsidiary, now 50% owned by **Memorex Telex International**, is waiting until a version of Unix becomes standard before deciding whether to offer its own mainframe brand of the operating system - wavering in its commitment to OSF, NAS is awaiting the outcome of the struggle with **Unix International Inc** over Unix standards.

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And NAS is to continue its push into the scientific and engineering marketplace despite cancelling a project to port **Sun Microsystems SunOS** to its computers according to **Technology News**: it is now to offer AIX on its IBM compatible mainframes.

Matsushita Electric Industrial Co will have 80.5% and **Sequent Computer Systems Corp** 19.5% of the new **PanaSequent** company: Matsushita sold 30 Sequent systems in its two years as the distributor, but it was felt that a separate marketing company, able to do its own software development, would do a better job.

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Cifer Plc, which asked for its shares to be suspended on Friday pending an announcement is believed to be preparing to reveal agreement to acquire a privately-held company in the distribution side of the business, in an acquisition that will double £2.7m annual turnover.

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Toshiba Corp is ahead of itself in the international market, and in Japan has only now brought out the J3300 desktop equivalent to the popular J3100 laptop, which will be offered inter alia as a server for a network of J3100s - but the machine is already marketed in the US and Europe as the T8200; the AT-alike has a 2Mb to 8Mb 80386 processor, 14" screen and costs \$13,000 with 100Mb 3.5" Winchester, \$5,500 with 40Mb disk; it is being offered with MS-DOS, OS/2 and Japanese language UX/386 Unix.

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Intergraph Corp's Advanced Processor Division in Palo Alto, California says that the second generation **Clipper C300** 32-bit RISC microprocessor is now generally available, with 40MHz versions in production now, with 50MHz samples to follow in the second quarter: the company says it shipped more than 300 of the C300 modules in 1988; the C300 is accompanied by price cuts of up to 37% on the original C100, over 20,000 modules of which have been shipped since the first quarter of 1987; the complete C300 module is \$745 for 40MHz, \$945 for 50MHz, with the four chip - CPU, two cache controllers and clock - set unmounted at \$545 and \$745, and the C311 central processor - which includes on-chip floating point unit - alone costing \$295 and \$445; the reduced prices for the 25MHz and 33MHz versions of the C100, for the same combinations are \$345 and \$545; \$245 and \$395; and \$145 and \$195.

The European Commission has decided that integrated circuits will have to be fabricated as well as assembled in Europe in order to classify as European-made under the 1992 Single Market: at present, of the Japanese, only **NEC Corp** manufactures here - in Scotland, while **Fujitsu Ltd** assembles in Ireland and **Toshiba Corp** and **Hitachi Ltd** assemble in West Germany; of the US majors, **Motorola Inc** fabricates in Scotland and **Intel Corp** and **Harris Corp** have some fabrication via their joint ventures with **Matra SA** in France; the Japanese are expected to decide that they have no alternative but to build front-ends.

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NCR has long been touchy about other manufacturers using the word "tower" to describe their computer systems: it claims to have trademarked the word for its Tower range of Unix systems, and last week took action against UK based **Applied Microsystems Technology**, which sells on the **Gigatower** and **Powertower** product lines.

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From this week we will be launching a new service where companies involved in product launches will have a contact number listed.

Contacts:

Advanced Micro Devices USA 408 732 2400: **Alphatronix USA** 919 544 0001: **Apple Computer USA** 408 996 1010: **Apricot Computers UK** 21 456 1234: **Communication Machinery USA** 805 963 9471: **Copernique FRANCE** 331 4727 8765: **Datamedia USA** 603 886 1570: **Hawke Systems UK** 753 686686: **Integrated Solutions USA** 408 943 1902: **Madge Networks UK** 2404 5651: **Mitsubishi UK** 7072 76100: **National Audit Office UK** 1 798 7314: **Nokia Data UK** 21 765 4444: **Omron Tateisi Electronics JAPAN** 75 951 5111 9100: **Ready Systems USA** 408 736 2600: **Seiko Instruments USA** 408 943 9100: **T-Cubed UK** 483 797026: **/usr/group/ USA** 408 986 8840: **Which Computer? Show UK** 1 948 9838: **Willemijn Holding USA** 3110 414 0912: **3Com Corp USA** 408 970 1338:

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SOLBOURNE CHALLENGES SUN WITH SPARC CLONE WORKSTATIONS

Solbourne Computer Inc is set to launch the first family of Sparc "clones", based on Sun Microsystems' RISC processor next Monday. The Longmont, Colorado-based company, funded by Matsushita Electric (UX No 195), says its Series4 workstations, and servers, already in volume production, provide an environment so close to the Sun 4 that "you can't tell the difference" - they use the same version of the Sparc from Fujitsu. But Solbourne claims to have achieved better price/performance than Sun, and also offers MS-DOS emulation and multi-processing. There are four models, each available as a workstation or server: the servers come with up to 3.3Gb of high speed disk memory in a pair of cabinets. The 601 (801 server) has one CPU rated at 9.5 MIPS and 1.6 MFLOPS; the two processor 602 (802 server) does 17 MIPS and 2.9 MFLOPS; then come the three and four CPU 603 and 604 (803 and 804 servers) rated at 24 MIPS, 3.6 MFLOPS and 30 MIPS, 4.7 MFLOPS respectively - though the ratings are in so-called "Sun MIPS", generally regarded as higher than the normal measure. Multi-processor systems are built around the 64-bit proprietary 128Mb/sec Kbus, and each processor has its own cache memory, but shares a single operating system and main memory. Prices range from \$45,000 for the single cpu 601 to \$130,000 for the 4 cpu 804 server: the two processor 602 with 16Mb memory, 327Mb hard disk and 170Mb cartridge tape costs \$51,400, giving, says Solbourne, a 70 per cent performance increase over the Sun 4 2/60 with a 14 per cent cost saving. On the software side, Solbourne has licensed Sun's SunOS Unix implementation, as well as SunView, News/X11, Network File System and Open Network Computing software from Sun, but implemented its own version of X-Windows. It has also entered into a joint marketing agreement with Phoenix Technology Inc, Norwood, Massachusetts, for a "software co-processor" which allows standard MS-DOS programs to run under Unix on the Sparc. And the company has a three quarters of a million distribution deal with National Peripherals Inc, Lombard, Illinois, which plans to add more memory options and sell into the CAD/CAM marketplace. Solbourne also revealed plans for a Series5 family due out later this year, using the Cypress version of Sparc and giving a two to one price performance boost. It is also working with parent Matsushita on a highly integrated SPARC chip, with on-board floating point unit and memory management unit: it will surface in the Series6, due out in the fourth quarter of 1989 - the chip will be rated at 25 MIPS and 5 MFLOPS. Solbourne also says it will be introducing a desktop model - reinforcing rumours that Sun is ready with its own low-end Sparc system for imminent release.

SIEMENS READY WITH NS32532 MX-300

Siemens is set to launch a new a new member of its MX Unix micro series at the UK's Which Computer? Show in February. The new MXZ 300-30 is the first Siemens machine to use National Semiconductor's 25 MHz NS32532 processor, rated by National as "significantly faster" than the Motorola 68030, and capable of a sustained 8-10 MIPS performance. The floor standing 300-30 follows the same design as the existing NS32332 MX-300s, with peripheral controllers offloading terminal input/output and communications overheads from the main CPU, connected via a Multibus 1 system bus. Up to 24 terminals and 16 printers can be attached to the machine, or 16 of Siemens' 978080 intelligent graphics terminals. Standard systems include the processor, Multibus 1, 8-16Mb main memory, two 170Mb or 310Mb hard disks, floppy drive, and tape streamer, and software includes Sinix System V.2, and Siemens' NFS compatible DFS distributed file system. No prices were available.

ACORN UNIX STATION COSTS £3,500

Acorn Computers Plc this week unveiled its long-promised Unix workstation based on its Acorn RISC Machine 32-bit microprocessor, bringing the machine in at a competitive £4,000 with a wealth of software. Called the R140, the machine comes with 4Mb main memory, 60Mb Winchester, 1Mb 3.5" floppy - both capacities unformatted - and four expansion slots, one of which is occupied by Ethernet and thin Ethernet adaptors. The £4,000 price also includes a "standard" monochrome monitor and serial and parallel ports. Software bundled in the price includes the Acorn RISC iX implementation of Berkeley 4.3 Unix with System V extensions, X Window 11.2 and the X.desktop user interface from IXI Ltd of Cambridge. Also included are Sun Microsystems' Network File System, TCP/IP, Yellow Pages and X11 client-server software. For those who don't want Ethernet, the machine is available for £3,500. The prices also include a 12-month support package with on-site maintenance, telephone hotline help and diagnostics from Granada Group Plc's Granada Microcare. Monitors supported include ones putting up as many as 1,152 by 900 pixels monochrome, up to 640 by 480 pixels colour. Acorn is promising X/Open and Posix compliance by year-end, and on the hardware front, an SCSI board for external disks, tapes, scanners and laser printers, and a floating point co-processor are promised. The R140 runs MS-DOS and Acorn's RISC OS as alternatives to Unix and is available now from Hugh Symons Distribution Services Ltd in Poole, Dorset. Based in Cambridge, Acorn is 79%-owned by Olivetti SpA.

GEC SOFTWARE, MARCONI SOFTWARE TO COMBINE

GEC Software, the commercial software arm of the General Electric Company, is set to merge with Marconi Software Systems next month, creating a £15m company, according to the Financial Times. Managing Director will be Brian Lovell, who currently manages both companies as separate concerns.

PRESENTATION MANAGER AND OPEN LOOK "WILL PREDOMINATE"

Following the Open Software Foundation's decision to select, amongst other things, the Presentation Manager compatible Hewlett-Packard/Microsoft style guide as part of its user interface, (UX No 212), UK software house IXI Ltd, Cambridge, reckons that in future, along with AT&T's Open Look style from Unix International Inc, these two interfaces will predominate in the Unix community. As such it is adapting its desktop manager program, X.desktop, to conform to the two style guides. Foundation members, including Locus Computing Corp and Interfirm Graphics Systems, have already licensed X.desktop, (UX No 200), which is now to be submitted for the OSF's Catalog Technology Program, that provides an on-going review of software likely to be included in a core offering from the Foundation. Parallel Systems International Corp, Laguna Beach, California, has now bundled IXI's Posix conformant software in with its parallel processing systems using the Inmos Transputer, Acorn is to include it on its Archimedes RISC based Unix systems (see front page), and BiiN on its fault tolerant computers.

ADMIRAL WINS CHOTS EVALUATION CONTRACT

The Ministry of Defence has awarded Admiral Management Services a contract to set up an evaluation facility for its Corporate Headquarters Office Technology System, known as CHOTS. Admiral will set up the facility at its Camberley, Surrey headquarters, where evaluations of the two prototype systems currently being developed under Phase 2 of the project will be carried out. The two consortia are headed by British Telecom, with Honeywell-Bull, Nixdorf and Secure Information Systems Ltd; and ICL's Topix Consortium, including BICC, Coopers and Lybrand, Data Logic and Hewlett-Packard (UX No 195). Evaluations will centre around compliance with the CompuSec computer security requirements of the MoD, and will last until June 1990. The contract is valued at over £1 million.

INTEL'S N-10 RISC GENERATES USER EXCITEMENT

The forthcoming Intel Corp reduced instruction set microprocessor - N-10 is the code-name - may have been developed to be used as an arithmetic co-processor to the 80486 (UX No 207), but it seems that potential customers have other ideas and want to use the part as a workstation CPU. Intel will describe the N-10, which integrates 1m transistors - not 2m as earlier reported - at next month's International Solid State Electronic Circuits conference in New York. The RISC is heavily-pipelined so that it can execute up to three instructions at a time, for a peak rate of 150MFLOPS - about equivalent to a Cray 1. It is expected to be used primarily in numeric-intensive and in graphics processing because there will initially be little software support.

HP CONVERTS VMS USERS TO HP/UX

Following the price cuts it announced last week (UX No 213), Hewlett-Packard is continuing its assault on the DEC marketplace with a programme designed to encourage DEC users and independent software vendors to convert their applications to run on the HP9000 Series 800 family of Precision Architecture RISC Unix machines. The programme centres around a set of migration tools called Port/VX, which reduces the manpower needed to run VMS-based Fortran programmes under HP/UX. Along with the tools, HP offers up to three months' free use of any of the four Series 800 models - the 825, 835, 850 and 855, one week of consulting and training services, and financing at industry "leading rates" for the purchase or lease of an HP system. The service is aimed at providing a low-cost, low-risk conversion path from DEC's proprietary VMS system to HP9000 Unix, which adheres to AT&T's SVID.2. The programme is also available through third party suppliers and other outlets - only in the US at present, but expected to be available in Europe in the future. The complete tools, training and consultancy package costs \$10,000 for one week, but the software tools can also be bought without the training and consulting element, priced at \$2,000.

...AS MODCOMP TAPS BOSTON FOR ITS VMS EMULATORS FOR REALIX

Companies are beating a path to the Lawrence, Massachusetts door of Boston Business Computing Ltd for licences to its VCL, EDT+ and Backup emulators of the DEC VMS Digital Command Language and Editor for Unix, which are designed to give VMS users moving to Unix the familiar feel of VMS. Latest to make the trip is AEG's ModComp: it wants them for its Realix real-time Unix V, for availability this quarter.

C++ COMMON VIEW GIVES APPLICATIONS "WINDOW INDEPENDENCE"

Dublin, Ireland-based software house Glockenspiel's long gestating Common View object orientated application framework for X-Windows and Presentation Manager is now available - and looks like an important breakthrough in software development tools. Common View presents a common, portable interface to the user, regardless of which windowing environment is being addressed, and it can significantly reduce the amount of code ordinarily required to write an application. Common View sits on top of both X-Windows and Presentation Manager, and users writing applications to the Common View interface using C++ can run their results on either system, with no resulting differences in appearance. C++ can reduce the amount of C code ordinarily required to write an application by up to one fifth, and at the system call level Common View compresses X-Windows' 400 functions into about 30 classes. The package includes C++ compilers for OS/2 and MS-DOS, the Common View package itself, and a data object library - which can be replaced by a database if necessary. At present only the beta test version is available, customers buying Common View now will receive a free upgrade to the final version later this quarter. Common View only layers over Presentation Manager and X-Windows at present, X11 and Sun NeWS portability will be added later in the year. One enthusiastic user is Siemens in the UK, which is working on Common View at its Woodley, Berkshire software development centre to implement its own Collage user interface on top of MS-Windows under DOS and X under Unix. With the continuing proliferation of user interface "standards", the idea just could catch on. Cost is £400.

SEQUOIA LAUNCHES DUAL-PROCESSOR SYSTEM - 68030 ON THE WAY

ITL Information Technology Plc's US software partner, Sequoia Systems Inc of Marlborough, Massachusetts has announced a new range of top-end systems, the Series 300, due for launch in March - and at the same time unveiled a new entry-level fault-tolerant version of its Series 200. The Series 300, running Pick and Unix is based on new engineering which uses 68030 chips and will support up to 1,000 users - no prices as yet. The Series 200E is an addition to Sequoia's current family of transaction processing systems., also running Pick and Unix, and available in the US immediately - prices start at \$300,000. Based on dual 68020 CPUs, the 200E for Unix comes with two processors, 32Mb memory, two 850Mb disk drives, a 6250 tape drive, two console terminals, and 32 user ports for \$300,000. The same configuration with the addition of the Pick operating system, and 32 Pick user licences, comes in at \$350,000. Claimed to support up to 100 users, Sequoia aims to use the new machines, which are said to offer a 38% price-performance improvement over its predecessor, to build upon its penetration of the telecommunications and government markets, and to go after a broader base of Pick users both horizontally and vertically, looking at market areas such as manufacturing, distribution, financial services and health care providers.

FPS MOVES INTO SUPERWORKSTATION BATTLE

FPS Computing, perhaps better known under its old name of Floating Point Systems, has now launched its Model 350 supercomputer workstation, which it re-badges from Stellar Computer Inc (UX No 204). FPS says it is treating the system as an entry-level supercomputer rather than a graphics supercomputer, and emphasises that the 25 MIPS, 40 MFLOPS systems can support up to 12 non-graphics users. However, high speed links between the Model 350 and the latest FPS Model 500 supercomputer launched back in November are being developed, and multi-user graphics capabilities for the 350 are anticipated shortly. In the UK, Model 350 workstations are available from around £100,000 from the Bracknell, Berkshire-based company.

UNISYS "WANTS CONTROL DATA'S COMPUTER SIDE"

Control Data Corp shares bucked a dull trend Tuesday in technology stocks by putting on 62.5 cents to \$21.25 in hectic trading on a report in a Minneapolis paper that Unisys Corp was thought to be interested in buying in the company's computer systems and services business and that there might be an announcement by the end of the month. If CDC were to sell the computer business, which takes in the scientific-oriented Cyber mainframes, ETA-10 supercomputers and Cyber 19 engineering workstations - bought in OEM, and perhaps its Cybernet bureau services, although that is not clear, little would be left of the company beyond its Imprimis disk drive manufacturing business. There would be less of a clash between CDC's Cyber mainframes and the Unisys line than there is already between the former Burroughs and Sperry mainframe lines, but the value of the business would be limited because CDC has been trying to diversify its mainframes into commercial applications, and Unisys would want to end that.

PRIME IN JEOPARDY FROM MAI

Prime Computer Inc looks in danger of falling to MAI Basic Four Inc if MAI can persuade the courts to allow it to proceed with its bid and Prime can't find a white knight. People speaking for 48% of Prime's shares on a fully diluted basis have now tendered their shares - the misleading primary figure is nearly 65%. Now believing that the bid might succeed, Wall Street marked Prime's shares up to \$19.125.

NORTON UTILITIES FOR UNIX PLANNED

Peter Norton Computing Inc has teamed up with Interactive Systems Corp, and Segue Inc to develop and market versions of the Norton Utilities for Unix machines. Norton Utilities are already popular in the MS-DOS market, providing facilities to do things like tidying up files on disk to improve usage and speed performance. Under the new agreement, Norton has exclusive development and distribution rights to two month old start-up Segue Software and Eastman Kodak Co's Interactive Systems. The two will jointly develop the new version and market the result to major accounts and on an OEM basis. The first version will be for 80386 machines running System V.3 implementations such as Interactive's 386/ix operating system.

\$4m VENTURE FUNDING BACKS BRITISH DATABASE PIONEER

Nick Powell, formerly managing director of Relational Technology Ltd, and Rod MacGregor, founder of Insignia solutions, have together launched a new company called Business Software International Ltd, based at Windsor, near London. The new company is backed by 3i Plc, Baring Bros, the British Technology Group, and the San Francisco venture capital kings Hambrecht & Quist, which between them have invested \$4m in the venture. Business Software International has been set up to produce a distributed database for the Apple Computer and Sun Microsystems marketplace. Although the product has not yet been developed, it is in its prototype stage, and will be ready to ship in about 20 months' time. While the product is being designed and produced in the UK, it will be marketed exclusively in the US because Powell feels that many British software companies have failed by not tackling the large, concentrated US market first, before moving into the fragmented European market. Initially, there will be two versions of the database, one for Sun Unix, and another for Apple Macs. The architecture of the database is designed to enable users to draw on the collective processing power of networked desktop computers without a central server, by using the parallel processing of SQL queries. The Sun version of the database will be networked via Ethernet, while the Apple version will use Appletalk. Powell says the product will be priced "competitively" at the top end of the market, and has already negotiated distribution in the US with companies such as SoftSel, Micro D, and Apple's Claris - pretty good for an unseen product.

RICH, IBM IN RT TRADING SYSTEMS DEAL

Reuters subsidiary Rich Inc, Chicago, and IBM have formed a joint development project to allow financial traders using the IBM RT system to access real-time market data from the Reuters/Rich Trading Information Architecture (TRIARCH) digital trading room system. The IBM RT and TRIARCH interface will allow applications to be developed using data from market information on the TRIARCH network, via a programming toolkit attached to the interface. According to IBM, it will form part of its "end-to-end solution for trading system applications." Canadian Imperial Bank of Commerce offices in Toronto, London and New York is to participate in the project as a test site.

SCANLON LEAVES AT&T FOR CAMBRIDGE TECHNOLOGY

Jack Scanlon, the senior AT&T executive involved in the early development of Unix, is leaving AT&T to join the Cambridge Technology Group, Cambridge, Massachusetts, as chief operating officer this week. Founded in 1978, the Group advises and helps companies develop open systems technology. Scanlon leaves after 17 years at AT&T Bell Laboratories, where, apart from being involved in Unix, he worked in the Data Systems Group and participated in the development of AT&T's digital switching systems.

ORACLE WORKS ON DECWINDOWS

Following the distribution deal signed with DEC in May of last year (UX No 181), Oracle Corporation, Belmont, California, has announced that its relational database management system, 4th generation applications development, office automation and financial applications tools will be available on all DEC's newly unveiled systems. Oracle will supply software for the model 3100 VMS based Ultrix VAXstation, the 3520 and 3540 VMS Ultrix DECstations, the 3100 RISC based Ultrix DECstation, and models 210, 216 and 320 running MS-DOS. Oracle also intends to support the DECWindows environment - having received an early version of the DECWindows interface software through DEC's Independent Software Vendor programme - and is creating DECWindows applications for both VMS and Ultrix. In addition Oracle has reseller agreements allowing DEC to resell Oracle's Ultrix based applications.

MOTOROLA SIGNS WITH UNIFY CORP

Motorola Computer Systems, Cupertino, California, and Unify Corp, Sacramento, California, have signed a sales and marketing agreement to offer Unify's products on Motorola's System 8000, and future RISC-based systems. Motorola will receive early access to Unify's recently announced Accell/SQL and Unify 2000 relational database management systems (UX No 204), including foreign language translations. Unify 2000 gives Motorola database system for their large Unix applications, while Accell/SQL provides a standard development platform for Unix applications.

APOLLO TOUGHENS UP SERIES 3500 FOR FACTORY USE

Apollo's Series 3500 workstation - launched in July last year (UX No 188) - is now available in a ruggedised version, the rack mounted DN3540. It has been designed for use on the factory floor, to withstand temperature changes, electromagnetic interference and voltage surges. It is encased in a shock-proof shell, has a derated power supply to cope with high operating temperatures, and filters and high capacity fans to reduce the effects of particles and provide constant airflow for cooling. A keyboard cover has been added to resist the penetration of dirt (and spilt coffee!), and there is a lock to cut off power to the keyboard, allowing the monitor to display information while preventing access to the system. Apollo says the workstation can withstand temperatures from five to fifty centigrade, and humidity between 20 and 80 percent. It offers the same performance and configuration possibilities as the standard 3500 - but only colour versions - priced at £10,000, compared with £8,300 for the standard 3500 edition. Other Apollo machines are likely to be given the same treatment in future.

SYMBOLICS ADDS X WINDOW, NETWORK FILE SYSTEM SUPPORT FOR ITS 3600s

Symbolics Inc, which is now relocated to Burlington, Massachusetts from its original home in Cambridge (now taken over by the Open Software Foundation), has extended networking support for its 3600 series of artificial intelligence workstations with the introduction of communications products that support the X-Window System from Massachusetts Institute of Technology, and Sun Microsystems' Network File System. Symbolics X-Windows software is based on the Unix-based X-Window Version 11, and is designed to enable symbolic applications developed with Symbolics' Genera software to be delivered simultaneously to multiple end-users sitting at low-cost remote consoles. Symbolics-NFS is a Lisp implementation of the Network File System protocol, and the company says it was developed specifically for workstations running Symbolics' Genera development software. Symbolics X-Windows and Symbolics-NFS are available immediately in the US for the 3600 family of workstations, with X-Windows at \$1,700 NFS at \$1,000.

HEWLETT ADDS THREE VECTRAS

Hewlett-Packard Co has three further models in its Vectra personal computers family - two 80386-based desk-side boxes and a 12MHz 80C286-based laptop that the San Francisco Examiner believes is the Zenith Data Systems SupersPort 286 bought OEM. The RS/20C uses a 20MHz, the RS/25C a 25MHz 80386 with 82385 controlling 32Kb cache systems that make them up to 40% faster than the RS/16 and RS/20 they replace. The RS/20C is \$7,600 to \$10,145 and the RS/25C \$10,300 to \$15,700 according to configuration and are aimed at the computer-aided design and manufacturing, and multi-user systems markets, and take up to 16Mb on the motherboard, leaving eight slots. The 14.5 lbs battery-powered Vectra LS/12 laptop is from \$4,880 and has 10" back-lit supertwist 640 by 400 liquid crystal display. The V30based Vectra CS lap-top is available at cut price while stocks last.

INSTRUCTION SET OPENS BOSTON OFFICE

Software consultants The Instruction Set Ltd, London, is expanding its operations and has opened a US office in Boston, Massachusetts: headed by Richard Medlock, the office will offer the same range of services available in Europe.

PAFEC SETS THREE-YEAR FLOATATION TARGET

The continuing expansion of both product line and customer services has prompted Nottingham-based Pafec Ltd to set itself a three-year target for becoming a publicly quoted company. According to chairman and managing director Dr Richard Hensell, however, Pafec enthusiasm for a Stock Market floatation was diluted by the October 1987 crash. In addition Dr Hensell, who was awarded the OBE in the New Year Honours List earlier this month for services to export and industry, said that the company is wary of sacrificing its independent status. Pafec will not be forced down the path of other computer-aided design companies who have become a small section of "somebody else's larger group", he warned. Born as a Nottingham University-based research group in 1964, Pafec Ltd was created in 1976 as a private finite element analysis company, employing seven staff. In 1978 it entered the graphics field with the launch of its DOGS design product. It now describes itself as Europe's largest independent software house, and claims 350 employees, 40 agents and 20,000 users scattered across the world. In the fiscal year ending July 31, 1988, its turnover stood at £14m, with profits hovering at £250,000; both figures are expected to rise in line with the market this year. Primary areas of current activity include the development, marketing and support of software for 2D and 3D design, manufacturing, engineering analysis, and geographical information systems. In addition, Pafec offers a range of mapping and digitising services on a bureau basis. Dr Hensell was in town for the launch of the company's new image scanning capture system, Raven. Pafec claims that the new Raven system can scan an AO drawing in less than 90 seconds at resolution of 400 dots per inch. Other benefits include its handling of both raster and vector formats, hardware independence enabling it to front-end any computer-aided design system, and inbuilt, programmable intelligence for greater automation. The system will be offered in the UK for between £50,000 and £100,000; the latter price includes a Sun Microsystems Inc Sun-3/160 Unix workstation.

BULL "NO" TO INTERTECHNIQUE

Bull SA has decided not to take up its first refusal to make an offer for the Intertechnique Informatique SA computer subsidiary of Intertechnique SA, so the Siemens offer for an initial 35.7% of the firm is the only one on the table.

INTEL CORP REORGANISES COMPONENTS DIVISION

Intel Corp has reorganised its component operations into two product groups - a Microcomputer Components Group to manage production of CPUs such as the 80386; and an Embedded Controller and Memory Group for the volume microcontrollers and memory chips. A new Component Technology and Development Group taking in the process development, factory automation and computer-aided design functions will support both groups.

OBS:

INFORMIX CUTS STAFF, PREDICTS FOURTH QUARTER LOSS

Informix Software Inc, Menlo Park, California, says it will report an operating loss for the fourth quarter on record sales of more than \$27m, and that it is cutting 15% of its workforce immediately: it appears that the company has spent so much money promoting its graphic Wingz spreadsheet for Apple's Mac without getting a product out the door that, according to Newsbytes it has had to cut its payroll by 165 people to conserve cash - As to Wingz, Informix says it's close, but still has a couple of bugs, and that it is committed to a clean product.

BT RELAUNCHES M6000 UNIX MICRO FAMILY

In a further attempt to promote itself as a broad-based information technology organisation, and shed its "phone company" image, British Telecommunications Plc has relaunched the M6000 series of Unix workstations, released three years ago, with the M6320, M6520 and M6530 machines. Only 600 of the original M6000 machines were sold - 480 internally, most of the rest to government departments - but British Telecom says it is confident the relaunch will prove more successful; the range will get support from the company's Business Systems Support Unit in the UK and, on the European front, value added resellers will be approached to use the range as a platform for applications software. To market the series outside Europe, the company will use its common office automation systems for telecommunications, COAST (UX No 192), and may allow others to badge the workstations - it is currently negotiating with three companies, as yet unnamed, to market the series in the Far East, Australasia and the US. The company will look to promote the range as part of local area networks, and claims its existing UK support structures will give it a competitive advantage in the UK market; it will target large companies who, British Telecom says, will be attracted by existing links with the company. The technology for the first M6000 range was bought in from Bleasdale Computer Ltd in 1985, though British Telecom claims the new range's VME 32-bit architecture differs significantly from that originally acquired, and that Bleasdale's input ceased two years ago. The top end 6530 machine, the only machine new to the market, uses the Motorola MC68030 chip, the others the MC68020; the boards for the M6520 and M6530 are still from Tadpole Ltd, manufactured under licence by Radstone Ltd. The Unix V.3 workstations serve between eight and 36 users, are POSIX and X-Open compatible, come with a standard 802.3 Ethernet card and offer X.25 gateway. The installed base of M6000s have an average of 18 users, and the company hopes that with the introduction of the 6530, this figure will be pushed up to around 30. Prices for sample configurations start at £11,000 for eight users and 80Mbytes of disk memory, and rise to £47,000 for 32 users and 380Mbytes of memory, through to £125,000 for 96 users with 840Mbytes, the top-end machine. As for future plans, British Telecom has pledged to incorporate RISC architecture and fault tolerance into further workstations which Tom Hart, Computer Products Marketing Manager, says will generally be top-end machines.

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Olivetti & Co's Olivetti Information Services Group has joined forces with the **Carnegie Group Inc**, Pittsburgh, Pennsylvania to form a joint venture to offer knowledge engineering services: called **Delos SpA**, the new company will be 75% owned by Olivetti, and will major on management systems for big industrial and service companies, development and application of expert systems, and automation studies - Olivetti Information Services did around \$350m business in 1988.

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Unisys Corp is this week expected to unveil what the Wall Street Journal calls "a breakthrough in tiny computer", cramming a processor able to run all A Series mainframe software into a ceramic part measuring 2" by 2".

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Sun Microsystems says that its low-end 80386-based Sun-386i workstation, announced last May, has now clocked up sales over \$100m.

- 0 -

Next Inc, Fremont, California, sent out 200 Next Computer Systems by the end of 1988, to some 10 US universities - although as version 0.8 machines they sound like pre-production machines; they include the Write Now word processor and a beta version of the NextStep software.

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DEC has set a base price of \$11,900 for the base configuration of its MIPS Computer Systems Inc RISC DECstation 3100: the diskless configuration includes 8Mb memory and a 15" 1,024 by 864 pixel display, diskless VAXstation 3100s start at \$7,950, and the MS-DOS machines range from \$2,630 to \$4,960.

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Prime Computer Inc announced this week that it was joining the growing army of manufacturers de-emphasising their proprietary operating systems to major on Unix: the Natick minimaker said that over the next two years it will shift away from Primos to develop native Unix-based machines while continuing to enhance the proprietary 50-series.

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Surbiton, Surrey-based Jarogate Ltd has extended its Sprite product line into the 25MHz range with the release of the 386-25 PC; with 16Mbyte of main memory, it includes Intel's 82385 cache memory controller which supports a dedicated 32Kb of 35nS cache memory, VGA graphics and allows a 1Mbyte memory card to be mounted on to the motherboard - complete systems for the Sprite PC family start at £3,500.

Rapitech Systems Inc, Suffern, New York developer of the Conversionware line of products for converting proprietary dialects of Fortran, Cobol and VMS-Fortran into C, ANSI Fortran 77 and Ada, is having to pull in its horns and concentrate on major accounts and OEM business: accordingly it has closed its regional offices in Sunnyvale, California and Boca Raton, Florida, reduced its executive staff and allowed leases to lapse, consolidate all of its operations at its headquarters to conserve its cash.

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There are now 46 companies around the world building microcomputers around the 16-bit bus 80386SX microprocessor according to **Intel Corp**, which adds that the chip has had the fastest production ramp of any of its microprocessors and is expected to be the fastest growing chip on the market this year: users include **Apricot Computers**, **AST Research**, **Canon**, **Club America**, **Compaq Computer**, **Everex**, **Mitsubishi Electric**, **NCR**, **NEC**, **Ogivar**, **Sony**, **Tatung**, and even **Unitron** of Brazil.

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In addition to the £45m it will get from the sale of **Rapid Recall** and two continental distribution businesses to **Metrologie Internationale SA** (CI No 1,090), **Unitech Plc** will receive another £10m from sale of its 17% shareholding in Metrologie to a group of French institutions.

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Olivetti & Co chief Carlo de Benedetti has amassed a 4.9% stake in **De La Rue Plc** through the Swiss holding company that he controls, **Societe Financiere de Geneve SA**: Olivetti has said that it is looking to expand by acquisition in the UK, and there is substantial potential for synergy between several De La Rue activities and those of the Italian computer and office group.

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The new **Apple Computer Inc** Macintosh SE/30, due this Thursday, January 19 and based on the 68030 rather than the ageing 68000 of the SE, will support multitasking via memory protection, and the chip is expected to be the basis for all the new Macs in 1989: Apple is also expected to reveal a new bus in the machine to set the stage for a new generation of Macintoshes; on the hardware front, the SE/30 will have a 9" built-in black and white monitor and a SuperDrive capable of reading Mac, MS-DOS, and ProDOS files, and of storing 1.44Mb on a 3.5" floppy disk cartridge; current SE owners will be offered a motherboard swap and SuperDrive option.

The Kinetics arm of **Excelan Inc** in Walnut Creek, California, which specialises in communications products for the **Apple Computer Inc** Macintosh, is proud to announce that its TCPort implementation of TCP/IP is included in **Oracle Corp's** new Oracle implementation for the Mac: the network version is \$1,000 and started shipping last month.

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Companies are rushing to profit from the publicity fallout from DEC's "capture the desktop" launch, among them **Autodesk Inc** saying it will support the DECstation line with its AutoCAD computer-aided design software and the rest of its product line, and **Cadence Design Systems**, San Jose, saying it will do versions of its Design Framework architecture and Edge high-performance integrated circuit design automation tools for the new DEC line.

- 0 -

Bull SA has decided not to take up its first refusal to make an offer for the **Intertechnique Informatique SA** computer subsidiary of Intertechnique SA, so the **Siemens** offer for an initial 35.7% of the firm is the only one on the table.

- 0 -

Hewlett-Packard Co bought 13-person **Eon Systems Inc**, Cupertino developer of the LanProbe intelligent Ethernet network management system for an undisclosed cash sum: Eon becomes the Intelligent Networks Operation.

- 0 -

Sun Microsystems Inc is telling analysts that they have underestimated the momentum behind its business, and that since memory chips became less unobtainable, Sun has been able to reduce its enormous backlog of orders substantially, so that profit for its fiscal second quarter to December 31 should be up by 70%, on turnover up 90%, implying net profit well over the \$24m or 30 cents a share analysts had been going for, made on turnover up at around \$446m rather than \$435m.

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Acorn UK 223 245200. Admiral Computing Group plc UK 276 692269. Apollo UK 908 366188. Artecon Inc USA 619 931 5500. British Telecom 1 356 5366. BiiN USA 503 696 4800. Cadline Ltd UK 602 256255. Cambridge Technology Group US 617 876 2338. Diab Data Sweden 468 768 0660. DEC US 617 897 5111. FPS Computing UK 344 56921. Glockenspiel Ireland 353 136 4515. Hewlett-Packard US 408 447 1155. IBM USA 212 848 2737. Intel Corp 793 696 1000. IXI Ltd UK 223 462131. Mips Computers UK 628 890535. Modcomp UK 734 786808. Motorola Computer Systems US 408 864 4496. Open Software Foundation US 508 683 6803. Oracle Corp US 415 598 8251. PAFEC UK 602 292291. Parallel Systems International Corp UK 439 6288. Reuters Holdings PLC UK 1 324 8481. Sequoia Systems Inc USA 508 480 0800. Siemens UK 932 78569. Solbourne US 303 772 0392. Unify Corp US 916 920 5553. Vector and Scalar Products Ltd UK 753 825065.

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"NEW CLASS" X STATION FROM NETWORK COMPUTING

Network Computing Devices Inc, the start-up Mountain View, California company dedicated to creating a new class of intelligent terminal based on the X Window System standard (UX No 197), this week announced its first product, the NCD16 Network Display System. It describes the NCD16 as a network peripheral that provides workstation-like display capability - including a windowed interface, high resolution and advanced communications - for about \$2,500, or half the entry price of a typical workstation. It is designed to operate in a network of computers supporting X Window under either Unix or DEC's VMS, and the X user interface can access multiple host computers, presenting the data from each in a separate display window. It combines a monochrome monitor with single-board electronics located in the monitor base, keyboard, mouse, software and two communications interfaces. The 16" diagonal square-format monitor has a 105-dot per inch resolution, putting up 1,024 by 1,024 pixels so as to provide the same million-pixel capability as the 19" monitors typically used with workstations, but taking up only about half the desktop space. The processor is a 12.5MHz 16-bit MC68000 microprocessor to run the X Window System software and TCP/IP communication protocols, while a graphics co-processor assists in display functions. The board also contains 1Mb to 4.5Mb of memory, and the station comes with one asynchronous RS232 serial interface with a choice of Ethernet and thin Ethernet interface, or a second RS232/RS422 port. The the NCD16 also offers network management and administration features, including name server support and a menu-driven set-up utility. Available on 60 days delivery in the US, the NCD16 starts at \$2,550 with 1Mb of memory and one Ethernet interface.

APOLLO, HITACHI, NEC, PRIME BOOST X/OPEN MEMBERSHIP

X/Open Co Ltd, currently the uneasy common link between the opposing Unix factions of the Open Software Foundation and Unix International, has boosted its corporate members to nineteen with the addition of four new members this week. Among them is Apollo Computer Inc, which promised it would join back in May. And fellow OSF sponsor Hitachi Corp has also joined. On the Unix International side, NEC Corp and Prime Computer Inc complete the four. X/Open members commit themselves to producing X/Open-compliant products, and fund the company through their membership fees. Along with the announcement, X/Open has also revealed two more participants in the user council: the Arco Oil and Gas Co division of Atlantic Richfield Co, and the Royal Dutch Shell Group - two of the largest oil companies in the world, and the addition of Japanese software house Ashisuito to the independent software vendor council (UX No 204). X/Open will be represented at Unix International's satellite-linked launch next Tuesday, which will connect AT&T Data Systems chief Robert Kavner and Unix International Don Herman in New York with European members, including Olivetti's Vittorio Cassoni, in Brussels.

...AS BULL CLAIMS FIRST FOR X/OPEN COMPLIANCE

French systems manufacturer Bull has claimed first place in the line to offer X/Open branded systems. Bull has become the first manufacturer to gain a licence from X/Open allowing it to use the brandmark on the Bull DPX 2000 system. To win the licence, the machine had to pass the 3,745 tests for conformance to X/Open's Portability Guide 2 set by Unisoft Corp's verification suite. Systems are required to pass the 1,578 operating system and 1,292 C language tests at a single pass without showing errors. The Bull system will now run any software compliant with X/Open's second Portability Guide, including those listed in the recently published X/Open software catalogue, around 240 products.

NEW A/UX FROM APPLE INCORPORATES X-WINDOWS

In the US, Apple Computer Inc accompanied its new generation SE/30, based on a 16MHz 68030 processor, with a new release of A/UX Unix, claiming it simplifies the development process for Unix, Macintosh and X Window system developers. A/UX 1.1 offers X Window as an add-on product and is compliant with the IEEE Posix draft 12 standard and Federal Information Processing Standard. A/UX is a full implementation of System V.2 with BSD 4.3 extensions for the Mac II and IIX. With the new release, programs written for X 11.3 can run under A/UX or use an A/UX Mac as a display workstation, and users can develop distributed applications that split execution and display among the Mac and other X Window computers; it also facilitates development of Mac applications that run under both Mac OS and A/UX. It needs a 4Mb II or IIX with 80Mb disk and paged memory management unit and ships in March 1989. X Window for A/UX is \$329; new copies of A/UX 1.1 are \$700, upgrades are \$400 on tape, \$600 on floppy, and the right to update a second system is \$100.

UNIX HOUSE SPHINX "UP FOR SALE"

Nothing was being said on the record last week, but industry sources say that UK open systems software house Sphinx Ltd is up for sale. Suggested bidders for the six-year-old venture capital-funded company include the Headland Group Plc, Pegasus Software Plc, and Kernel Technology Ltd, Leeds. Sphinx chairman Dr Pamela Gray said that over the last year the company had been strengthening its management resources and begun identifying its own acquisition targets, but in doing so "could have stirred up fish bigger than ourselves". Olivetti's venture capital arm, Abingworth Plc and Alan Patricof Associates are among those with a stake in Sphinx, and founders Dr Gray and Dominic Dunlop also retain an interest. The name highest on most people's list of bidders was Headland, acquisitions, having increased its revenues by a factor of 10 over the last year, and that the Unix market was of particular interest.

"15-20 MIPS" FOR NEW IBM RTs

The new more powerful versions of IBM's RT Unix RISC workstations are expected any week now, and they are tipped to deliver 15 MIPS to 20 MIPS. IBM hopes the increased power will allow it to improve on the rather lowly 3.9% of the workstation market the machine currently holds.

SUN REVENUES CONTINUE TO CLIMB

Despite the odd pessimistic report (UX No 207), the explosive growth of Sun Microsystems shows little sign of waning: this week the company announced its results for the second quarter and first six months of fiscal 1989 to December 30th, 1988. Revenues were \$448.3m, a 91% increase over the same period last year, with net income more than doubled to \$29.5m, compared to \$14m last time. According to Sun's president and CEO, Scott McNealy, the shortage of memory chips somewhat abated towards the end of the quarter, allowing an up in production rates, but still leaving Sun with "the largest quarter end backlog in Sun's history". The company has begun site work on its new off-shore manufacturing plant at Linlithgow in Scotland, and this year established a new manufacturing centre for the Sun386i near Boston, Massachusetts: the 80386-based workstation now accounts for around 10% of overall sales. Revenues from the Sun-4 range made 25% of the whole, according to McNealy, who said that he expected volume production of the Sparc "to expand dramatically in 1989".

GEC SIEMENS ALLIANCE HERALDS APOLLO BID?

As reported briefly last week (UX No 214), GEC Plc is seeking to become a bigger player in the software and services market by combining GEC Software Ltd with Marconi Software Systems Ltd to create a £15m-a-year GEC Software Systems Ltd business. According to the Financial Times, GEC is negotiating a joint venture between the new company, Siemens AG and Siemens' OEM workstation supplier, Apollo Computer Inc, raising the possibility that the new European partners might be considering a friendly takeover of Apollo, which indicated back in December that it is looking for further capital (UX No 208).

YARC SYSTEMS ENHANCES ITS Am29000 Co-PROCESSOR FOR THE MAC

Yarc Systems Corp, the Thousand Oaks, California company whose ridiculous name is said to stand for Yet Another Ruddy Co-processor, although those with suspicious minds are convinced that it started life as "Cray" backwards, has enhanced its McCray co-processor for the Macintosh II. The product is built around the Advanced Micro Devices Am29000 RISC with optional Am29027 floating point co-processor (UX No 180), and Yarc claims that it runs at up to 17 VAX MIPS. It can now access over 32Mb of main memory on the Mac II's NuBus, and will now operate with all available NuBus high-resolution displays, the company claims. On the software front, it now supports Apple's Quickdraw software, and windowing is available. But we mustn't call it the McCray any more: according to Newsbytes, Yarc has submitted to pressure from Cray Research Inc over the McCray name, and has now agreed to change it to the NuSuper. And Yarc has also begun shipping a 68020-based co-processor board designed to turn an AT-alike into an engineering workstation. The Yarc-785+ comes in 25MHz, 30MHz, 33MHz and 40MHz versions - that must be pushing it a bit because the fastest rated version of the 68020 is 33MHz although if you get a good one it is always possible to drive the thing faster. It comes with up to 8Mb of memory and the MC68882 floating point unit, and is claimed to work transparently under control of MS-DOS. And the company claims that with the 40MHz clock crystal, you find your little AT is suddenly motoring at 5 VAX MIPS. No prices for the co-processors were available.

START-UP OFFERS HARDWARE INDEPENDENT PARALLEL PROCESSING

A new UK venture capital start-up, Zebra Parallel Ltd, has produced a software environment allowing programs to be run across any number of separate processors without alteration. The new company, based in London and funded largely by Investors in Industry (3i), was formed following the success of a Department of Trade and Industry-funded research project carried out at the Polytechnic of Central London. The resulting product, named "Equus", will be marketed by Zebra Parallel to oems and system houses looking for an entry into the parallel systems market. Written in C and Assembler, Equus is currently implemented on a VMEbus-based Unix System V workstation supporting 15 Motorola 68030 processors. It provides tools for developers to produce parallel programs. These are implemented in "waves", or segments, each capable of running on a single processor. At run time, under Equus, a wave "propagates" as its segments spread across the available processors, adapting to the number of processors present: there is no theoretical limit to the number. Wave programs build and change structure dynamically at run time, which involves the creation and manipulation of active processes and the communication links between them. Each segment running on its own processor is able to communicate with other segments using "a well defined set of message passing primitives". Established by Professor Yakup Paker, the leader of the original research into hardware independent parallel processing systems, along with managing director Richard Harris, Zebra Parallel officially launches itself at the beginning of February. "From a hardware point of view, configuring parallel computers is straightforward", said Harris, "but operating system software is posing problems for a lot of vendors. Equus is a bespoke parallel processing environment compatible with their existing processors and operating systems. We are in a position to take a significant share of what is a world market".

BIG BUSINESS FOR AT&T'S SUPERCOMPUTER?

Despite saying in the US that it would be looking for sales primarily to Japan's Ministry of Defence, AT&T Co and its partner Sumitomo Corp are very definitely saying that they are going after civil markets as well with the AN/UYS-2 supercomputer (UX No 213): Sumitomo says it hopes to sell 150 of the things to the automobile, shipbuilding and construction industries for design and scientific processing applications over five years; there are currently only about 100 supercomputers installed in Japan, from the likes of Fujitsu Ltd, Hitachi Ltd and NEC Corp, plus Cray Research Inc and ETA Systems, but the pricing on the AT&T machine, starting at \$2m or about a third the price of domestic machines, leads observers to forecast big business for it.

MITSUBISHI HEADS FOR RISC

Mitsubishi Electric Corp has begun to develop a machine using RISC technology - but hasn't yet decided which processor to use: currently still at the specification stage, the machine is being developed with a view to reaching market within three years, but on the software front it will definitely support Unix System V.3 or higher, and Berkeley 4.2 BSD extensions; the company is expected to opt for either the Sun Microsystems Sparc or the MIPS Computer Systems Inc R series because the Motorola Inc 88000 and the Intel Corp 80486 are seen as still relatively immature.

FIVE MORE MEMBERS FOR OPEN SOFTWARE FOUNDATION

The Open Software Foundation has announced the addition of five new members to its ranks - bringing total strength up to 76 - and is now "closing in on its next major membership milestone of 100", according to OSF president David Tory. Micro Focus, MIPS Computer Systems, Omron Tatecisi Electronics, The Research Institute for Advanced Computer Science and Texas Instruments are the latest companies to join the group - which now claims to have \$130m of funding for the development of the user interface and OSF/1 operating system over the next three years. Somewhat surprising is the addition of Texas, which is working closely with Sun Microsystems on development of the SPARC RISC chip, (UX No 173). Sun is committed to rival Unix camp Unix International Inc, of which Texas is also a member. Oracle Corp, Belmont, California, is another recent addition to the OSF stable, but, like Texas, is hedging its bets in the Unix wars by joining Unix International at the same time.

...AS OSF REVEALS RESEARCH CENTRE PLANS

The Open Software Foundation is to set up its promised European Research Institute in Grenoble, France, which will assume responsibility for advanced research and development projects in the field of operating systems and application environments. The Foundation says it chose Grenoble because of its active involvement in scientific and industrial research: 8000 researchers and 200 firms are already engaged in research and development there, and the University of Grenoble's information technology research laboratory employs 500 researchers. The OSF centre will initially have 30 staff, and will host academic and industrial researchers on sabbatical leave. Its first task will be to establish a high-speed network linking major European research centres to test the new functions of distributed systems on wide area networks. The centre will have an annual budget of FF 20m, and will be the European arm of the OSF Research Institute: a US centre will also be set up in the near future. Other work to be carried out there includes high speed networking, distributed information processing, massively parallel processing, and the human interface. Results will be evaluated by an OSF development team, and integrated into the OSF project, if deemed suitable. OSF is also planning a product development centre located in Germany.

PHILON FILES FOR CHAPTER XI BANKRUPTCY PROTECTION

Philon Group Inc, which started out in the early 1980s with high hopes for a clever method of limiting the development of Fort needed to create a full range of high-level language compilers for new computer architectures, has run out of time - and cash. The New York company, which has been majoring on compilers for the Unix market in recent years, has filed for Chapter XI bankruptcy protection, showing assets of \$738,000 and liabilities of \$8.1m, \$1.5m of that unsecured, at October 31. It hopes the filing will buy time to reorganise and to remain in business.

SALE OF ICL TO OLIVETTI MOOTED

STC Plc has been holding talks with Olivetti & Co SpA about the possible sale of ICL to the Italian computer and office equipment group, it emerged last week. Although the new management at STC has never been entirely comfortable with ICL, which was acquired by the previous regime, it knows that outright sale of the company abroad would cause the mother and father of all political rows - and there's no obvious UK buyer of the business either. But after four full years of benign neglect, STC has in the past three months been cautiously moving to make acquisitions to strengthen ICL's position - it acquired both Computer Consoles Inc and Datachecker Systems Inc at the end of last year - and still has modest hopes that it may somehow find the mythical convergence of computers and telecommunications that has eluded so many major players from IBM and AT&T down; meantime alliances and product exchanges with computer companies on the continent are very much on the cards for ICL.

EUROPEAN DEAL FOR SUPERTEK CRAY-CLONE

A new company, Vector and Scalar Products Ltd, Slough, Berkshire, has been set up to market Supertek's Cray compatible S-1 supercomputer in Europe (UX No 210), which will also handle European distribution and systems integration of DEC and PC based products. The company is a joint venture between Numerix Corp, Newton, Massachusetts, Supertek Inc, Santa Clara, California, and Reten Electronic GmbH & Co, Frankfurt. Vector has UK management and offers low cost market coverage by "building on existing Numerix European sales, support and distribution structure", according to managing director Russ Gadd. "We can deliver a product to the end user which offers about twice the cost performance of its nearest competitor and still give users a high level of service." The S-1 will be launched in Europe at the Supercomputer exhibition at Utrecht, Holland between February 21-23. It offers about one third of the performance of the Cray S-1 and is expected to have an entry level price of around £200,000.

FERRANTI GEARS FOR UNIX ENTRY

Ferranti Computer Systems, which made its first attempt to get into the Unix market three years ago with a West German 68020-based machine called the Unimax (UX No 54), is preparing to make a more concerted move into the market, and has been sounding companies out about a machine it could buy OEM to complement its ageing Argus family of 16-bit minicomputers. The company will continue to build and offer the Argus for as long as there is a market for it - and the machine remains big business for the Ferranti International Signal Plc subsidiary that remains the number two British-owned computer manufacturer after ICL in the UK market. Amstrad Plc's computer business is now bigger, but it doesn't yet manufacture its own machines. One of the companies that has been approached by Ferranti is ITL Information Technology Plc of Hemel Hempstead, which is looking for OEM contracts on the supermicros it plans to manufacture to run the fault-tolerant Unix and Pick software from Sequoia Systems Inc. As well as hoping to land the Ferranti business - for which there is strong competition - ITL hopes that one of the UK Pick systems specialists will take the forthcoming machine for the Pick market.

BECHTEL SOFTWARE TURNS TO EXPERT SYSTEMS

Acton, Massachusetts-based Bechtel Software Inc has launched itself into the expert systems market by merging its development and sales activities with the Bechtel AI Institute in San Francisco. The Institute was set up in 1986 by the Bechtel Group to conduct in-house research, development, and the promotion of expert systems technology. It also offers a number of training and consultancy services, and markets and supports the Nexpert/Object rule and object-based expert system shell, developed by Neuron Data of Palo Alto, California. The product runs across a range of machines including IBM ATs, PS/2s, and compatibles, Apple Mac IIs, DEC VAXstations, Apollo Computer and Sun Microsystems Unix workstations, the IBM RT, and Hewlett-Packard's HP9000 family. Bechtel Software's president John Lucas says the move will eventually enable the company to offer its customers "affordable knowledge-based systems", and stay on the "cutting-edge of technology". Two-year-old Bechtel Software markets and distributes a number of project management and computer-aided design software products, and is a wholly-owned subsidiary of the Bechtel Group. In the UK, the Nexpert/Object shell is marketed by its London-based subsidiary Bechtel Ltd; prices for the micro versions start at £4,000, and at £7,500 for the DEC-VAX, IBM RT or Unix workstation equivalent. In the US, Bechtel Software has also added a Unix version of its Panorama Plans and Schedules module from its 14-module Synergy project control system, developed for use with Oracle Corp's Oracle relational database manager. The Unix version, initially for Hewlett-Packard HP9000s, joins the DEC VMS, MS-DOS and Prime Computer Primos versions of Paranorama. The new version enables HP9000 users to equip themselves with project management tools, without needing to go to the expense of adopting a new operating system. Customised reports, containing various graphs and charts displayed in user-defined colours and textures, can be created interactively with the Panorama graphics options, claims Bechtel, which did not give any prices.

CIFER ACQUIRES FERRARI

Ferrari Computer Services Ltd of Egham, Surrey has effectively reversed itself into the deeply troubled Melksham, Wiltshire display manufacturer to gain a quotation for itself - if Cifer holders agree to this drastic change in direction for their company. Cifer proposes to issue 80m new shares for Ferrari, representing 50% of the enlarged share capital, and Ferrari chairman Bob Woodland will become chairman of the combined group. Ferrari is valued at £9.6m at the knock-down 12 pence at which Cifer shares were suspended, but the valuation should come out rather better than that when the shares start trading again - if the deal is approved. Ferrari is a personal computer products distributor, but also has an applications software arm, Ferrari Software, which distributes Unix software and systems: the company also provides warehousing services and logistics management, and it made pre-tax profits of £1.1m on £18.4m turnover in the year to March 1988 - pretty ancient history 10 months later. The new Cifer is to be holding company for several small computer businesses, implying that a string of further acquisitions are in the plan.

APPLE BUSINESS "WILL CONTINUE TO GROW"

"1989 is going to be a good year for Apple Computer" according to a report on the UK Macintosh market from Quantum Research Ltd, London. It expects the market to grow by at least 100% overall, although only 40% is to be accounted for by new customers. Quantum - which provides market information on the microcomputer industry - reckons that 50,000 new machines have been installed since 1986, making a total base of around 66,000 Macs in the UK. By the end of 1989 it forecasts an installed base of 120,000 machines - 500,000 in Europe as a whole. The much vaunted HyperCard does not seem to have set the market alight - 70% of users have yet to identify a need for it - and those that do use it concentrate on the associated database facilities it offers. The benefits of connection to IBM compatible machine is another myth dispelled in the report: although welcomed by Mac users, it seems few actually use the facility. 56% of users are running some kind of network - although only 10% are installed at the time of original purchase - 28% of these users connect to IBM, 19% to DEC. Whilst the Mac peripheral market place is set to grow, the obsolescence rate is set to become a sales factor in around two years time according to Quantum. In general it sees the initially high interest in desk top publishing being overtaken by database applications. The report costs £1,150.

..BUT APPLE PRICE CUTS WORRY THE MARKET

Despite sturdy fiscal first quarter figures - profits 16% up - analysts and the market were more concerned at Apple Computer Inc's volte face on pricing, which saw it reverse many of the price increases it made in November, and the shares tumbled \$3.375 to \$40.625 on Tuesday, which seemed a churlish way to greet a good set of figures. Concern was generated by Apple president Allan Loren, who said the company hoped the price cuts on its more advanced models of Macintosh would bring more customers to the high end. "Unit sales increased over 30% in the US and at an even greater rate internationally," he said. "But we also experienced a shift in the unit mix toward less-costly, less-configured Macintosh systems." And that means ones that carry lower margins. Some observers also saw the price cuts as a reflection of slower growth.

INSIGNIA PORTS SOFT PC TO THE MACINTOSH

Insignia Solutions has seen its SoftPC MS-DOS emulation running on Unix boxes from Intergraph Corp's Clipper-based workstations, Motorola, DEC, and Hewlett-Packard recently, but now the company has introduced a version for the Macintosh II at Mac Expo in San Francisco. But according to Microbytes Daily, Insignia admits that the product is best suited to Unix, where it can take advantage of virtual memory. Insignia has an A/UX version of SoftPC, but says there has been little demand. Meanwhile, the company hints that it has been holding discussions with Next Inc.

SIEMENS BIDS \$55m TO TAKE STAKE IN IN2 TO 65%...

Paris-based Pick-popper Inter technique Informatique SA, IN2 is set to become the "centre of excellence for Pick in Siemens," according to IN2 UK managing director Jim Bush. Following Bull SA's waiving of its first refusal on the company (UX No 214), West German giant Siemens AG has gone ahead and bought half of Inter technique SA's 70% holding in IN2 for \$55m. Siemens, which paid 315 French francs for each of the one million shares, is to offer the same price for the remaining 30% in public ownership. IN2 will sell Siemens' kit in France, whilst Siemens will do the same for IN2 systems in West Germany. The firm is to retain its autonomy and will press ahead with its own hardware development.

...AS IN2 MAKES RISC MOVE INTO UNIX

And in a timely move, IN2 chose the turn of the year to make its promised entree into the Unix market with launch of two new families, the IN4000 and IN6000 series. The fault-tolerant 6000 is based on RISC chips from MIPS Computer Systems Inc, Sunnyvale, California, and includes two models: the 6200 uses the R2000, rated at 12 MIPS - with cache it caters for up to 60 users and costs \$93,000; and the larger 6600 is rated at 20 MIPS and uses the R3000 chip - it has 32Mb of memory, plus cache, supports up to 200 users and costs \$370,000. The current IN-Unix will be replaced by Siemens' Sinix, and Pick will be added in future. The IN 4000 series is based on a 33MHz Motorola 68030 with 8Mb memory. The 4200 supports a maximum of 32 users for \$34,000, the 4400 twice as many for £50,000. IN2's established line of 80386-based MS-DOS machines - the 386C and 386Ti - manufactured by its Leanord SA personal computer affiliate, and the Pick-based IN8000 series will also be fitted with Sinix this quarter. As yet the 4000 and 6000 series are not available in the UK, the 386C and 386Ti arrives in the UK next month.

STELLAR SHIPS 120 SYSTEMS IN SIX MONTHS - \$12.7m REVENUE

Despite doubts about the overcrowding in the superworkstation market, privately-held Stellar Computer Inc claims to have set a new industry record for the fastest growing new entrant to the technical computing market, with the announcement of its revenue and product shipment results for its fiscal year ending December 31, 1988. The Newton, Massachusetts-based company launched its GS1000 graphics supercomputer in March 1988, two years and three months after the formation of the company. Volume shipments began in July. According to Stellar, it has since installed over 120 systems at customer locations, and has recorded revenues of \$12.7m. The company says it has manufactured a total of 200 systems, including systems for sales offices, third-party software porting, and in-house use. The systems have gone to 80 customers, around a third of which have apparently become repeat buyers, and Stellar achieved 44% of its revenues outside of the US, both through its subsidiary operations in the UK, West Germany and Japan, and through distribution and oem deals in Japan and Korea, as well as in the US. Strongest sales were in the general scientific and computer-aided molecular design markets. Stellar was founded by William J Poduska, whose previous two start-ups were Prime Computer Inc and Apollo Computer Inc.

DEC LAUNCHES "MOST EXPANDABLE VAX RANGE TO DATE"

DEC has given its mid-range systems a performance boost only nine months after introducing the VAX 6200 range last April. The new 6300 systems double the top-end performance of the VAX 6000 family to 22 VAX MIPS from 11, boosting the power of the CMOS processor to deliver 35% more power than the 6200 CPU, and extending Symmetrical Multi Processing to support up to six CPUs. Featuring one to six processor configurations - the 6310, 6320, 6330, 6340, 6350 and 6360 - a single system, using the same packaging and cabinet, can now support up to 600 users on an All-In-1 office automation system, or perform 30 debit-credit transactions per second. The 6310 uniprocessor is field-upgradable to the 6360 six-processor model, and the 6200 models can also be upgraded on special offer to 6300 models until March, for a cost of £8,000: after then, its considerably more expensive! The low-end 6310 and 6320 boxes are also available as file servers running Ultrix or VMS. DEC says the range cuts across four IBM product lines: the AS400, 9370, 4381 and the low-end 3090, but in doing so DEC also cuts into its own 8500 and 8800 systems, due for an upgrade later this year. But Ultrix users can still only take advantage of two-processor configurations, until Ultrix software supporting Symmetrical Multi Processing is released "sometime within a year" according to a DEC spokesman. Prices start at £144,500 for the 6310 VMS base system, or £121,800 for the base Ultrix system, rising to £590,000 for a six processor 6360 base system. Also announced this week was a new range of storage options, including the RV64 128Gb optical juke box.

AMS BECOMES VISAX

- INTRODUCES LOOKING GLASS INTERFACE
The Systems Group division of the software and engineering company American Management Systems Inc (AMS), Arlington, Virginia was bought out by its management last week, and backed with "several million dollars" of venture capital funding from California firm Roberts and Coleman, according to vice president of marketing George Hoyem. Renamed Visax Software Inc - and also based in Arlington - the group has taken over responsibility for the manufacture and development of two Unix user interfaces, Directory Shell and Looking Glass, which both began life as projects within AMS. Companies such as Honeywell Federal Systems, Aris Corp, Softsel Computer Products, NEC Corp, General Electric Co, and Harris Corp have already signed up for Directory Shell, a visual interface allowing users to perform tasks without relying on the operating system's standard command line language. More exciting however is Visax's Looking Glass interface for X- Windows on workstations. Supposed to resemble Norton's Commander - and due out in the second quarter - it is claimed to "do for bit mapped graphic terminals what Directory Shell does for dumb terminals." Two different 'look and feel' versions of Looking Glass are to be manufactured, one using a Presentation Manager-like interface, and the other acting like the AT&T/Sun Open Look offering. Both are claimed to have the functionality of the Mac interface and George Hoyem says that "big deals are on the way with hardware and software manufacturers for Looking Glass." Cost depends on the hardware, but Looking Glass on Sun 3/60 workstations for example will cost \$600.

NEW REPORT REVEALS USER ATTITUDES TO UNIX INDUSTRY

Existing Unix users have a very high level of planned future investment in Unix systems, according to a new report: Unix Users in the UK, 1989. One third of the 260 users interviewed for the report said they had firm plans to acquire further Unix hardware over the next twelve months. Future purchasing plans over this period represented an increase of over a third of the number of processors already installed, with an emphasis on workstations. The average user planning to buy more hardware over the next year is expecting to spend between £20,000 and £50,000 on processors. Classifying user sites according to industry sector and size, Unix Users in the UK presents a detailed analysis of user strategies, expenditure, factors influencing hardware and software purchasing decisions, and attitudes to suppliers. Its aim is to provide suppliers with an insight into how their customers are thinking. On the whole, users appear satisfied with the quality and reliability of Unix-based systems, something that would have been markedly different if the survey had been carried out a few years ago. Supplier, price and quality of the Unix system were seen as the most important factors when purchasing systems, with breadth of product range considered far less important, in contrast to the marketing emphasis placed on this by many large suppliers. The 115 page report contains 44 detailed tables and 20 graphs: it was produced by Unigram.X in conjunction with Benchmark Research Ltd, and is available from Unigram Products Ltd, 12 Sutton Row, London W1V 5FH at a cost of £275: phone 01 528 7083.

INFORMIX ADDS PC INTEGRATION, BOASTS OF TURBO PERFORMANCE

Database vendor Informix Software Inc, Menlo Park, California, made a series of announcements this week, including the addition of Informix NET-PC, a network module which allows the Informix user interface on PCs to communicate with Unix database servers across TCP/IP networks. It allows applications to be off-loaded onto personal computers, with the Unix machine utilised as a database server. Informix NET PC can only be used via TCP/IP protocols provided by Sun's PC-Network File System, over Ethernet or RS-232C lines - cost is \$200 per DOS PC. Informix is also mounting a campaign to penetrate the Xenix market, having sold distribution rights for its Smart software range to British Olivetti for £1m. Unix and networking versions of Smart are now available, as well as those for DOS and Xenix - all have the same user interface. And the Informix-Turbo OLTP database engine, running a TP1 benchmark test, is claimed to have achieved the highest number of transactions per second recorded to date on a Unix based minicomputer: 126 on a 16 processor parallel Symmetry System from Sequent Computer Systems Inc, Portland, Oregon. On the basis of this Informix has announced a money back Turbo Performance Guarantee that Informix Turbo will run a Unix OLTP database application faster than any other database engine. The latest version of Informix Turbo is scheduled for release in the second quarter of this year. Informix also has a new managing director - Jerry Goldman, formerly managing director with Cullinet Software - replacing Ken Coultier who has moved to take control of Informix's European operation. Goldman promises "the arrival of new products which will exploit the integration of database and large objects such as text and graphics."

COMPUTER CONSOLES ENHANCES OFFICEPOWER

Version 4.2 of Computer Console's office automation software - Officepower - is now available for its range of Unix based minicomputers. The Waltham, Massachusetts based company, acquired by ICL/STC at the end of last year, (UX No 209), is offering document exchange capabilities for PC-DOS based systems and other environments, together with some new systems integration tools and user features in the upgrade - which it regards as part of its open architecture strategy. A new Document Content Architecture (DCA) filter allows users to share data files between Officepower and DCA compatible systems, such as IBM or Wang Systems. The new version also uses CCI's Software Tool Kit - allowing applications to be created for, or integrated into the Officepower environment, has support for the enhanced AT keyboard, AT386, VT220 and Wyse 50 terminals, a tool for customising interfaces to graphic printers not supported in Officepower and Ethernet connectivity for printers. CCI has bought the worldwide distribution rights for UniSoft's electronic telex with mail package, and bundled it in with Officepower - in a deal worth £70,000. An upgrade to Officepower 4.02 from version 4.01 costs nothing, typical base entry price is £400.

CINCOM MAKES TENTATIVE STEPS TOWARDS UNIX WITH SUPRA VERSION 2

Cincom Systems Inc, which calls itself the world's largest privately held software company, made some hesitant steps towards Unix this week with a new version of its Supra database. Version 2 of Supra is still primarily targeted at IBM and DEC environments, but will also be available in a Unix version at its next release. The product, which implements a client/server architecture, is said to be the first "three schema" relational database to become commercially available, based on the ANSI Standards Planning and Recommendation Council guidelines. Cincom acknowledges the help of Nixdorf Computer in implementing the database: the two companies had a technology exchange, but are apparently not coming out with a jointly developed product line, as originally thought (UX No 156). Nixdorf apparently helped with the Transaction Partnering facility of the database, which ensures data integrity across distributed environments. The Supra product includes the Mantis application development language and Spectra query report writer. Cincom gave no details of prices or Unix versions, but price for a MicroVAX system is £30,000.

PYRAMID SIGNS AGREEMENT WITH RTI TO OPTIMISE INGRES

Pyramid Technology has signed a multi-million dollar agreement with Relational Technology Inc, said to be the largest oem contract with a software vendor in the company's history. The three year agreement extends Pyramid's worldwide rights to sell RTI's INGRES relational database management system, and calls for joint engineering exchanges to optimise INGRES for Pyramid's RISC-based, UNIX multiprocessor servers. The contract also provides open-ended co-marketing rights to Pyramid for all future Relational Technology products and provides pre-release version of Relational's software for early customisation and tuning.

FUJITSU CONNECTS SUN WORKSTATIONS TO ITS MAINFRAMES

Fujitsu Ltd has developed terminal emulation software so that the Sun Microsystems Inc workstations it buys OEM can be used as terminals to Fujitsu mainframes: as well as making it possible to connect the Suns in networks along with Facon mainframes and its proprietary G-series Unix workstations, the emulation software is designed to distinguish Suns bought from Fujitsu from those from the likes of Toshiba Corp, which markets the Sun-3 as the AS3000; Fujitsu has a long prospect list for its Suns, and is emphasising financial markets such as dealing systems, as well as laboratory automation, and engineering.

CADLINC CIM CAD ON SUN 386i

Factory automation specialists Cadlinc Ltd, Nottingham, has ported its CIM CAD 3D package onto the Sun 386i workstation. CIM CAD 3D is a three dimensional wire frame design system providing geometry construction capabilities, 3D construction aids, view creation and manipulation, and automatic drafting and dimensioning. The package is built around a geometric modeller, and allows the user to create his or her own elements in addition to those provided. Using object orientated code and a new module the software is able to recognise surfaces - as well as points and lines in its geometry base. CIM CAD 3D is claimed to allow easy transition from the 2D version, being based on conventional drawing office drafting and dimensioning techniques. The package is integrated into Unix and revolves around a common user interface, CIM Shell. Communication is supported via Ethernet, and IGES translators facilitates data entry to the Cadlinc database from external sources. A range of other enhancements have also been added to the package, which costs £4,000 for the basic wire frame version, moving up to £7,000 with the inclusion of solids and surfaces modules. It is only available on the Sun 386i at present - Sun and Cadlinc have an agreement to custom build ruggedised workstations for factory floor use if required - but a deal to use Hewlett-Packard hardware in the US is reported to be under negotiation. Cadlinc is the UK subsidiary of Cimlinc Inc, Illinois, and last year had a turnover of £3.5m last year.

DIAB DATA HAS REAL-TIME PROCESSOR BOARD

Diab Data AB, Sweden, has launched a new 68030 based processor module for large Unix systems. It operates between 25MHz and 33MHz, has 64Kb of cache memory - the module can plug into both single and multiprocessor environments. Diab's real-time implementation of Unix SVID, D-NIX, has an automatic load balancing algorithm to ensure that the load is distributed across the processors, and no software changes have to be made when a new processor is installed. The module can be used in all Diab's DS90 Unix systems, last extended in March of last year, (UX No 169). The new module will open the way to really large Unix systems according to Diab's managing director Hargot Lindmark, "the DS90 can handle 4 users in the smaller models to up to 250 users in the largest." Diab designs, manufactures and markets Unix systems on an OEM basis - it now has five different models in its DS90 series. An Open Software Foundation member, it is also participating in Posix standardisation work.

ENCORE'S "MILLION MIPS" DARPA PROJECT CONFIRMED

It has now been confirmed that Encore Computer Corp, Marlborough, Massachusetts, really is to develop a million Mips machine - in a \$9m, five year extension to its deal with the US Defence Advanced Research Projects Agency (DARPA) - as suggested at the end of last year, (UX No 211). The goals of the new contract are to produce a multiprocessor workstation that is compatible with Encore's Multimax range of systems as well as the GigaMax - a 1,000 MIPS general purpose multiprocessor based on Multimax architecture already under development as part of an existing DARPA contract. The additional research deal is also for "investigating ways of scaling shared memory multiprocessors into a one million MIPS computer," according to chairman Kenneth Fisher. The project will be monitored by the US Army Engineer Topographic Laboratories in Fort Belvoir, Virginia. The new graphics and CASE orientated workstations will, according to Dr. Ike Nassi, vice president of research, enable researchers and other users to prototype and test parallel algorithms on a low cost workstation, and execute applications employing these algorithms on a Multimax, or a GigaMax machine. The real-time workstation - which is to be binary compatible with both of the above - is rated at 80 MIPS, with four processors, bit-mapped graphics and 128 Mb of memory. It is to use the Mach operating system - though commercial Unix systems may also be available for it in the future - and will use Parasight, Common LISP and Ada software tools developed under the existing DARPA contract. In the future, the GigaMax system is to be evolved into a Teraop architecture of one million MIPS, additional work on the Mach operating system is to take place with the original developers, Carnegie Mellon University, and expert systems and image understanding software applications are to be ported to the GigaMax.

HP TO BE LISTED ON EUROPEAN STOCK EXCHANGE

Hewlett-Packard Co has been talking about getting its shares listed on European stock exchanges for a couple of years now, and it is finally ready to take the plunge. It is applying for simultaneous listings for its common shares in the last week of April in London, Paris, Frankfurt and Zurich. It is already traded in Tokyo as well as New York. The company says it wants strengthen its relations with the City of London, which could well mean that local acquisitions are in the wind - the listings will of course be of the US company's shares, not of the local subsidiaries, and is likely to be by introductions in which no new shares are issued.

MOTOROLA SAMPLES 88000, FULL PRODUCTION 2ND QUARTER

Motorola Inc in the US has begun general sampling of the Motorola 88000 Risc chipset, and says that production quantities will be available in the second quarter. Prices for single units are \$494 for the 88100 integer CPU and floating point unit, and \$619 each for the 88200 cache and memory management units, which are used in pairs, one supplying the cpu with instructions, the other with data. Prices are expected to drop to around \$300 and \$500 once volumes build up. According to Motorola, 50 companies received sample chips during 1988.

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The weekly information newsletter for the UNIX™ community worldwide

What are well-read Japanese people reading these days? - publication of the Japanese edition of Unigram X starts this week, as readers of the computer page of the Nikkei Sangyoo Shimbun will have learned.

- 0 -

Following its deal with IBM for joint development on the RT workstation (UX No 214), Reuters subsidiary Rich Inc of Chicago has struck up a similar deal with Hewlett-Packard for its 9000 Series 300 workstation: Triarch 2000 workstations integrate digital, voice and video information on the trading room floor.

- 0 -

Convex Computer Corp, Richardson, Texas has won an order from Matsushita Electric Industrial Co for two C240 200MFLOPS, 100 MIPS minisupercomputers for installation at its Tokyo and Osaka offices, and is also considering the establishment of an integrated large-scale scientific computing centre.

- 0 -

Kernel Technology Ltd - the Leeds based open systems software company - has opened new offices in Watford to "be better able to address the requirements of both new and existing clients": training programmes will take place at both the northern and southern centres, as well as the on-site service offered.

- 0 -

Arix Corp has reported second quarter net profits up 105.6% at \$1.6m on turnover up 92.3% at \$22.2m; mid-term net rose 165.1% to \$2.6m on turnover up 115.6% at \$42.4m. Net earnings per share rose 61% to \$0.21 in the quarter, 129% to \$0.39 in the half.

- 0 -

BOS Software Ltd, London, says it is to unveil its Apex/Unix operating system during the Which Computer? Show: the system allows integration with standard Unix, and also offers access to BOS Global 2000 applications software from PC operating systems such as PC-DOS, MS-DOS and Microsoft Windows - as well as DEC's VMS for minis.

- 0 -

Having wrapped up its hard-fought acquisition of Cadnetix Corp, Daisy Systems Corp has moved to reorganise its operations to consolidate Daisy itself, Cadnetix and Simucad, HNB Systems of Mahwah, New Jersey, also coming with Cadnetix, will be run as an independent subsidiary.

Cambridge, Massachusetts is the venue next week for the annual X Consortium meeting, where the future technical direction of X- Windows will be discussed: the X-Consortium now has several thousand members.

- 0 -

Altos Computer Systems Inc reported a second quarter net loss of \$1.8m against profit last time of \$6.3m including a gain of \$3.1m from sale of its Informix Corp stake, on sales down 13.5% at \$40.4m; mid-term net fell 74.1% to \$2.2m after a gain of \$5.7m from sale of its majority of Communications Solutions Inc, on turnover down 17.0% at \$72.5m: net per share declined 71% to \$0.19 in the half.

- 0 -

Motorola Inc has now fallen out with its official Japanese 68000 and 6800 second source, Hitachi Ltd and is suing the company on grounds of patent infringement and unfair competition the sale of the Hitachi H-8 series of 8- and 16-bit microprocessors: it wants the court to stop Hitachi selling the things, and is demanding monetary damages.

- 0 -

Convex Computer Corp, Richardson, Texas has signed Unisys Electronica Limitada in Rio de Janeiro to market and service its minisupercomputers in Brazil, giving it options to participate in future business developments in Latin America.

- 0 -

Apricot Computers Plc's financial division has been hit hard by the cutbacks in the City - the fall in orders started to accelerate in December in the wake of the shutdowns at Morgan Grenfell, and the company says it has reduced the workforce in the unit by 25% and cut its costs by £500,000: nevertheless, profits this year are now not likely to match the £8.2m reached last year, and statements that the company is "confident that growth will resume again next year" are beginning to wear thin from Apricot.

- 0 -

Defence contractor Hunting Engineering Ltd is to use Deductive Systems Ltd's Generis intelligent knowledgebase management system which uses object-orientated representation techniques, to improve its storage, tracking, and retrieval of information: Generis holds expertise about the data it stores so conclusions can be drawn which are themselves stored and automatically updated within the knowledgebase, enabling operational applications to be produced without conventional programming; Hunting is using a VMS version of Generis on DEC's MicroVAX, but there are also versions for Unix environments.

Japan appears to have shed all its RISC-aversion at last and is rushing to embrace the new technology even more wholeheartedly than the US or Europe: latest to succumb to the MIPS Computer Systems Inc technology is Zuken Inc of Yokohama, in for \$10m over the next two years for M/2000 and M/120 machines on which to offer its computer-aided design and automated production systems.

- 0 -

National Semiconductor Corp, Santa Clara will reduce its worldwide work force by 2,000, 5%, over the next two months, with cuts at all levels in Asia, Europe and the US, where 1,000 must go: it will take a charge to cover the costs with its fiscal third quarter figures.

- 0 -

Sony Corp has Hangulised its News Berkeley Unix workstation and will sell it into the South Korean market through the major electronics manufacturer Daewoo Electronics: since last July when Sony appointed Daewoo as its distributor, the two have been working together on conversion of the operating system to handle Hangul or Korean script, and Sony looks to ship 1,000 in Korea this year, Sun Microsystems is there - but without Hangul.

- 0 -

Oracle Corp, Belmont, California has won a major OEM contract from AT&T Co under which AT&T will offer Oracle products on its entire computer line, and will exchange technology and engage in joint marketing in the areas of distributed database and transaction processing.

- 0 -

American Management Systems Inc US 703 841 6000. Apollo UK 908 366 188. Apple US 408 996 1010. Arix Corporation UK 491 576361. Betchel Software US 508 635 0580. CCI Europe Ltd UK 344 860616. Cadline UK 602 256 255. DEC US 617 897 5111. Diab Data AB Sweden 468 768 0660. Encore Computer Corp US 508 460 0500. Ferranti UK 61 499 3355. GE US 703 478 6000. H-P US 408 447 1155. Harris Corp US 214386 2000. Hitachi Corp US 415 * 2 1902. Honeywell Federal Systems Inc US 804 827 3000. IBM US 817 78758. ICL UK 1 788 7272. IN2 UK 635 521 678. ITL UK 442 42277. Informix UK 1 890 8641. Instignia Solutions US 408 446 2228. Integraph Corp UK 793 619999. Kernel Technology Ltd UK 532 420183. Mitsubishi UK 7072 76100. Motorola US 408 864 4496. NEC Corp US 617 264 8635. Neuron Data US 415 321 448. Olivetti UK 428 4011. Prime Computer UK 5727 400. Sequoia US 508 480 0800. Siemens UK 932 785 691. Softsel Computer Products Inc US 213 412 8200. Sphinx UK 628 822 266. Stellar US 408 946 6460. Sun UK 276 62111. The Open Software Foundation Belgium 32 2647 7740. UniSoft UK 1 606 7799. Unix International Inc c/o US 212 757 9100. Vector and Scalar Products UK 753 825 065. Yarc Systems US 805 49 28804. Zebra Parallel UK 603 761 523.

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UNIX INTERNATIONAL REVEALS ITS HAND

- STEERING COMMITTEES TO GUIDE UNIX DEVELOPMENT

AT&T Unix supporters Unix International Inc this week filled out the details of its sketchy pre-announcement back in December (UX No 208), and clarified its relationship with AT&T's newly formed Unix Software Operation business unit (UX No 212). The not for profit company, which will begin with 35 staff and three locations in New Jersey, Brussels and Tokyo, turns out to have 14 principal members, who each pay an annual \$500,000: they are Amdahl Corp, AT&T Co, Control Data, Fujitsu Ltd, Fuji Xerox, ICL, NEC Corp, NCR Corp, Oki Electric, Olivetti & Co, Prime Computer, Sun Microsystems, Toshiba Corp and Unisys Corp. There are two other tiers of membership: general members paying \$100,000 and associate members paying \$10,000: amongst those not previously announced are Addamax, Alacatel, FP Computing, Ricoh Ltd, HCR Corp, Stratus Computer, LM Ericsson, Emska, Omron, Wang Laboratories and 88Open, with a total of 46 paid up. Unlike rival Unix software group the Open Software Foundation, Unix international will not itself develop software or license technology - that will remain the responsibility of AT&T, helped by its partners Sun and Unisys. Instead, according to organisational chairman Don Herman, Unix International will manage the definition process, drawing up detailed specifications through working groups and steering committees, and will ensure that members receive early access to detailed information on future releases, with the Unix Software Operation to produce "road maps" of future development. The first three such committees will concentrate on licensing policy, multiprocessing under Unix, and technical advances. And the company has asked X/Open to help it maintain conformance with the X/Open Common Applications Environment - although, according to president Geoff Morris this does not mean that the Unix International environment will be favoured over any other. "Should we be asked to do the same thing for any other emerging standard we would do so gladly". For Unix International officers (see page 3).

APOLLO ADDS VISUALISATION SUB-SYSTEM TO ITS SERIES 10000

Apollo Computer Inc this week finally extended its RISC-based Series 10000 superworkstations with the launch of its long-promised tightly coupled graphics sub-system^{HI}, allowing it to compete in the graphics market with rivals Ardent and Stellar for the first time. In the rush to launch its Series 10000 along with the first offerings from the two start-ups last March (UX No 169), Apollo was forced to announce its Parallel RISC Instruction Set Multiprocessor - or Prism - architecture systems in server configurations only, promising graphics versions for later in the year. But in the event, the extra graphics hardware took a further 11 months to complete. The 10000 VS series has a graphics engine tightly integrated with the main RISC cpus, allowing graphical applications to be created and run using standards such as PHIGS and GKS without adversely affecting performance, according to Apollo, which claims to offer graphics performance of over one million 3D vectors, and over 100,000 3D polygons per second. The 10000VS has a new 3D RISC drawing engine, said to be the first to incorporate RISC concepts such as parallel execution, single-cycle draw rates, and no microcode. Image quality features such as texture mapping, alpha buffering, dithering, quadratic shading, and sub-pixel addressing are also supported. Apollo also provides a high resolution 70MHz non-interlaced monitor for the system, claimed to be the first capable of resolving 1280 x 1024 pixels. Including from one to four cpus, 40 or 80 planes of colour, up to 128Mb of main memory and up to 3Gb of local mass storage, the systems cost from \$94,900. Shipments begin in the second quarter.

UNISYS IN \$250m

SEQUENT OEM CONTRACT

A giant OEM contract with Sequent Computer Systems Inc will allow Unisys Corp to fill out the top end of its Unix-based systems range, giving Sequent up to \$250m estimated revenue over the next five years. Unisys will take the Portland, Oregon company's Intel 80386-based parallel processors and add its own peripherals and software, in a deal which includes a three year initial period and two optional one year extensions. The first year of the agreement, however, is expected to generate only \$10m revenue for Sequent, with up to \$240m during the ensuing four years. Sequent chairman and chief executive officer Casey Powell said that the company had no intention of withdrawing from direct sales: "We have always been a strong end-user company and will continue to be one". He said that the deal would strengthen Sequent's presence in key commercial markets such as federal government and the airline and communications industries. Unisys executive vice president Paul Ely called the Sequent systems "a natural extension" to the Unisys product line. Sequent began shipping systems to Unisys for internal use late last year, but rumours about a relationship between the two companies were sparked off in October, when Unisys won a \$10m US Department of Labor contract by fielding 28 Sequent machines (UX No 199). Volume deliveries begin mid-89.

PYRAMID TO CHALLENGE IBM 3090s

Pyramid Technology Inc is hoping to lay down the gauntlet to IBM and the top-end 3090 mainframe line in the large-scale database and transaction processing market with a new family of multiprocessors built around the latest iteration of its own proprietary RISC processor. The new part, designed by the Mountain View, California company and fabricated for it by LSI Logic Corp, is in 1.5 micron CMOS where Pyramid has hitherto used only medium-scale integration. As a result, it will shrink the three boards of its current machines to a single board. The first of the new machines is due to be announced in the US on Monday, February 13 and the full family will appear during 1989. The company will go beyond its present limit of four CPUs to perhaps as many as 10, and reckons it will be able to span most if not the full performance range of the 3090s. Preferred databases will be Oracle, Sybase, Ingres, Informix and the Universe Pick-under-Unix.

PARCPLACE EXTENDS SMALLTALK-80 TOOLS TO DEC

Object-oriented software specialists ParcPlace Systems, Palo Alto, California, are amongst the many software developers interested in DEC's new DECstation 3100, the recently launched Ultrix-only workstation based on a cpu from Mips Computer Systems Inc. ParcPlace, a spin-off formed by technical developers and researchers from the Xerox Palo Alto Research Center, demonstrated a version of its Smalltalk-80 development environment for the DECstation at its US launch in San Jose, California last month (UX No 213), and says the new version will be available in the second quarter of this year. The company has already ported the product to run on Unix, Mac OS and MS-DOS operating systems using Motorola, Intel and Sun SPARC processors, and is predicting a renewed interest in the pioneering language now that it is more widely available. "We began selling at the end of 1986, but Smalltalk was not offered out of Xerox itself until mid-1988", said ParcPlace spokesman Helene Tannor. The graphics-oriented environment allows a user to program by selecting code modules from a reusable library, and by using built-in applications and simulations - useful for the rapid development of prototypes. Links to subroutines in other languages, such as C, are also possible. According to ParcPlace president and chief executive officer Adele Goldberg, the company is also working on a VAX version of the product.

...BUT HEDGES ITS BETS FOR THE C++ BOOM

Although it regards C++ as a hybrid object-oriented language when compared with Smalltalk, ParcPlace is also working on Synergy, a programming environment and set of object-oriented tools for C++ users, shortly to be released for 80386-based hardware running MS-DOS. With the exception of a very few - such as Interactive Software Engineering Inc, Goleta, California, with its Smalltalk derived Eiffel language, and Stepstone Inc's Objective C implementation using Smalltalk concepts, recently chosen by Steve Jobs for the NeXT machine - most software developers working on object-oriented languages have agreed to remain compatible with the standard AT&T C++ compiler, first released in 1985. Due this quarter from AT&T is C++ version 2.0, set to add new functionality to the language, including multiple inheritance and member-wise assignment and initialisation. At the same time, AT&T is expected to release documentation describing the current state of the language. Speaking at a Usenix-sponsored C++ conference last year, Sun Microsystems co-founder Bill Joy called C++ "the answer to the programmer productivity environment problem". And with attendees at the event representing companies such as Apple, AT&T, Hewlett-Packard, IBM, Sun and Unisys Corp, it seems the big names in the industry are taking it seriously too.

OREGON C++ NOW INCORPORATES DEBUGGER

UK software developers Real Time Products, Birmingham, has released version 1.2a of Oregon Software Inc's C++ compiler, first shown at the Software Tools exhibition last June (UX No 185): for £1,500 it produces executable code on Sun-3 workstations, and incorporates a mouse driven debugger with five separate windowing interfaces for various options - a VAX/VMS port is planned for the second quarter, an Ultrix version may follow in the future. Oregon Software Inc is based in Portland, Oregon.

ZORTECH'S NEW C COMPILER HAS C++ UPGRADE PATH

Having launched the first C++ compiler for under £100 last July (UX No 186), UK software house Zortech Ltd, Woolwich, South London, which also has an office in Boston, Massachusetts, has now revealed a new C compiler and debugger which it says includes an easy upgrade path to C++ and object oriented programming. Based on the C++ compiler, the new product includes tutorial, programmers editor, online help, graphics and global optimiser, and is claimed to compile at a rate of 16,000 lines per minute. Purchasers of the C debugger will be able to upgrade to the full C++ debugger, due for delivery in May this year. The compiler and debugger, for IBM PCs and compatibles running MS-DOS 2.1 or higher, cost \$39.95 each, or \$149.95 as a combined package. UK prices are £49.95 and £89.95 respectively.

TEKBASE SCIENTIFIC DATABASE HEADS FOR JAPAN

UK software developer Protek Ltd has signed up a Japanese distributor, Marubun Corp, to sell its Tekbase technical relational database in Japan on Hewlett-Packard workstations. Tekbase, which will be implemented on other Unix platforms "sooner, rather than later this year" according to Protek spokesman Mike Cole, will be sold exclusively in Japan through Marubun's computer instrumentation division, and is already attracting widespread interest.

HP-UX TO INCORPORATE LAN MANAGER BY YEAR-END

Hewlett-Packard is preparing the release of a new version of its HP/UX operating system for release during the second half of 1989, according to a report in HP Chronicle-Europe. HP-UX 7.0 will begin to converge the technology of the HP Series 300 and 800 operating systems, currently separate as Series 300 HP-UX 6.2, and Series 800 HP-UX 3.0 - especially in the area of system administration. The new release will conform to X/Open's Portability Guide III specification, and the Open Software Foundation's Level 0 specification, which will require the addition of an ANSI standard C compiler, PHIGS graphics, OSI networking, and SQL database management facilities. Release 7.0 will be based on a full implementation of Unix V.3, with Streams and Transport Layer Interface, and may also include disk mirroring, diskless support (for the low-end Series 800 models), and DoD C2 security certification. And the new release should incorporate the HP and Microsoft LAN Manager - LM/X, which will allow DOS and OS/2 PCs to share HP 9000 resources and peripherals with no additional software.

...AS NEW WAVE IS DELAYED

Hewlett-Packard's New Wave graphical interface has fallen about six months behind schedule, and will not now appear until the second quarter of 1989. The delays are due to improvements now being implemented in the product following feedback from 200 or so developers who have been evaluating it over the last few months.

ARIX LAUNCHES TOP-END 4 CPU SERIES90s

Arix Corp has introduced its new top-of-the-line machines as the System90 series, claiming that the multiple 68020-based machines span a performance range of 4 MIPS to 30 MIPS. The building block of the family is a 25MHz 68020 with 64Kb cache and 68881 floating point co-processor. The machines are built around a 64-bit parallel synchronous bus running at a sustained 128Mbytes-per-second. The shared memory system supports dynamic load balancing and symmetrical processing under the Arix-OS/90 implementation of Unix System V 3.1 with multiprocessing extensions. The San Jose company claims that performance increases almost linearly as additional processors are added. The machines support the input-output controllers and peripherals of the existing 800 series. The System90 Model 40, with up to four CPUs, supports up to 256 concurrent users and end user prices range from \$100,000 to \$225,000; the Model 80, with up to eight CPUs, takes up to 512 concurrent users and goes from \$125,000 to \$500,000; both are out immediately.

SEQUENT SECURES ADDITIONAL \$32.5m FUNDING

Sequent Computer Systems Inc, Beaverton, Oregon, has secured \$32.5m of credit from the First Interstate Bank, Portland, Oregon, over the next three years. Sequent's vice president of finance, Bob Gregg, claimed that the company has an annual growth rate of more than 100 per cent and has borrowed the money to finance continued growth - with a revenue of \$51.9m last year, the six year old company says that 35% of its revenue now comes from outside the US. And new figures out last week saw fourth quarter net profits up 100% to \$2.2m after a \$328,000 tax credit, on turnover that rose 99.2% at \$24.1m. Net profit for the year was up 62% to \$6.5m after a \$948,000 tax credit, on turnover up 108% to \$76.1m. The company says it has installed more than 600 systems worldwide direct, with over 1,000 additional systems and engines sold worldwide: Siemens AG has a major OEM deal with Sequent.

MOTOROLA STRIKES OEM DEALS WITH FERRANTI, BLEASDALE, SYFA, BT

Following rumours last week that it was about to enter the Unix market (UX No 215), UK mini-maker Ferranti Computer Systems Ltd, Manchester, is now set to take Motorola's Delta system Unix boxes and re-badge them in an attempt to re-vamp its ageing family of Argus 900 16-bit systems: the one year OEM deal is worth \$5m. And at the same time, Motorola announced a string of other OEM deals with UK computer systems manufacturers, including Bleasdale Computers plc of Lutterworth in Leicestershire, Syfa Data Systems, Watford, Hertfordshire (a deal apparently signed last April), and a deal with British Telecom to supply over 200 Motorola MVE 224 memory boards for the British Telecom M6000 series launched last month (UX No 214). Former BT supplier Bleasdale, in a deal worth "at least \$500,000", will use 68030-based Delta systems, the MVME147 single board sets, and V/68 Unix V.3 operating system as the basis for its future Sentinel and Senator micros, and Syfa has struck a \$2m for its own expansion into Unix - due to be revealed this week.

MOTOROLA INC CLOSE TO GOULD COMPUTER BUY

Motorola Inc is the odds-on front-runner to acquire the Gould Computer Systems Inc business from Gould's new parent Nippon Mining Co according to Electronic News. The paper expects definitive agreement to be signed within two weeks, but is not certain that the Schaumburg, Illinois firm will get the military as well as the civil business. Motorola is expected to position Gould's minicomputers at the top of the Delta line offered by the Microcomputer Systems arm of its Computer Systems unit: it bought Gould's Unix software development arm in Urbana, Illinois last year. The two companies have had a close relationship for some time, with Motorola implementing Gould's custom gate array and logic designs for its latest computer range - the NP1.

COMENDEC DOES AN IMPLEMENTATION OF NETBIOS FOR DEC'S VAX/VMS

Birmingham-based Comendec Ltd, formed in 1983 to develop core components for local area networks in industrial use, now wishes to broaden its range of offerings, and has come up with an implementation of the NetBIOS application programming interface under DEC's VMS, claiming that it conforms fully to the network control block mechanism specified by IBM and Microsoft. The company says it has developed the package in response to indications of the growing industry acceptability of NetBIOS, the retention of NetBIOS in LAN Manager architecture, and the endorsement of NetBIOS by IBM Corp. The company forecasts that distributed applications will exert a growing influence on networking, while protocol software and network hardware will fade in significance; Comendec wants to focus on distributed computing and network applications portability within OS/2 LAN Manager/LAN Server, VMS, MS-DOS and Unix environments. Comendec is also working with Computer Systems Developments Ltd, developers of the VAX-based Manufacturing Resource Planning package, and Cintel for Arcnet implementation of NetBIOS under VMS, aiming to develop gateway architectures between the MAP/TOP protocols and NetBIOS/ArcNet. Comendec is also looking into VMS/NetBIOS for Ethernet/TCP/IP, Token Ring and Ethernet/XNS, and claims that Excelan Inc and 3Com Corp have expressed interest.

PETER CUNNINGHAM ELECTED CEO OF UNIX INTERNATIONAL

Unix International "represents the views of more than 80% of the Unix-based industry", said Peter Cunningham, newly elected chief executive officer for Unix International at the international press conference held this week in New York and Brussels, linked together by satellite. Cunningham, who comes from ICL where he was the directing manager for office systems strategy, emphasised that the company would not be carrying out its own software development. "We will not write a single line of code", he said. Besides Cunningham and organising chairman Don Herman, other appointments included Van Aggelakos, chairman, from NCR Corp; Tom Mace, director of marketing and promotions, from Unisys Corp; Alan Nemith, director of technology, from Prime Inc; David Sandel, director of business operations and planning, from AT&T; and Shuisu Yoshida, chairman of Pacific regions, from Fujitsu. One early decision the new company will have to make is whether or not to standardise on the Open Look user interface from AT&T: an issue that has "definitely not been decided" at present, according to Don Herman.

NORSK DATA RUSHES TO OPEN SYSTEMS IN WAKE OF MAJOR LOSSES

Norsk Data AS, which has turned in whopping end of year pre-tax losses equivalent to \$121.0m, is having to rush into Unix to prevent its business from vanishing as customers refuse to commit to its proprietary Sintran III operating system for new applications. The decision was triggered by contracts lost in Sweden and Norway because Norsk Data's machines did not conform to open systems operating standards. Consequently, future technological development is to be concentrated in the development of its own Extended Systems Architecture which is applicable to emerging open standards. This will involve integrating proprietary and standard technology in the networking of computer resources and in the manufacture of a powerful new RISC-based family, using Motorola's 88000 processor. The company blames its disappointing figures both on its tardiness in integrating software with standard base systems and on weakness in the oil industry-dependent Norwegian market. In response to its financial difficulties 800 job losses - 19% - were announced in Sweden and in Norway. On top of this, Norsk Data is restructuring its manufacturing base in two main ways. Firstly, the manufacture of its central processing unit for the MD5000 requires the company to make less of the parts themselves, leading to a reduction in manufacturing units. Secondly, most of the module and board production will be subcontracted out, and personal computers will continue to be bought in from Wyse Technology.

The company's research and development will be repositioned to concentrate resources into integrated software systems and applications, with nearly a quarter of job losses coming from the research and development area. Norsk Data, which already belongs to the Open Software Foundation, is going into strategic partnership with leading standard technology providers, such as Microsoft for software, Santa Cruz Operation for Unix, 3Com for networking, and Aldus Corp for desktop publishing. Along with these alliances, the company has set up a 100%-owned subsidiary in Norway called Dolphin Computers AS, which will develop high performance standards-based processors in the 500 MIPS to 1,000 MIPS class, selling them to other companies as well as to its parent company. The rationale behind the creation of this new company is that it is "easier to look for partners through a wholly owned subsidiary". Norsk Data views the immediate future in terms of a commitment to markets where the company has a strong user base, for example, the graphic industry, and the computer aided design and manufacturing solutions market. The short term effect of all these changes is a cost reduction of \$55.5m on an annual basis. Norsk is not, however, prepared to promise a return to profits this year.

CDC EXTENDS NOS/VE FOR UNIX, IBM CONNECTIVITY

Meanwhile, Control Data Corp says that a new release of its proprietary NOS/VE operating system, due out in December, will extend the connectivity options available to its Cyber mainframe users. The new release will include the Sun Microsystems Network File System, new archiving and retrieval facilities, and enhanced electronic mail. NFS is already available on CDC's Silicon Graphics-based Cyber 910 workstations, and will allow workstation users to gain access to the mass storage capacity of the Cyber mainframes. Working with the new Archive/VE facility, designed for large amounts of data - used in such applications as weather forecasting and petroleum exploration - workstation users will be able to backup and extend local storage. TCP/IP with an interface to Mail/VE message handling, an X.400 interface, and support for VM/SP in addition to the previously supported VM/MVS will also be included. NFS on Cyber mainframes will cost from \$3,000 to \$6,000.

ICL INC MOVES TO SANTA CLARA AS ICL DATACHECKER

ICL's peripatetic US subsidiary - it has been based in New York City, East Brunswick in New Jersey, Dallas and a few other places, and most recently in Stamford, Connecticut, is on the move again, this time to Santa Clara, California - where it will paint ICL Datachecker Inc on its shingle. The new move follows completion of acquisition of the Datachecker point-of-sale business from National Semiconductor Corp for \$90m. ICL Inc president Gary Hegna continues to head the greatly-enlarged firm; the Network Systems arm stays in Stamford. ICL's parent STC Plc now also owns Computer Consoles Inc in Waltham, Massachusetts, but this remains separate from ICL for the present.

DATA GENERAL "PUSHED TO MAKE A PROFIT THIS YEAR"

Data General Corp's figures, showing a fiscal first quarter loss of \$19.5m last week where analysts had been looking for the minimaker to break even or thereabouts, are being blamed on weak demand for the Marlborough, Massachusetts company's products here in Europe, where intensified competition from IBM is seen as having been the prime factor. The shares fell \$1 to \$17.50 on the figures, but the price is regarded as underpinned by the promise of a bid for the company if it falls too far - especially as book value - assets per share - is put at \$21.50. The damage from IBM is seen as having been largely down to the AS/400, which has gone down well with small and medium-sized businesses in Europe. Doing badly this side of the water is synonymous with doing rottenly overall, because the US market has been dull for so long. The fact that the new top-end MV/40000 won't be shipping until later this year has also hurt the company, because MV/20000 users are holding off rather than putting in more 20000s. But even though it is only a month into its second fiscal quarter, Data General is seen as being pushed to make a profit this year.

"CONTROL DATA WILL SELL TO UNISYS" GOSSIP CONTINUES

Speculation that Control Data Corp will sell its computer systems and services division to Unisys Corp persists (UX No 214) and one Wall Street insider is quoted by Dow Jones Professional Investor Report as saying that "the deal is done and they're negotiating price". The Minneapolis Star Tribune newspaper quotes an unnamed Control Data executive as saying: "When the bottom line is in trouble, a company does what it has to do. And it would seem like they have to do this deal". The Cyber mainframe computer business and the workstations are thought to be worth something over \$500m.

IBM, ADOBE TEAM TO LAUNCH \$5,000 POSTSCRIPT PAGE PRINTER

IBM has joined forces with Adobe Systems Inc, Mountain View, California to announce a multi-purpose PostScript printer for MS-DOS, OS/2, IBM RT and other machines, including the Apple Macintosh. Called the IBM Personal Page Printer II, and shipping in the US immediately, the product is a desktop laser printer running at up to six pages per minute with resolution of 300 dots per inch. As well as PostScript, it has IBM Proprinter XL and Hewlett Laserjet Plus emulators, serial, parallel and Apple LocalTalk interfaces, and comes with 43 PostScript typefaces, "more than any other desktop printer on the market. The IBM Personal Page Printer II costs \$5,000.

TULIP LOOKS TO UK WITH LOW-COST 80386SX MACHINE

Crawley, West Sussex-based Tulip Computers UK Plc, the British subsidiary of Tulip Computers NV, has launched its SX Compact 2, a machine that the company claims "will redefine price-performance standards for the business microcomputer market." Tulip is known as a supplier of IBM compatible micros. Indeed, Tulip is a company which in IBM's opinion markets MS-DOS machines that are a little too compatible for comfort, to the extent that IBM Nederland is suing Tulip NV for allegedly using a pirate BIOS in its Compact range. These altercations aside, however, Steve McCall, the managing director of Tulip's UK division, intends to increase his company's share of the British micro market to 3% from its present 1% by the end of 1989. One of the gambits in this project is the SX Compact 2 machine for which Tulip says it has a £1.4m marketing budget. The SX is available in 20Mb and 40Mb configurations, is based on the 80386SX chip and runs at 16MHz. It has a standard internal memory of 1Mb (which can be expanded up to 3Mb on the motherboard), and provides Expanded Memory Support version 4.0 which gives access to memory above the 640Kb limit for MS-DOS programs that support EMS memory. With a petite 12" footprint, the SX has three full length slots for expansion, with further space for one half height board. Tulip claims that the new product's performance advantage rests with the use of fast access hard disks (30mS for the 20Mb, 23mS for the 40Mb), as well as with the shadow random access memory function, which enables the Extended Graphics Array or Video Graphics Array read only memory BIOS to be copied into a 16K-bit shadow RAM, thereby speeding up these graphics applications by at least 200%. The SX Compact 2 comes with a dual graphics adaptor, but Extended and Video Graphics Arrays are available as options. It is compatible with all 80386-specific software as well as with Unix/Xenix, and the package includes parallel, serial ports, keyboard, and MS-DOS 3.3. Priced at £2,000 for the 20Mb disk version, and £2,250 for the 40Mb version, the SX Compact 2 is shipped with 12 months warranty, the first six months being free on site maintenance, courtesy of Nationwide Systems Engineering. Tulip has also announced price reductions as part of its aggressive marketing strategy. The entry level Compact 2 MS-DOS micro now retails at £900, while the 40Mb AT Compact 2 is now priced at £1,750.

APPLE SHARES TUMBLE ON PROFITS SLUMP WARNING

Apple Computer Inc shares crashed \$4 even to \$37.625 in early trading on Wall Street Friday at a time when the market as a whole was up 32 points on the Dow Jones Index after the company warned that profits for the second quarter would be down at around 35 to 45 cents a share, against the 61 cents it did a year ago. Reason is that the company is stuffed with memory chip inventory bought at the peak of the shortage-induced price premium back in the summer. The company notes that it tried to recoup its outlay by putting up prices in the autumn, only to find that users moved away from the more profitable - but memory-intensive - models of the Mac II and SE for skinnier configurations in the expectation that they could populate them up with third party memory more cheaply. So on January 17, the company cut prices again on machines with large amounts of memory, and says that while it expects demand to rise as a result, the effect will be to put second quarter margins under pressure. Apple is still looking for 30% growth in its worldwide business this fiscal.

BREAK-UP BID FOR XEROX MOOTED AS THE COMPANY SETS ITS OWN REORGANISATION

Wall Street was buzzing with gossip last week that a break-up bid for Xerox Corp was on the way with the prime aim of unravelling the office equipment firm's diversification into financial services - and moves by the Stamford, Connecticut company to institute an shake-up of its own are expected today. The name on many lips as the prime mover in any bid for the company was that of Sir James Goldsmith, but the possibility of a bid from Unisys Corp, which would gain a genuine broadening of its market base by buying Xerox, cannot be ruled out - and any bidder might well line Unisys up as the buyer of the electronic side of the business. The chatter was good for a \$4.50 climb in the Xerox share price to \$63 even by Friday's close. Today, according to the Wall Street Journal, Xerox is likely to announce a streamlining of the office equipment side of the business, and take a substantial write-off, perhaps as much as \$80m to \$100m. The company is expected to close or sell some marginal businesses, and to write off some low-end typewriter assets.

INGRES UK SALES "WILL BE 50% UNIX BY 1992"

"Unix is the fastest growing sector in the UK information technology market" according to Relational Technology Ltd's UK marketing director, David Cliffe. In view of this, Relational expects Unix versions of its Ingres relational database management system to rise from 25% to 50% of its total UK sales over the next two years. According to Cliffe, the installed base of Unix systems in the UK is forecast to grow by an average of 50% a year between 1987 and 1992, and Ingres will accordingly increase its support for Unix users and system developers, and says it will develop additional Unix ports "to match the market's development". The company recently announced a version of Ingres for Compaq/386 class systems running Unix V.3.

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Hewlett-Packard (Canada) Ltd has an \$11.5m contract for at least 500 of its Motorola 68000 family of Unix workstations, from Bell Northern Research for Canada, the US and UK.

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Despite chairman Michael Blumenthal's commitment to turn Unisys Corp into a \$20,000m company by the early 1990s, figures released last week show that even with the Convergent Inc and Timeplex Inc acquisitions, turnover remains stubbornly below the \$10,000m mark - meanwhile DEC was up at \$11,800m for its year to June - after a dull fourth quarter in which both turnover and profit growth were sluggish.

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And last week also saw poor results from Borland International Inc, Apollo Computer Inc and Prime Computer Inc: Borland showing third quarter net down 6% at \$874,000 and a nine month loss of \$4.9m; Prime turning in a \$14.4m fourth quarter loss after taking \$32.8m in consolidation charges, leaving it with a \$19m profit for the year; and Apollo fourth quarter net profits down 68% to \$3.2m;

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The US General Services Administration Board of Contract Appeals has turned down Honeywell Federal Systems' protest against AT&T Co's monster \$4,500m Unix systems contract from the US Air Force: Honeywell claims its own bid for the contract was evaluated incorrectly, but the Board said that while there were minor errors in the evaluation of both bids, there was no cause to refer them back to be reconsidered.

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Sybase Inc, Emeryville, California has been signed by IBM to implement the Sybase relational database system for IBM's RT Unix box: Sybase is already on the IBM System 88 and the Sybased SQL Server will soon be available on the PS/2s under OS/2.

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American Telephone & Telegraph Co, AT&T, has reported a fourth quarter net loss of \$3.342m after a one-time net charge of \$3,935m for equipment write-offs and modernisation costs, against a profit last time of \$498m, on turnover up 6.4% at \$9,207m: net loss for the year to December 31 was \$1,669m versus a profit last time of \$2,044m, on turnover that rose 4.2% to \$35,210m. 1987 figures are restated to reflect consolidation of AT&T Credit figures.

Aim Technology Inc, Santa Clara, California Unix system measurement and management specialist, is really flying high now that it has acquired TaskForce Software Corp for an undisclosed amount: TaskForce's expertise is in Unix system administration software and services, and Aim reckons the acquisition will make it the dominant supplier of Unix system software and services; the combined product line will be built around TaskForce's user interface and will include Unix and OS/2 workstation and multi-user benchmarks, performance evaluation services, system administration, disk tuning, job accounting, job scheduling and batch processing.

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Fearing the impending crash of MS-DOS micromakers, Everex Systems Inc, Fremont, is teaming with Unix board builder Opus Systems Inc to develop systems to hoist it up into the high-performance Unix world.

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Underlining how hard it is to for European electronics and computer companies to cut it in the US market, Siemens AG chief Karlheinz Kaske says that the company's sales there are now running at \$3,400m a year - and will rise to nearly \$5,000m when the bits of Rolm Corp it is buying from IBM are included, up from under \$500m in 1980 - but it is still losing money there: the company last week reported consolidated first quarter net profit up 6% at the equivalent of \$164m on turnover up 9.8% at \$6,679m.

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Wyse Technology Corp saw a horrible crashing into the buffers with its third quarter figures, with a net loss of \$26.4m on turnover halved to \$65.5m: the suddenness of the fall is underlined by the fact that growth in the first two quarters of its current fiscal was still enough to leave sales 10% ahead at the nine-month stage.

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Informix Corp has realigned its business into two divisions and separate US domestic and international sales organisations under a headquarters operation in Menlo Park, California: the Workstation Products Division in Lenexa, Kansas will be responsible for development and marketing of the company's office software, including SmartWare, Wingz and other workstation products under Michael Brown, formerly president of Informix; the Advanced Products Division in Menlo Park will handle development and marketing of the database, network and application development products.

Unix International is also preparing a series of celebrations to mark the twentieth anniversary of the development of Unix, at Bell Labs back in 1969 - the first will take place at the Uniforum exhibition in San Francisco from February 27th to March 2nd 1989. UK and European visitors wishing to visit the show might wish to contact Unix Systems magazine, which is organising its usual travel package to the show: contact Eaglehead Publishing on the (recently changed) number 0483 740271.

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De La Rue Co Plc's Crosfield Electronics has joined forces with the Baltimore Sun, one of the papers in the Times Mirror Co group, in a \$13.5m venture to develop an advanced newspaper publishing system.

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Kode Computers Ltd in the UK this week formally launched the Icon 2000 multi-microprocessor box from Sanyo Electric Co affiliate Icon International Inc, fulfilling the promise made at the end of last year (UX No 210): the Icon 2000, with three 68020s, supports one to 16 users under Unix, Pick, or both concurrently, at from £17,500 to £23,000.

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Intel Corp is set to reveal details of its hot new RISC microprocessor, code-named the N-10 (UX No 214), towards the end of February.

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Apollo OEM company Mentor Graphics has formed a European research and development centre, based at its UK offices in Bracknell, Berkshire: it will work on electronic design automation products for simulation and testing.

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Adobe Systems US 203 329 8700. Aim Technology US 415 856 8649. Apollo UK 908 366 188. Apple US 408 996 1010. Arix Corporation UK 491 576361. Bleasedale Computers UK 455 556841. British Telecom 356 5366. Control Data UK 1 848 1919. CNTI Ltd UK 569 1909. Data General US 617 366 8911. Gould US 305 797 5756. Hewlett-Packard US 408 447 1155. IBM USA 212 848 2737. ICL UK 1 788 7272. Informix UK 1 890 8641. Kode UK 793 511345. Motorola US 408 864 4496. Norsk Data UK 635 35544. Opus Systems US 408 446 2116. Parc Place Systems US 415 859 1000. Protech Ltd UK 1 723 2452. Pyramid UK 1 222 8515. Real Time Products UK 21 236 8070. Relational Technology Ltd UK 1 351 7722. Sequent Europe Ltd UK 1 750 2066. Sybase UK 394 860900. SyFa Data Systems UK 923 54545. Tulip Computers UK 293 562323. UniSoft UK 1 606 7799. Unisys UK 1 965 0511. Unix International Inc c/o US 212 757 9100. UK 1 835 1222. Xerox US 203 329 8700. X/Open UK 1 834 4874. Zortech Ltd UK 1 316 7777.

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RISC WARS: SIEMENS, NEC LINE UP BEHIND MIPS RISC

MIPS Computer Systems Inc, Siemens AG and NEC Corp were set to share a stage at New York's Plaza Hotel as we went to press, and although no-one wanted to anticipate the event by going public, the news can only mean that the Munchener and the Tokyosider are to fabricate versions of the MIPS R-series RISC chip set. The alliance is fraught with paradoxes, because Siemens is the official European second source for the lower end members of Intel Corp's iAPX-86 microprocessor family, and is Intel's equal partner in BiiN Systems, whereas NEC and Intel are sworn enemies, even now slugging it out in court in California. More recently, Siemens took a majority stake in French systems builder IN2, which has just launched a MIPS-based Unix hardware range (UX No 215). Also on the Unix front, Siemens is a member of the Open Software Foundation where NEC is a member of Unix International Inc. The news means that Sun Microsystems will not have things all its own way with the Sparc - versions of which are made or planned by Fujitsu Ltd, Texas Instruments Inc and Matsushita Electric Corp as well as several smaller US companies, and that after the talks about Motorola making the MIPS RISC came to nothing (UX No 210), MIPS will have two heavyweights to stand beside LSI Logic Corp, Integrated Device Technology and Performance Semiconductor Corp. The other major player in the merchant RISC market is of course Motorola with the 88000 - and Siemens' choice of the MIPS RISC is a further blow to Advanced Micro Devices Corp Am29000 - a further irony as Siemens has a big minority stake in AMD.

ENCORE, SUN LEFT IN LURCH AS MATRA SHUTS MATRA DATASYSTEME

French electronics and telecommunications heavyweight Matra SA has called it a day in computers and late last week closed down its Matra Datasysteme subsidiary. The decision is very bad news for Encore Computer Corp, just getting onto its feet after a very difficult genesis, because Matra was manufacturing the Encore Multimax parallel Unix machines under licence. The move also kicks Norsk Data AS when it is very much down because although it had been so disappointed with Matra's achievements in marketing its machines in Southern Europe that it scaled back the agreement to a non-exclusive one for France only last year, it still represented significant business for the Norwegian - although work that Matra had been doing incorporating Nord minis into military workstations for Thomson CSF is likely to continue. Also hurt is Sun Microsystems, which had large OEM contracts with Matra - said last year to be one of the French company's areas of weak performance (UX No 185). The shut down is also a disappointment for a string of software companies, including Micro Focus Plc and Relational Technology Inc, which had hoped to do substantial business from sales of Matra's Unix systems. Also affected are several European research ventures in which Matra was a partner. The future of Matra's innovative artificial intelligence Unix server, built around its proprietary IMLIPS Drake inference processor (UX No 169) is now in doubt. Storm cones were first hoist over the company back in June, when president Charles Picasso resigned amid gossip that times were hard at the company. Matra had recorded a profit of \$800,000 on sales of \$85m in 1987, and at mid-year was still hoping to make a bigger profit on flat sales. But in the event, sales for 1988 plunged 36% to \$53m. Employment at the company - 400 in 1987 - was greatly reduced last year by the sale of the factory making special function terminals in Colmer, Alsace, to ETC SA, and was down to 140 at closure. Matra reckons its installed base at 1,500 workstations and 80 systems, and has retained Thomson CSF's new Thomainfor third party maintenance operation to look after its customers; Agence France Presse reports that the 35 support staff at Matra will be offered jobs by Thomainfor, and the other 105 employees will be offered jobs in other parts of the Matra group.

ENCORE LAUNCHES MULTIMAX 500

Encore Computer Corp, Marlboro, Massachusetts, announced its new generation of Multimax systems, previewed in UX No 211, as we went to press. The Multimax 500 Series of NS32532-based multi-processor systems have a performance range of from 17-170 MIPS, with the two-processor Model 510 set at \$159,000, up to the 20 processor top-end system costing \$80,000: availability in July.

CONVERGENT ADDS MID-RANGE S/480

Convergent Inc, now part of Unisys Corp, has extended its Unix systems offerings with a new 25MHz 68020-based S/480 machine below the S/640 and extended memory on the latter to 64Mb, to support 64 users. Effectively replacing the older S/320 Mightyframe, the S/480 has 4Mb to 16Mb memory, 128Kb cache, up to 650Mb on disk, and optional 68881 maths chip and external SCSI interface. A 20-user 8Mb configuration with 145Mb disk costs \$30,200. A 16Mb S/640 fitted with 325Mb of Winchester costs \$56,500. UK pricing will follow with the UK launch at the Which Computer Show later this month.

CONCURRENT FRONT RUNNER IN GOULD BID

Motorola Inc suddenly pulled out of negotiations to acquire Gould Computer Systems from Nippon Mining Co last week, according to Electronic News. The US trade weekly believes the enlarged Concurrent Computer Corp, recently merged with Masscomp and ready with a \$100m cash war chest, is the new front-runner in the bidding for Gould: the two companies have long been bitter rivals.

RTI NEW DATABASE DUE

Relational Technology Inc, Alameda, California, is to launch a new version of its Ingres database next week, built on a totally reworked architecture, according to newly appointed UK managing director Hugh McCartney. Existing customers will be offered an easy upgrade, said McCartney, who also hinted that the company might be changing its name in the near future, presumably to Ingres, if trademark restrictions from Berkeley University, California, can be circumvented.

FERRANTI'S REAL-TIME PROCESSOR AIMS AT WORKSTATIONS

A Real Time Relational Database Sub-system, (RTRDS), for use on powerful graphics workstations running command and control systems has been developed by Ferranti Computer Systems Ltd, Cwmbran, Gwent, UK, based on its DVME-785 board. First announced in April 1987, (UX No 125), the DVME-785 is designed to handle time critical data from various sensors, such as radar, sonar and IR in real time applications. Using CMOS VLSI technology and micro coded software - for speed - the processor is claimed to have an access time 1,000 times faster than a conventional database. RTRDS is supplied with diagnostic error monitoring System Interface Software, allowing programmers to communicate with the RTRDS via a set of interfaces. Currently this facility is available for Ada and C applications, also for VME, Q-bus and multi bus based client systems - an SQL version will be available by the end of 1990. The RTRDS box comprises a DVME-785 relational processor, DVME-137 interface processor, space for up to four DVME-385 memory expansion cards, sub-system bus linker, power supply and VME card frame with forced air cooling - for £30,000. First customer is the SHAPE Technical Centre in the Hague has bought a RTRDS from Ferranti for the development of an expert system aided multi sensor tracker, operating on a Sun 3/160 workstation running Ada software.

TEKTRONIX ADDS SUN-3 COMPATIBILITY

Tektronix's UK subsidiary in Marlow, Buckinghamshire, has ported software written for Sun workstations to run on its own 4300 series of graphics workstations. The latest 3.0 release of the Unix based UTek operating system allows users to access Sun-3 binary programs, any application which uses Tektronix drivers, and any software written for X-Windows. In addition, PDA Engineering's Patran ME/CAD system will now run on Tektronix workstations.

X/OPEN VERIFICATION SUITE NOW AVAILABLE

Bull's recent announcement that it was the first company to take advantage of the X/Open conformance branding scheme (UX No 215) heralded the availability to computer systems manufacturers of the X/Open verification testing suite, developed by Unisoft Corp. Unisoft's verification service, available either at the Corporation's Emeryville, California, or London-based offices, uses the suite to build and execute test programs which test Unix systems for compliance to the X/Open Common Application Environment. Fees are based on a testing period of no more than three days, and include a licensing fee payable (by UniSoft) to X/Open: charges are \$7,500 for testing a company's first computer system and \$5,000 for testing any subsequent systems at the same time. And Unisoft has also announced the availability of its Global Language Support (GLS), based on Hewlett Packard's Native Language Support system, no prices given.

SUN SIGNS \$5M OEM CONTRACT WITH ARIES

Aries Technology Inc, Lowell, Massachusetts, is bundling its ConceptStation mechanical computer-aided engineering software with hardware from Sun Microsystems, in an OEM deal valued at \$5m. The company, which also sells its software on PC-compatibles running Unix, has already ported its software to the Sun 386i, Sun-3 and Sun-4 ranges as part of Sun's Catalyst software porting programme, and will sell the systems both direct and through its dealer network in the US and internationally. And in a separate agreement, troubled CAD/CAM specialists Daisy Systems Inc, based near Sun in Mountain View California, has agreed to drop its own 80386-based workstation that it buys in from Intel Corp, to concentrate on Sun hardware. The specialist MegaLogician and GigaLogician hardware accelerators will now be made at the Caureux plant at Boulder, Colorado.

NEW MOVE TO TAKE OVER NBI IS IN THE WIND

Although Steve Jerritts, now at the helm at Boulder, Colorado-based office and Unix systems builder NBI Inc declares roundly that he is not turning the company round just to sell it, the matter could be taken out of his hands. Two senior officers of Colorado leasing company Capital Associates have come together with Jirka Ryssavy, the businessman who bought some of NBI's stores, to buy a 6.1% stake in NBI. Their mandatory filing with the Securities & Exchange Commission notifying the holding says that they may seek control of the company, to engineer the sale of the company, or follow other potentially hostile strategies. Capital Associates suggested a \$7 a share tender offer for NBI last year in the wake of a stake-building exercise by investment fund manager Kenneth Fisher, who wanted to take control of the board at the beginning of last year. Both were seen off by NBI but Fisher's funds still hold 5%, and he has been approached by the Capital people.

ZEBRA LOOKS TO OEM SUPPORT FOR PARALLEL PROCESSING SOFTWARE

New software venture Zebra Parallel Ltd, launched on the back of research carried out at the Polytechnic of Central London, with £150,000 venture capital backing from 3i (UX No 215), said it was aiming its new Equus parallel processing environment at OEMs hoping to take advantage of parallel architectures in future systems. Equus is not a full operating system, having no file system: currently it uses Unix as a host system in what Zebra describes as a "symbiotic relationship". One processor runs the Unix kernel, while additional processors run the Equus kernel. Currently implemented on VME-based 680X0-based systems - including a Cambridge Micro Computers workstation specially extended to a 15 processor configuration - Zebra says that the software is easily ported onto different processors. Even mixed processor configurations can be supported, and Equus can be used to maximise the power of different systems connected by local area networks as a parallel system. Fault-tolerant configurations are also possible. The downside is of course that software needs to be re-written on "waves", or segments, each capable of running on a single processor, currently a C compiler is available, supplemented with system calls to Equus special features. At the launch, Zebra announced its first contract: Koral Microsystems of Cambridge, an IMP distributor which concentrates on the process control and communications industry.

AMDAHL TO PAY \$30m FOR UNIX, CPU DESIGN START-UP

Amdahl Corp is expanding its commitment to Unix with definitive agreement to acquire two-year-old Key Computer Laboratories Inc, Dublin, California for \$30m. Key was incorporated back in February 1987 by Thomas McWilliams and Jeffrey Rubin, two of the co-founders of Valid Logic Systems Inc, who were responsible for the development of its computer-aided design tools - and prior to that they worked on the S1 Mark 2 supercomputer at the Lawrence Livermore Laboratory. Their original plans for Key were to take on Cray Research Inc by applying 10,000 gate-per-chip ECL with gate delays down at around the 0.2nS level to create a Gigaflopper to sell for between \$100,000 and \$200,000. No such box has yet emerged from the company, and Amdahl says it believes the business is worth around \$30m - to be paid in new Amdahl shares - for its original work in high-performance Unix systems and scalar main-frame technologies. Amdahl says that Key is doing complementary work with some of the technologies Amdahl is using in current product development work - various scalar computing disciplines and the application of VLSI ECL. Key, now in Fremont, employs 60 people, and also "brings fresh insight into new design techniques that may interest" Amdahl "in the future."

SYFA EMBRACES UNIX WORLD WITH MOTOROLA'S 68030 MACHINES

Networking computer systems specialist SyFA Data Systems Plc, Watford, Hertfordshire subsidiary of Irvine, California-based WesPac Technologies Corp is plunging into the Unix market via an OEM agreement with Motorola Computer Systems. The company yesterday launched the SyFA Series SX of Unix System V.3 machines as an integral part of SyFA'S extended applications system architecture. SyFA claims that the proprietary architecture enables integrators to work with multiple technologies to find the optimal integrated solution for a client. This enables the company to offer flexible horizontal software, moulding, say, office automation, or accounts packages to suit different environments. SyFA has entered a number of strategic alliances to develop vertical software, naming the manufacturing company GKN, the wholesaler Spar, and British Airways, as partners in a variety of market sectors. The extended applications system architecture includes the proprietary SyBOL business-oriented language on all systems, remote log-on and file transfer between personal computers and multi-user machines via RS232 or local area networking, and a SyFAnet and Ethernet gateway. Thus, in the commercial sector, in which SyFA is particularly interested, front end applications through the TS and SV machines, which include support for IBM's SNA, can be passed back via SyFAnet to the SX which can in turn connect to any MS-DOS micro, Apple Macintosh, DEC VAX, or other Unix machine via Ethernet and TCP/IP. Foundation software elements include an integrated office automation package EASyOffice, based on the latest Uniplex version, with telex and fax facilities, as well as the EASyMacs accounting "suite". All five models in the Series Sx range can be configured to operate in local and wide area networks, using a variety of techniques, such as Ethernet, RFS, XNS, X25, SNA, and bisync. Prices range from £6,950 for the 20MHz 68030-based Series SX Model 55 Work Group system for up to four users, to £57,000 for the top end 25MHz 68030-based Model 62 Large Departmental system, which can support up to 74 users; ships have begun.

OSF PREPARES FOR SALEABLE AIX CODE THIS SUMMER

The Open Software Foundation is expecting to have access to saleable AIX code from IBM around June, according to development director John Paul, who joined the group from Nixdorf. OSF sales of AIX will mark the beginning of IBM's royalty stream from the Foundation, at rates agreed under the original IBM/OSF contract, signed last year on May 16th. According to one OSF board member, the contract guarantees IBM a minimum of \$25m within three years of delivering the software, or by the fourth anniversary of the contract, whichever comes later. The maximum IBM can make from the contract is said to be \$75m: if and when the royalty stream hits that cap, the software will belong to OSF. By comparison, AT&T takes about \$50m a year in Unix licensing fees - an amount believed to fall far short of what AT&T is actually spending on Unix.

...AS IBM WORKS ON ITS OWN DATABASE FOR THE RT

Industry sources have whispered for some time about IBM's internal project to produce a database for its main AIX platform, the RT workstation. Now Computer Systems News hears that the work is being carried out at the Santa Teresa Labs in San Jose, California, under Juan Dush, manager of IBM's data systems strategy. The same group was responsible for the Extended Edition database in OS/2. Further news on the databases is expected to emerge at the Uniforum trade show in San Francisco at the end of this month, along with more details on IBM's plans for the Next Inc NextStep user interface.

ALTOS LAUNCHES EUROPEAN VERSION OF LOW-END SERIES 500

Altos has launched the 386 Series 500-16 range of low end systems in the UK - they are intended to compete head on with the likes of Wyse and Compaq in the European eight user market place. The 500-16 machines available in this country are modified versions of Series 500 systems announced in the US in September of last year, (UX No 198). MS-DOS and AdLANtes features have been stripped out and replaced by an implementation of X.25. With this wide area network capability the Series 500 is geared for use as a branch office machine, and is also configured to support the Government Data Network. The 16MHz 80386-based machine, with optional 80387 floating point processor, runs Altos' System V/386 implementation of Unix, and comes with 4Mb of RAM - to which a further 2Mb, 4Mb or 8Mb RAM can be added - and 100 Mb disk capacity. Direct connectivity with IBM 3270 systems is offered along with connectivity with other Altos systems acting as AdLANtes gateways for the 500. Entry level price is £8,595 - with six terminals and software including Altos Integrated Office, the machines costs £13,160. The X.25 package is an additional £1,600, and the whole shooting match will be available from March 1st. Altos says it has no plans for a UK launch of the MS-DOS and Unix Workstation 100 announced in the US, (UX No 184), mainly because its UK distributors already have workstation deals. There are however two new OEM agreements to be announced over the next couple of months.

ADA EXHIBITION HIGHLIGHTS INCREASING COMMERCIAL INTEREST

Traditionally associated with real-time defence and military markets, the Ada programming language is at last beginning to make waves in the commercial applications arena. According to Ada enthusiasts gathering in London this week for the second Ada Exhibition, organised by Ada UK, there are now a host of computer-aided software engineering tools and user support facilities designed to make Ada program construction and applications development much easier - and cheaper. The process has been characterised by two things. Firstly, Ada compilers now have a fixed target. All compilers are required to comply with the Ada validation suite, which up until now has been updated annually - every compiler has had to pass each successive test - but the suite is now complete, freeing manufacturers from the confines of continually having to meet new requirements. Secondly, programming in Ada has always meant the generation of massive amounts of code written in accordance to a strict style. However, companies that have developed CASE tools in Ada - Systematica and Pafec for example - now estimate that applications can be developed five times more quickly - and cheaply - than in other programming environments, such as C and C++.

Systematica's chairman Andy Wells said that the Ada language itself is not particularly special - rather its productivity is based on the performance of supporting tools. Bournemouth based Systematica's Virtual Software Factory, (VSF), is a software engineering workbench written in Ada. It can support various structured design methods and programming languages for developing CASE tools, and has been chosen by the European Space Agency for the design of the Columbus space laboratory. 28 workstations with the VSF worth £200,000 have been delivered, and the entire contract may bring in up to £1.5m in the end. The VSF can be implemented on Sun workstations and DEC VAXstations amongst others, and a DEC windows version is to be available in the near future. Three year old Systematica expects to turn over about £2.5 this year. And Nottingham based Pafec has now switched its main product development environment to Ada. Version 2.2 of its Puma package, providing low level utility facilities for Ada programming, is available from the end of February. Pafec has also developed a user interface management system - Horses - which combines a command decoder and object orientated database management system for prototyping and producing user interfaces for applications. Apollo Computer was also at the Ada show, demonstrating a new version 2.0 of its Domain/Ada development system, which is available for all its machines except the 10000 PRISM series.

FORTH GETS ITS OWN SPECIAL INTEREST GROUP

The Forth programming language, which comes with its own slimline operating environment, has finally won recognition from the US Association for Computing Machinery, which has created SIGForth, the ACM Special Interest Group on Forth - and what's more, it's the first new special interest group for seven years. "Because major development time and cost savings result from its ability to function both as a prototyping language and an implementation language, Forth is considered a proprietary edge and trade secret by many software industry leaders," says the Association. "As a result, many popular commercial products, such as Ashton-Tate's RapidFile, Paperback Software's VP-Planner and IBM's PC-CAD are written in Forth". The Association reckons that it is ideally suited for the RISC environment, so that more RISC processors have been built specifically to run Forth than any other language. As reported over the years in Unigram.X, Novix Inc of Cupertino, California, Harris Semiconductor in Melbourne, Florida have Forth processors in production, and there is also a tie-up between Silicon Composers in Palo Alto, and Johns Hopkins University on a RISC optimised to run Forth.

SUN MICROSYSTEMS A BENEFICIARY IN XEROX REORGANISATION

Xerox Corp duly announced its expected reorganisation, which will lead to 2,000 people losing their jobs with the Stamford, Connecticut company - and on the computer side, Sun Microsystems Inc looks like being a major beneficiary of the reorganisation. It looked as if things were going Sun's way at Xerox from announcements made towards the end of last year, but the company has now spelled it out, saying that it will phase out its own workstations in favour of ones made by Sun. Xerox had committed to using the Sun Sparc RISC in future products: it now looks as if it will buy in the finished work stations rather than just the Sun chips, making the decision much more valuable to Sun. Xerox lost money last year in electronic typewriters; document workstations; and medical image-making, which uses a proprietary Xeroradiography copying process. The largest part of the larger than expected fourth quarter charge of \$275m pre-tax comes from writing off excess manufacturing capacity at its electronic typewriter plant in Fremont, California, and dumping the Xerox Medical Systems business in Monrovia, California - the two moves together will cost Xerox \$140m. On Medical Systems, it says it will continue to provide service and supplies to existing customers. Another \$100m of the charge is for reducing overhead and employment - the jobs to go are staff ones, rather than in sales or manufacturing - employment has already been reduced at the two California operations. On electronic typewriters, the company says that the market for cheaper and medium-priced ones has shrunk much faster than expected, leaving the industry with excess capacity. Sun gains because Xerox hopes to curb the losses in its document workstation business by gradually dropping its own workstations and switching its software over to Suns. The company also looks to make "fundamental changes" in the way it manages the business products and systems units, making them more responsive to market changes and strengthening the links between product development, marketing and research. A new Integrated Systems Operations will combine all Xerox document systems marketing activities, both in government and industry, on a worldwide basis. Also on the computer front, Xerox is following IBM's lead, turning its government systems integration business over to the quest for commercial clients. Stripping out financial services, turnover in business products and systems rose 8% to \$11,500m in 1988.

TOP-END VAX DELAYS CAUSE ANALYST DOUBTS

DEC likely won't get its successor to the top-end VAX 8000s out until September or October, where he had been looking for it in May or June, Kidder Peabody computer analyst William Easterbrook now reckons. DEC comes back sourly with the comment that the analyst "is not in a position to know when the new line will be introduced. "We have not made any statements about it other than to say that it is likely to be introduced in this calendar year," the company says, adding that "a more widely held belief on the Street" is a late-summer or early-autumn introduction target. Easterbrook is not too bearish about the need to change his forecast, saying that the new mid-range VAX 6300 line is more powerful than he anticipated, taking some pressure off the company to upgrade high-end systems quickly. Moreover DEC said at the 6300 launch that the 6300s would likely be overhauled by new models within the next nine months: there has been gossip in the US of a 6400 series, and this, with the 6300s, would wipe out the 8800s, offering better performance at half the price, but those machines could not be the new top-end VAX offering for long: DEC still needs something much more powerful to perform that role.

..AND STRESSES COST RESTRAINT OVER NEXT 18 MONTHS

DEC will continue to show restraint in its capital spending plans, at least through the 1990 fiscal year, which ends in 17 months time, investor relations director Mark Steinkrauss told a Goldman, Sachs & Co technology conference in New York this week. Steinkrauss, says capital spending in the current fiscal to June 1989, will be about \$1,500m, down from a previous forecast of \$1,600m to \$1,980m. He wouldn't provide specific forecasts for capital spending in fiscal 1990, but said that it should be similar to this year's levels. The restraint in capital spending is part of the Maynard minimaker's shift in strategy to cost containment and away from gaining market share at all costs, and was adopted in late 1988. Effective cost containment in the second half will be key to DEC meeting turnover growth forecasts of 14% to 15% this year, compared with the \$11,480m in 1988. That would take DEC to the \$13,000m sales mark.

DATA GENERAL SEES ONLY A DULL 1989

DEC's little offspring, Data General Corp, over in Westborough, Massachusetts, would like to have DEC's problems. President Edson DeCastro told the minimaker's annual meeting that the company's goal of profitability for fiscal 1989 ending Sept. 30, "is still achievable, but is more difficult to make" than expected. DeCastro said that because of the previously reported weak sales and loss in the first quarter to December 31, Data General product sales for the full year may not even reach 1988 levels. The first quarter sales decline was down to customers waiting for the MV/40000, which didn't start shipping until late in the period. DeCastro said that demand for MV/40000s is strong, and the company expects to recover "far more sales than we lost," but won't make them all back this year.

CONTROL DATA FEARS GLOOMY 1989

Commenting on its recently announced financial results, Control Data Corp is by no means sanguine on the prospects for 1989, forecasting another disappointing year. The company blames its \$12.6m fourth quarter loss on mainframe shipments being hurt by delays in getting critical logic chips from a supplier and by soft demand, especially in the US, while the ETA Systems supercomputer subsidiary had poor 1988 results, and semiconductor revenues were off partly because the data storage market continues to weaken.

ULTIMATE BRANCHES OUT WITH V-MARK'S PICK UNDER UNIX

Ultimate Corp is making its first push into Unix following an agreement with Pick under Unix software specialists VMark Software Inc of Natick, Massachusetts. Ultimate, from East Hanover, New Jersey, says it has secured worldwide exclusive rights for the VMark UniVerse product on its current hardware platforms - which include IBM's 4300, 9370 and RT ranges, DEC VAX, and Honeywell-Bull machines. UniVerse allows Pick applications software to run on a Unix-based platform, and according to VMark, can actually run faster than native Pick implementations, due to the speed of Unix system calls. VMark-based product offerings will be shown for the first time at the concurrent Unix Uniform and Pick Spectrum trade shows in San Francisco and Washington DC at the end of February and will begin shipping in the Spring. "We are a market driven company, and this agreement will expand the size of Ultimate's market potential dramatically", said Ultimate's executive vice president Michael O'Donnell. VMark's product marketing manager Shields Flynn said VMark was "trying to get out of the hardware business" and would in future concentrate on third party sales. Hewlett-Packard recently licensed the VMark software for use on its HP9000 Series 800 computers.

...AS BLUEPICK COMPANY BECOMES PICK SYSTEMS DIVISION

Seattle OS, the Pick Systems Inc subsidiary that sells Pick software to run on the IBM RT, is to be absorbed into its parent following the departure of three of the Bellevue, Washington-based company's top management, including founder and president James Whelan. Seattle's BluePick software allows the RT to be used as a multi-user Pick-based system, and IBM itself recently signed for exclusive distribution rights for the Australian market. Pick Systems is believed to see the RT as a major growth area for future Pick sales: Seattle OS reportedly sold around 150 systems in the US last year, and double that amount abroad. The company has operated autonomously from Pick Systems Inc since it was taken over last year, but will from now on be operated as a division of Pick systems, and run by Pick's vice president and general manager Steven Kruse.

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Acer Inc, thought to be disappointed with slow sales from its Acer Counterpoint division at San Jose, California, has moved the sales operation over to its main US Acer Technologies arm under president Steve McKenzie.

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The Ordnance Survey, Britain's official map-maker, has chosen the Unix version of Oracle as its strategic relational database management system, following advice from Logica: a digital mapping marketing system is currently under development for customers such as British Telecom and British Gas.

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And Sheffield Micro plc has entered into an agreement with Relational Technology Inc to use the Ingres relational database for developing its Uniplan 4GL manufacturing control system package.

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Sun Microsystems UK has opened a new office in Bristol, and says it plans to double the size of the 5,500 square feet office by the end of 1989.

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Santa Cruz Operation has now released its TCP/IP package (UX No 211) in the UK, with a price tag of £350 (run-time) and £225 development: SCO NFS is promised for later this year along with a second release of SCO TCP/IP that will include Netbios and support for SCO Xenix-Net.

- 0 -

Synthesis Software Solutions Inc, the Mips Computer Systems Inc software operation based in Sunnyvale, California, has signed a contract with Oracle Corp to port and market Oracle Version 6.0 to the Mips RISC chip: the agreement is said to be worth over \$1 million over a multi-year period, and should be available through Synthesis from the second quarter of the year.

- 0 -

Progress Software Corp, Bedford, Massachusetts, has set up a wholly-owned Australian subsidiary operation to sell on its Progress 4GL and relational database management system.

Control Data Corp has sold one of the ETA-10G supercomputers to the University of Aachen, West Germany on undisclosed terms: an ETA-10G lists for over \$18m, and the machine goes in in the third quarter.

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Olivetti has chosen Spider Systems of Edinburgh, UK, as the supplier of TCP/IP software for its AT&T 3B and M380 systems.

- 0 -

The first Data General workstations using Motorola 88000 RISC will be out in a month, chairman Ed de Castro told the company's annual meeting: they will be "far superior in price/performance", but lacking in software.

- 0 -

Compaq Computer Corp - the first company to go from zero to \$111m in sales in the first year, is claiming yet another record for a start-up - zero to \$2 billion in six years: the company saw net for 1988 rise 87% to \$255m on turnover up 69% at \$2,070m - and sales outside North America accounted for 39% of the total, all of which was good for \$3.50 on the Compaq share price at \$73.25.

- 0 -

Alpha Microsystems UK, celebrating a £1.9m contract to supply 18 inner London magistrates courts with an 800 terminal system running Equis software from Sound Technologies Ltd, took time out to discuss its long term future: already supporting Unix under its proprietary Amos operating system, the company says it is now minimising the differences between Amos and Unix, a process which will take two or three years for "almost complete compatibility with Unix", although Alpha hopes it will run four times faster.

- 0 -

Century Research Center Inc is to begin selling the Topology 1000 expansion board from Topologix Corp - at a pricey \$66,000: the board, designed to plug into Sun Microsystems workstations and built around Inmos International Transputers, is rated at 80 MIPS and 6.4 MFLOPS; up to eight boards can be installed in a workstation, and the company is hoping to sell 500 over the next five years.

The noises out of Intel Corp are getting less and less confident, and it now says that the rate of cancellations of orders for microprocessors, including the 80386, in the current quarter are about the same as they were in the fourth quarter of 1988, when a fall in demand hurt turnover and profit: the company now says it is too soon to tell whether demand will pick up this year, and sees growth in the PC market for this year, but at a slower rate than 1988.

- 0 -

Cullinet Software Inc, Westwood, Massachusetts, is still not out of the woods, and says it expects to report a loss for its fiscal third quarter, just ended: trying to cheer its long-suffering shareholders, the company says that it "is in the process of completing a turnaround program that has changed the entire focus of the company; we are moving from a slow growth mainframe-oriented business to a new class of powerful software products that run on many computer platforms - high growth segments of the market", but that "until our new products are complete, we may still experience revenue volatility".

- 0 -

AT&T is said to be finalising its largest ever commercial contract with AMR Corp's American Airlines for PCs and networking equipment, worth an estimated \$80 million: over 14,000 80386-based PCs running MS-DOS are involved, although its not clear whether these will be supplied through AT&T's Olivetti deal or under the more recent OEM agreement with Intel Corp (UX No 211)

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PYRAMID REVEALS NEW MIS MAINFRAME CHALLENGERS...

Pyramid Technology Corp revealed its expected challenge to the mainframe market this week with a multi-processor system rated at over 140 "VAX" MIPS. The Corporate MIServer users the latest implementation of Pyramid's RISC architecture processing technology, along with a three bus architecture, and a new release of the company's dual port of Berkeley and System V Unix. The system supports up to 16 I/O channels, each with throughput of 11 megabytes per second, and has up to 256 megabytes of main memory. Using symmetrical processing, the machines can be expanded from a base 4 CPU system up to a maximum of 12 RISC processors: a typical four CPU system, the MIS-12/04, can support up to 400 users and costs \$700,000, which includes 96Mb main memory, three I/O channels, 5Gb disc storage and Ethernet LAN support. The eight CPU MIS-12/04 800 user system with 192Mb, six channels, 10Gb storage, and support for three Ethernet LANs costs \$1.25m, while the top-end, 1,000 MIS 12-/12 configuration with 12 CPUs, 224Mb memory, six channels, 15Gb storage, and support for four LANS goes for \$1.8m.

...AS AMDAHL BOOSTS MAINFRAME UNIX WITH UTS 2.0

Amdahl has announced the release of UTS version 2.0 - its latest Unix V.3.1 operating system for System 370 and S/370 compatible Extended Architecture mainframes. The new version incorporates symmetric multiprocessing capability, enabling it to run on Amdahl's own 580, 5890 and 5990 Series multiprocessor machines in a system using its Multiple Domain Feature. UTS 2.0 takes the basic elements of V.3.1 and combines it with features from Sun's Network File System and Berkeley Software Distribution 4.3. It is networked through a Streams-based TCP/IP via Ethernet, uucp, or Network Systems Corp's HYPERchannel. File sharing can be achieved where NFS is supported, and file transfers between UTS and MVS systems are also possible. Added features include System V's shared libraries and Regions facility, BSD's network sockets and 'r' commands, the Korn shell interface - and the number of possible open files has been increased from 20 to 400. Licence fees for UTS range from \$4,000 to \$14,000 per month depending on the size of the processor and there is an initial installation charge of \$20,000 for new UTS users. Future versions of UTS will remain compatible with Posix and X/Open, will support X-Windows, and move towards becoming an SNA host, according to Amdahl UK's marketing manager, Andrew Fox. And Amdahl says it will be working closely on the development of reliability and increased number of users on Unix through the working groups that are to be set up by Unix International, (UX No 216). Amdahl says it has sold a dozen or so mainframe systems with UTS over the last year, and claims to have several unspecified government contract currently under negotiation.

ELXSI ADDS LOW-END SYSTEM 6000 FOR REAL-TIME MARKET

San Jose, California based Elxsi Corp has a new entry level machine, the System 6000, aimed at broadening the appeal of its 64 bit modular systems in the real time computer market. Compatible with the current 6400 series mini-computers, the 6000 comes in five models, including single or dual processors ranging from 16Mb to 512Mb main memory. Prices start from \$295,000 for a 12 (Whetstone) MIPS S6020-1, available from next month, to \$695,000 for the 80 MIPS S6020-2. The machines run Unix System V, BSD 4.2, or Elxsi's own Empos and EMS, a VMS environment. At the same time, Elxsi said that its ten processor system 6400 cpu, rated at 250 VAX MIPS and a 100 MFLOPS, would now be three months late, achieving first customer shipments in June.

SONY SETTLES ON MIPS RISC

Making NEC Corp's decision to sign as an alternate source for MIPS Computer Systems Inc's R3000 RISC microprocessor even more worthwhile for the world number one chipmaker, Sony Corp has decided that rather than adopt Motorola's 88000 to top off its 68030-based News family of workstations, its RISC future will lie with the MIPS part. Sony says it will have an R3000-based workstation out at the end of the year.

DELL LOOKS TO UNIX

PC manufacturer Dell Computer Corp caused surprise last year with the appointment of ex IBMer Glen Henry as vice president, research and development. Henry was an IBM fellow and largely responsible for the development of AIX. Now it looks as if Dell is ready with its first entry into the Unix market. According to the US newspaper Computer Reseller News, Dell is set to launch its own version of Unix V.3.2, which will run on its 386-based hardware, currently running MS-DOS and OS/2. The paper says that Dell is currently developing machines that will run MS-DOS, OS/2 or Unix on a single machine. "We'll support DOS sessions running under Unix as a feature, but on the same machine you'll be able to run DOS all by itself or OS/2 by itself", said chairman and chief executive Michael Dell, quoted in the report, who also said that Dell was becoming increasingly interested in the small business systems marketplace currently addressed by manufacturers such as Altos and NCR. A company spokesman refused to comment on the report, but did confirm that Dell would be exhibiting at the Uniforum trade show in San Francisco at the end of the month.

EVEREX READY WITH 17 MIPS WORKSTATION

The high-performance Unix system being developed by Everex Systems Inc, Fremont, California with lots of help from Opus Systems Inc (UX No 216) will be \$10,000 workstation rated at 17 MIPS, built around an 80386 processor boosted by a Motorola 88000 co-processor, reports the San Francisco Chronicle. Dubbed the Personal Mainframe Series 8000, the workstation is due to appear next Monday, February 20, and is tipped to be the fastest personal computer workstation on the market: Opus Systems builds boards around the Intergraph Corp Clipper chip set.

OPEN SYSTEMS TEST SOFTWARE UNDER UNIX

Reston, Virginia-based GSI-Danet Inc has announced a new family of Open Systems Interconnection products for software development, with the OSI Product Development Support System, Osipro. The company claims Osipro assists designers through software development by analysing communications software and testing for Open Systems conformity before modules are integrated into the final product. The Danet GmbH-owned company says the tools, written to run under Unix, can diagnose incorrect Open Systems communications and protocol behaviour using diagnostic levels that are selectable independently for each layer; Osipro also enables development test and system integration personnel to define and sequence software tests. Functions are carried out through a Unix-like user interface, and prices start at \$32,000.

H-P UK PROFITS FALL DUE TO £43m INVESTMENT

Hewlett-Packard Ltd has seen a fall of 27% in UK pre-tax profits, which were just over £23m at the end of its financial year as a result of increased overheads, higher interest charges, and lower gross margins; sales rose 14% to £490.2m. During this time it increased capital investment by 75% and employed 5,000 more people in the UK. A large part of the £43m capital investment was spent on 30 acres of development land in Bracknell, which will eventually house the company's UK headquarters, as well as on the completion of its South Queensferry site in Scotland. Hewlett-Packard Ltd's management strategy over the past year has been to concentrate on joint ventures and business alliances. For example, the company's telecommunications division, based in Scotland, liaised with a subsidiary of the Italian STET group, Network Control Systems SpA, to research, develop and market measurement systems and instruments for telecommunications network services. Meanwhile its Berkshire-based office productivity division, concerned with office software, undertook a marketing agreement with Octel Communications Corp to sell its voice processing products throughout Europe. And, finally, the company's computer peripherals division, based in Bristol, is continuing its joint venture into computer storage applications for digital audio tape technology with the Japanese firm Sony Corp. All in all, Hewlett-Packard Ltd sees 1988 as a year of consolidated growth which it believes will continue in 1989 (the year of Hewlett-Packard's 50th anniversary) largely due to demand for its Unix workstations, as well as to interest in its Precision Architecture family of minicomputers.

PRIME FORMS NETWORKING ALLIANCE WITH NOVELL

Prime Computer Inc has signed a strategic alliance deal with networking specialists Novell Inc, of Provo in Utah. The two companies say they will develop local area network solutions incorporating Prime's EXL Unix series combined with Novell NetWare software. Initial work will concentrate on the development of a native NetWare server and a non-dedicated Unix NetWare server using the 80386 processor and Multibus II architecture. Availability second half of 1989 and first quarter of 1990 respectively.

ICL LAUNCHES MULTI-STANDARD, MULTI-LINGUAL AVISO VIEWDATA

The UK company doesn't seem to know anything about it, but ICL France has launched a multi-standard multi-lingual viewdata monitor that runs on a server under Unix. Called Aviso, for Advanced Videotex Software, the monitor runs on ICL's DRS 400 and DRS 500 Unix machines, and implements the three most widely-used standards - Prestel-derived CEPT 1, the French Teletel-based CEPT 2, and CEPT 3, which is apparently the West German BTX standard rather than the North American Presentation-Level Protocol Syntax, NAPLPS. The Aviso system, jointly developed with Softec SA of Paris, effectively merges the functionality of ICL's Prestel-compatible Bulletin and Teletel-compatible Monitex, and will add CEPT 3. Initially available in French and Italian versions, it will appear in English, Spanish, Dutch, Swedish and Norwegian this year, enabling ICL to go after the viewdata market on a European scale before taking off after business in the US, the Far East and Africa. The initial version of Aviso supports simply Teletel and ASCII terminals, and takes from 16 to 400 concurrent users according to the processor size. Prestel is due to be added in April and CEPT 3 in October. ICL hopes to become viewdata market leader with 600 systems, worth £100m, in by 1992, with software sales alone accounting for £15m of the total.

NEW MICROCHANNEL SYSTEMS FROM OLIVETTI

Ing C Olivetti & Co SpA has launched a new range of Microchannel architecture PCs. The company unveiled a desktop 80386SX P500 machine - must be the first Microchannel 386SX box out - with 1Mb to 4Mb, five slots, 1.44Mb 3.5" floppy and 40Mb and 80Mb hard disk options, which is claimed to outperform the PS/2 50Z two-fold running dBase III. Also launched was a 25MHz 80386-based P800 - out in June - which seems to be pitched at the same user IBM wants for the high-end PS/2s because it features Token Ring adaptor, co-ax 3270 interface, SNA/bisync 3270 emulation and IBM 5250 emulation adaptor for attaching to AS/400s, 36s and 38s. The machine has 4Mb to 8Mb memory, eight slots, the floppy, and 135Mb and 300Mb Winchester, and is claimed to be 50% faster than the PS/2-80 with 111Mb disk running dBase III - but then IBM isn't using a fast 80386. Both machines are offered with MS-DOS, MS-OS/2, Unix System V/386, Windows 386, X Window System and Xenix; no indication of prices on either box.

ANOTHER 200 JOBS GO AT CULLINET SOFTWARE

Hopes seem to be permanently postponed at Cullinet Software Inc, and the company is still having to take further restructuring measures in its efforts to return to solid profits. The latest move by the Westwood, Massachusetts company is to get rid of another 10% of its workforce, or about 200 people, but it says it will report its eleventh straight loss-making quarter when it comes out with figures for its third quarter to January 31. The move may cut costs enough to enable it to show a fourth quarter profit.

EDGECORE MOVES INTO UK MARKET WITH JOINT UCL VENTURE.

Edgcore Technology Inc - the Scottsdale, Arizona-based systems manufacturer that produces high performance CPU technology compatible with the Motorola 680X0 series - has made its first major push into the UK market by forming Edgcore Technology UK Ltd in conjunction with Pick distributor UCL. The new company will distribute and support the Edge 1000 Series systems, which support up to 500 users and run Edgcore's Symetrix merged implementation of Pick and Unix. The company is jointly owned by UCL and Edgcore Technology Inc, with UCL having the majority shareholding. UCL currently distributes Altos systems running Pick and the Ultimate 7000 range of Honeywell DPS-6-based systems: Product Manager David Longley admitted that there would be "some overlap" between the Ultimate and Edge systems, but claimed that the Edge 1000 offered "one and a half to two and a half times as powerful" as the top-end Ultimate systems. UCL rates the Edge hardware at a sustained 6 MIPS performance, peaking at 11 MIPS, while the dual processor version achieves 11 MIPS with a 16 MIPS peak. The processing power, combined with high speed I/O channels, will allow UCL to compete against "mainframe class" systems, according to Longley. UCL Edge systems will be available from March: system prices start from £250,000 to £850,000. Edgcore, which has OEM deals with Olivetti and Philips, says that three other US OEMs have now signed up for its systems, and that its technology exchange with Motorola Inc has led to Motorola's future 68050 chip being "substantially based on Edgcore technology".

JOHN CUNNINGHAM QUILTS COMPUTER CONSOLES

John Cunningham has decided not to stick around and guide ICL's fortunes in the US following purchase by STC Plc of his Computer Consoles Inc, Waltham, Massachusetts (UX No 209). He has resigned as chairman and chief executive, although he will make himself available to answer any questions on a consultancy basis. Also off is senior vice-president and finance chief Richard Krieger. Cunningham says he may form an investment company to acquire established computer manufacturers that are going through hard times and need a lift, turn them around and then seek to sell them on.

MULTIFLOW UNVEILS TRACE WITH FOUR TIMES POWER

Multiflow Computers Inc, the Branford, Connecticut company specialising in the design and manufacture of very long instruction word parallel minisupercomputers, has replaced its existing Trace 7/200 line with the Trace 7/300 family, which is claimed to offer more than four times the peak performance of the 200s, which were rated at 30 MFLOPS and 107 MIPS. The new machines, which like their predecessors run a variant of Unix, are also claimed to offer five to eight times the performance of similarly-priced DEC VAX 8700 machines. Olivetti & Co SpA originally generated some interest in the Multiflow hardware with an agreement to market the systems in Europe (UX No 155), but little has been heard since. However, International Data Corp reckons that Multiflow was one of only two minisupercomputer makers to raise its sales last year - to an estimated \$15m from \$4m the year before - and looks for that to double this year. The other doing well is Convex Computer.

PLEXUS ADDS LOW-END SYSTEM

Although out of the general purpose Unix systems marketplace since last November, when it sold off that side of the business to Motorola Computer Systems (UX No 204), Plexus Computers Inc is still using its own hardware as the basis of its Extended Data Processing (XDP) mixed mode database systems, which combine text and image data over networked systems. Now the company has dropped the entry-level price of the systems with the introduction of a new Intel 80386-based database server. Combined with four IBM PC compatibles, a scanner, and an eight page per minute laser printer, along with the XDP and database software and 300Mb storage, the new base-level XDP configuration costs \$97,840 in the US. The P/386 server runs the Informix database, supporting up to eight users.

NEW MACHINES FROM BULL HN - "COMMON LINE" PROMISED

The marriage of Honeywell and Groupe Bull as Honeywell-Bull is all but over - Groupe Bull upped its stake in the company to 65.1%, at the end of 1988, reducing Honeywell's interests to 19.9%. The resulting metamorphosis into Bull HN Systems Ltd on January 31st - H for Honeywell and N for NEC, the other shareholder in the company - has been consummated with the addition of two new models to the XPS 100 family of Unix based minicomputers - to be shown for the first time at the forthcoming Which? Computer Show in Birmingham, UK. The 72-user X-25, and the new top-end X-45, rated at 8 MIPS for up to 144 users both make use of the faster, 25MHz version of Motorola's 68020 processor, supported by a 68881 floating point processor. Faster memory - using 1Mb chip technology - and a greatly expanded cache memory contribute to the added power of the new models, which improve on on the older X-20 systems by offering 64Kb rather than the previous 16Kb limit. The cache is offered as an optional feature on the X-25, but according to Bull HN, increases the power of the machine from a rating of 2.6 MIPS up to 4.1 MIPS, a 60% improvement. The basic XPS-100 X-25 system, priced at £21,800, includes the cpu and floating point unit, 4Mb memory, 1.2Mb diskette, 157.7Mb Winchester disk, a 150 Mb streamer tape unit, 12 local or remote workstation ports and a Centronics printer port. Software includes a run-time 16-user Unix operating system, and Bull's EasyLife menu system. The XPS-100 X-45 has two 68020s and dual 64Kb cache memory, floating point memory and 8Mb main memory. There is also a floppy disk, 325Mb Winchester, 150 Mb streamer tape, and 24 workstation ports and two printer ports, along with the same software as the X-25. Prices start from £45,800. In addition, the first offerings from X3S - Societe Internationale des Standards - a company set up in 1988 by Bull SA and the then Honeywell Bull to develop a single line of Unix products, are expected by the end of the year. Known only as New Common Line at the moment, the range is to offer a performance factor 15 times greater than that available from Bull's present top end X-45 system, according to Andy Wilkins. This puts the new systems in the the range of 120 MIPS - further details are expected over the next few months.

ULTRANET WINS FIRST EUROPEAN INSTALLATION

High speed UltraNet local area networks are to be installed at the University of Stuttgart and the Alfred Wegner Institute, in Bremerhaven, West Germany, in April. They mark the first European installation of the 100 megabit per second data channel from Ultra Network Technologies, San Jose, California, with a deal worth \$600,000, to be announced at the forthcoming Supercomputing Europe trade show at Utrecht in the Netherlands next month. At first the network will link two campuses at Stuttgart that are 30km apart, and later in the year the University sites and the Alfred Wegner Institute -800km apart - will be connected. It is hoped to improve the speed by which researchers can access data by 20 or 30 times, allowing the transfer of files and graphics images between supercomputers, superminis and workstations, whilst supporting the emerging FDDI and ISO protocols for high speed networks - outlined here last November, (UX No 207). The UltraNet installation at Stuttgart will initially connect the University's regional computer centre with its downtown campus using two UltraNet hubs linked by the German Bundespost's fiber optic, 140 megabit per second German Research Network - DFN. The UltraNet 1000 hub supports host adapters containing Ultra's ISO TP4 protocol processor, connecting the University's Cray 2, and Convex near-supercomputer with distributed Sun workstations. This network will then be joined with another UltraNet hub at the Alfred Wegner Institute. Its Alliant and Convex mini-supercomputers will allow Institute researchers to remotely access Stuttgart's Cray 2, speeding up their research on polar and marine oceanography. European interest in UltraNet is now taking off according to Stan Tenoid, President of Ultra, a sales and support office is to be opened in West Germany sometime this spring and he expects that "within two years, 25 percent of sales will come from Europe." UltraNet supports a total bandwidth of up to one gigabit per second, and delivers data to the user at speeds of 30 megabits per second for workstations, 101 megabits per second for mini-supercomputers and 400 megabits per second for supercomputers.

CRAY IN MAJOR AGREEMENT WITH FRANCE'S INRIA

Cray Research Inc is so impressed with software developed at France's Institut National de Recherche en Informatique et Automatique, Inria to optimise vectorised software that it is paying the institute some \$100,000 to \$120,000 to get hold of the technology and to enter a joint venture. The software is claimed to improve peak performance up to 50%, and will initially be used on the Cray-2 before being transferred to the Cray-3. Inria says sourly that it is because no French company has processor technology to match that of Cray that it has had to collaborate with an American company. Inria's annual budget is only \$7.5m, so the additional cash will be very welcome.

BANKING TERMINALS: OLIVETTI TO PAY \$174m FOR ISC

A mystery suitor for ISC Systems Corp, Spokane, Washington turned out to be none other than Ing C Olivetti & Co SpA, which wants to strengthen its position in the US banking terminals market by merging ISC with its Bunker Ramo unit. The price is \$12.25 a share, about \$174m all told - just more than the company's 1988 turnover of \$171m, which will turn Olivetti into a \$250m a year force in the US banking terminals market, with a 28% share. ISC is recommending its shareholders accept.

UNIPLEX, JSB WIN IBM AGREEMENTS FOR THE RT

UK software houses Uniplex Ltd, Hemel and JSB Computer Services Ltd, Macclesfield have found favour with IBM, which is taking four of their products for the RT. JSB Multiview provides a multi-tasking windowing environment for up to 16 users at ASCII terminals under AIX/RT; the Uniplex II Plus is a multi-user office automation package, Uniplex Advanced Office adds features such as electronic mail and IBM also has Uniplex Advanced Graphics.

DATABASE USERS WANT TOOLS, NOT PERFORMANCE

With all the flack flying around about how my database processes so many more billions of transactions per nanosecond than IBM's does, and IBM responding with "not-so-much-as-what-you-are" retorts about benchmarking methods, it is sobering for all to learn that database software buyers are far more interested in access than performance, according to an audience straw poll conducted at last month's DB/Expo in San Francisco. Only five of the 150 assembled vendors, corporate planners and consultants cited performance as their chief selection criterion, when buying a new database, reports Microbytes Daily. The majority was concerned with the provision of transparent access to diverse and remote systems, the availability of development tools, and a data typing scheme sufficiently fluid to handle complex objects, digitised photos, and recorded speech. On the issue of mixed computing environments, consensus was reached among both audience and vendors. On the one hand, most vendors were forced to concede that the database environment in the mainframe world was dominated by IBM's DB2. On the other, and in the words of Relational Technology's Martin Sprinzer, "mixed environments are the real environments". For the corporate user, he added, the process should be transparent, regardless of location, data format, operating system and user interface. Some felt that a mixed solution lay with distributed databases and gateways. According to database guru C J Date, however, distributed systems often suffer in performance terms, through their inclusion of replication schemes designed to protect data. IBM is among the companies currently working on a new "snapshots" technique that can address this problem, he added. Other developments alluded to include new products from Relational Technology which enable a user to write an application once under VMS, and then access it transparently under Unix - it's due to be announced any day (UX No 217), although the UK office at least says it is now holding back until February 23rd. Oracle Corp, meanwhile, is "working hard" to make its graphical user interface invisible, by producing a product which looks like Presentation Manager, the Apple Macintosh interface, or Open Look. The company also said that announcements, pointing towards the integration of data dictionaries and computer-aided software engineering tools, would be made shortly.

RABBIT SOFTWARE STILL MIRED IN LOSSES

Although its IBM SNA implementations for other architectures are very popular, Rabbit Software Inc is still not making money. The Malvern, Pennsylvania company says that it expects to report a loss of about \$4.7m for 1988 on sales almost doubled to \$10.3m. The company lost \$4.0m last year, and says year-end write-offs contributed to the 1988 loss.

HEWLETT WINS \$20m OEM VDU ORDER FROM DECISION DATA

Hewlett-Packard Co has won a \$20m OEM order from Decision Data Inc of Horsham, Pennsylvania for its newly developed terminals that are compatible with IBM's AS/400 and Systems 36 and 38 computers. The terminals were developed jointly by Hewlett-Packard and Decision Data and are set for shipment before mid-year.

XEROX JOINS BOTH UNIX CAMPS

Xerox Corp has decided to hedge its bets in the Unix wars by joining both Unix International Inc and the Open Software Foundation - and William Lowe, who has scarcely had time to wash the Blue dye from his soul, explains that "Our objective in joining both of these currently competing organisations is to represent customers' major need for a single standard Unix operating environment". Until December, Lowe, now vice-president, Xerox Development & Manufacturing was running IBM's personal computer arm and IBM is of course a leading light in the Open Software Foundation that caused the Unix schism in the first place. Xerox also claimed controversially that its decision "is supported by members in each of the two groups, such as Sun Microsystems in Unix International and Siemens in the Foundation, both of whom are promoting a single Unix standard". Xerox also said it would move its ViewPoint desktop and applications software, Xerox Network Services software and other document processing systems to converged Unix and Sun Sparc technology.

ITL WINS BELGIAN MARKETING FOR MOMENTUMS FROM PRODATA

Apart from the odd foray across the Channel to France and back again, and the sterling work it has done over the years for the European Space Agency, ITL Information Technology Plc has achieved very little abroad over the years, but the Hemel Hempstead company has now made something of a breakthrough in Belgium, where transaction processing systems integrator Prodata SA is so impressed with the fault-tolerant features of ITL's Momentum machines that it wants to add them to the ICL, Fortune Systems and Data General machines it offers for transaction processing, point-of-sale and electronic funds transfer applications. The deal is one of the first signed by ITL's new unit formed to market its machines through indirect European channels. The Prodata Business Development division will initially be offering the Momentums in the Benelux countries, in Spain and to the European Community headquarters in Brussels.

SYFA DATA EMBRACES UNIX SYSTEMS WITH NEW ARCHITECTURE

SyFA Data Systems Plc, now a Watford, Hertfordshire-based subsidiary of Irvine, California-based WesPac Technologies Corp, last week launched the SyFA Series SX of Unix-based machines as an integral part of its Extended Applications System Architecture (UX No 217). SyFA systems - using software originally developed in South Africa - first appeared in 1976, when they were the product of Computer Automation's commercial systems division selling minicomputers, mostly as what proved a very attractive alternative to IBM SNA users who wanted something like IBM's 8100, but didn't like that machine. In 1985 the commercial systems division was bought by Norris Agee, chairman of Trendata Corp, who set up SyFA Data Systems Ltd as an independent company. Two years later SyFA was bought by Wespac, and became a UK public limited company in 1988 - being a Plc doesn't actually mean much unless your shares are quoted in London, but it is thought to add kudos on the letterhead; any UK limited company that meets the asset requirements can convert to Plc status. The Wespac Technologies group is currently composed of SyFA Plc and Wespac Peripherals Ltd in the UK, and SyFA Corp and Wespac Peripherals Corp in the US, with \$9m of the group's \$50m turnover coming from the UK operations. The SyFA range starts, at entry level, with the SV Series which can support up to 16 users, offers up to 480Mb of disk, and ranges in price from £12,000 to £60,000. The mid-range Series TS can support up to 32 users, and offers up to 1,360Mb of disk. Both series can be upgraded to SyFAnet which offers 20Gb of disk and support for up to 240 workstations. Both the existing series can be used with the new Motorola Computer Systems Delta-based Unix System V.3 machines. SyFA is offering the Unix machines with its proprietary Extended Applications System Architecture. SyFA claims that its Architecture enables it to work with multiple technologies to find the optimal integrated solution for a client. This enables it to offer flexible horizontal software, moulding, say, office automation, or accounts packages to suit different environments. SyFA has entered a number of strategic alliances to develop vertical software, naming the manufacturing company GKN, the wholesaler Spar, and British Airways, as partners in a variety of market sectors. SyFA Architecture products include the SyBOL business programming language on all systems, remote logon and file transfer between personal computers and multi-user systems via RS232 or local area networking, and a SyFAnet and Ethernet gateway. Thus, in the commercial sector, in which SyFA is particularly interested, front end applications through the proprietary TS and SV machines (which include the company's SNA emulation) can be passed back via SyFAnet to the SX Unix box which can in turn connect to any MS-DOS micro, Apple Macintosh, DEC VAX, or other Unix machine via Ethernet. Foundation software elements include an integrated office automation package EASyOffice, based on the latest Uniplex release, with telex and fax facilities, as well as the EASyMacs accounting suite. All five models in the Series SX range can be configured to operate in local and wide area networks, using a variety of protocols including Ethernet, AT&T's Remote File Sharing, Xerox Corp's XNS, X25 packet-switching, and IBM's SNA and bisync. Prices range from £6,950 for the Series SX Model 55 Work Group system for up to four users, to £57,000 for the top end Model 62 Large Departmental system, which is built to support up to 74 users.

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Two consortia are in the running for a five-year computer contract provide every Member of the European Parliament with a terminal in his or her constituency, to keep them in touch when they are away from Brussels or Strasbourg or wherever Europarl happens to be this week: according to the Financial Times February 15 is decision day for the 15m Ovide2 contract, and ICL is bidding Clan Unix boxes in consortium with GFI SA in France and ViCorp of Switzerland, while Bull SA is bidding boxes with software from SD Scicon Plc in Camberley, and networking from Danet GmbH in West Germany; the Parliament's own technical service is currently said to be leaning towards Bull.

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The Paymaster General's Office has ordered 92 DRS Model 30 workstations from ICL Ltd, which says they are functionally compatible with the IBM PS/2 Model 30 - probably the least desirable box in IBM's line with which to liken yours, but are claimed to offer a higher resolution video graphics array video system: the DRS workstation runs MS-DOS Version 3.3 and can be part of a DRS Series 300 Microlan 2 network, or can be connected directly into ICL's mid-range computers, the DRS 400 and DRS 500; all DRS server systems support Open Systems networking, but with an integral Microlan 2 network, the DRS 30 can also emulate Model 303 and 305 dumb workstations, providing access to both departmental and corporate services, and to applications running under Unix, Concurrent DOS, and ICL's mainframe VME.

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One of Intel Corp's biggest microprocessor irritations these days is the way that its 80286 second sources keep coming out with faster and faster versions of a part Intel wanted to stop at 12MHz: to stop the fun of Advanced Micro Devices Inc and Harris Corp, the San Jose company has now slashed the price of its 16-bit bus 80386SX by 33% to just \$89 a time in volume quantities.

A new entry level for the NuBus-based Apple Computer Inc Macintosh II is expected to be the star attraction at Apple's showing at the Hanover Fair next month - MacWeek magazine expects a Macintosh IIcx with colour, three slots, 1Mb CPU 68030 or 68020 CPU and one floppy drive in the base configuration: the paper also looks for a 21" monochrome monitor capable of putting up 16 shades of grey, a 15" full-page monochrome monitor, and a 160Mb Winchester for the Mac II and IIx.

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Matsushita Electric Industrial Co is claiming 2.6 GFLOPS peak performance for the experimental parallel processor it has been developing in collaboration with Kyoto University, and has also come up with a name for the thing - Adena, which stands for Alternating Direction Edition Nexus Array - that presumably sounds better in Japanese: the machine has 256 processing elements and includes a workstation as the front end; Matsushita has been playing about with Inmos International Plc Transputers in parallel processing applications, but claims that the node processors of the Adena are built around a newly-developed 440,000 transistor circuit.

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Charles Boesenberg has left Apple Computer and joined MIPS Computer Systems Inc as executive vice president of marketing, and president of a new, yet to be named business unit: he has responsibility for MIPS marketing worldwide.

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Alslys Ltd, Waltham, Massachusetts, the company headed by principal designer of the Ada language, Dr Jean Ichbiah, has enhanced its 68000 version 4 Ada cross compiler to run on Sun, Apollo, HP 9000, VAX/VMS, IBM PS/2 and PC AT machines. According to Martyn Jordan, marketing director of Alslys UK, Henley-on-Thames, Oxfordshire, the company has "substantial orders for the 68000 cross compiler," and has supplied Sun based versions to the French and Belgian armies, the French navy, Thomson SA in France, and GEC-Marconi in the UK.

Apple's Macintosh SE/30 can now be linked with twisted pair Lattisnet Ethernet Networks and Ethernet LAN's via a new interface from Excelan Europe Ltd's Kinetics division: the Etherport SE/30L communications interface can run 10 megabit per second Ethernet signals over standard telephone wire through Lattisnet, the twisted pair Ethernet network developed by SynOptics.

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Wyse Technology is to demonstrate its new multi user system, the Wysepc 386 model 3216-150T at the Which? Computer Show later this month: in addition a 19" high resolution desk top publishing display monitor is to be launched.

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Interactive Systems Corp, Santa Monica, California, has begun shipping 386/ix release 2.0, based on AT&T's Unix System V.3.2: designed to run on 80386 based PC-ATs - with future releases for PS/2 models 70 and 80 - it is claimed to perform three times faster than basic Unix systems: 386/ix incorporates standard Xenix utilities and can run Xenix 286 and Xenix 386 applications.

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French computer manufacturer Forum International will be one of those companies exhibiting at the European Unix Systems show in Paris - inconveniently starting on February 28th along with Uniform in San Francisco - and will no doubt be showing off its range of National Semiconductor-based MultiFlex systems: the company plans to extend the range later this year with the 10-MIPS 32-20 system using the NS 32532.

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MIPS ENTERS WORKSTATION SYSTEMS MARKET 12 MIPS STATIONS AND LOW-COST X TERMINALS

Mips Computer Systems Inc is cashing in on its major OEM agreement with DEC signed last month (UX No 213) by introducing its own system-level products aimed at the technical workstation market. The Sunnyvale, California-based company, which already sells commercial multi-user systems using its R2000 and R3000 Risc processors, will today extend its system-level offerings with the introduction of an entry-level server, and a new line of graphics workstations. The new RS2030 systems, using the 12 MIPS, 1.8Mflops R2000 chip set, are available either in workstation or server configurations. As a workstation, the system supports 16Mb memory, one 172Mb disk and floppy or two 172Mb disks, 1280 x 1024 graphics, and a choice of 16 or 19 inch colour, 17 inch mono screens. An 8Mb, single hard disk system including mono monitor comes in at \$17,000, but a diskless version, available in the third quarter, will cost \$13,600. As a server, the system can support an optional 120Mb cartridge tape unit and 3.3Gb additional storage: with 8Mb memory, 172Mb disk and 120Mb tape it will cost \$17,500. Both versions will be available in three months. The RS2030 workstation marks the top-end of a new family of RS 30 workstations, according to Mips, which is also introducing the first of a low end RS 10 family. The RS1210 is a low-cost X-display station, optimised to run the X-Windows server, processing only the graphics portion of an application. It supports up to 4.5Mb main memory, Ethernet and TCP/IP: the 1Mb version sells for \$3,200, and will be available within a month. MIPS says it will bundle its own RISCwindows implementation of X and the Open Software Foundations OSF/Motif user interface along with its Unix operating system by mid year. The systems will also be made available as development packages for OEMs to take as "building blocks" of base units, graphics cards, and software. Product manager Michael Cohen claimed that over 500 backorders were already pending.

MICROSOFT BUYS BACK XENIX WITH STAKE IN SANTA CRUZ

Microsoft Corp, which effectively handed its Xenix low-end variant of Unix to the Santa Cruz Operation Inc a couple of years ago, has bought back into the Unix business by taking a "substantial minority stake" in the company from the eponymous California township. No terms were disclosed, but privately-held Santa Cruz has reportedly doubled in size in each of the past five years and is expected to be close to the \$100m sales mark this year. Last year, Santa Cruz sold 100,000 copies of the Xenix variant of Unix System V and earlier releases, bringing its total installed base to 350,000 copies, and is expected to sell another 200,000 this year, according to the Wall Street Journal. The investment - said to be under 20% - enables the Redmond, Washington company to hedge its bets on whether OS/2 will really turn out to be the high-end workstation wave of the future or whether Unix now has too big a head of steam behind it now to be pre-empted. Santa Cruz Operation certainly sees the Unix bandwagon gathering even more pace over the next few years - the company says it may eventually go public, but not until the public understands the role of Unix better. So when it found that it needed additional cash to finance its breakneck growth rate, it and Microsoft found a common interest. The move also shows that Microsoft, beginning to pull away from its micro software rivals, remains as hungry as ever.

FUJI XEROX TEAMS WITH SUN

Pushing Xerox Corp further into the Unix International camp despite its declaration that it wants a foot in each, its Fuji Xerox Co affiliate has teamed with Sun Microsystems Inc to create a \$4m joint venture company, Unisol Corp in Japan to do and sell Unix and Open Look-based applications for Far Eastern markets. First versions will be for the Sun-3 and Sparc-based Sun-4.

NCR TO LAUNCH X STATIONS

NCR Corp is also betting its Unix graphical interface strategy on X-Windows, and will use the Uniforum Unix show as the launch venue for TowerView, a new range of intelligent X-terminals. The company has licensed Cambridge-based IXI Ltd's X.desktop graphical user interface to bundle in with the new 680X0-based terminals, which can be connected to NCR Tower or other Unix-based systems via network or RS232 channels. The move is set to boost the exposure of non-technical, commercial users to distributed applications software using X windows, and endorses the similar approach to multi-user graphics taken by companies such as Network Computing Devices Inc (UX No 215) and Acer Counterpoint Inc (UX No 209). Systems are currently on trial at key NCR customers.

INTEL ENTERS RISC MARKET WITH N-10

Intel described what looks like its first serious entry into the mainstream RISC processor market last week at New York's prestigious International Solid State Circuits Conference - a 1m transistor part in 1 micron CHMOS that includes 32-bit integer unit, paging unit and bus unit, 64bit floating point unit with add, multiply and three-dimensional graphics unit, each taking up a third of the chip, the balance being given over to 4Kb instruction and 8Kb data caches, all built around a 64-bit bus. The part, clocked at 50MHz, is rated at 50 MIPS integer, 100MFLOPS and 150m operations per second peak since up to three instructions can execute concurrently. Intel says that although the part can be used with an 80386 or upcoming 80486 front-ending it, it was always designed as a stand-alone CPU. It will support Unix, and will be pitched particularly at engineering and graphics workstations and multiprocessing computers, which suggests that the 80960 being used by Intel's BiiN Inc joint venture with Siemens AG may be a stop-gap to the N-10. Details, page 2.

INTEL'S NEW N-10 SHAKES UP RISC WORLD WITH MINISUPER ON A CHIP

While not forgetting that Intel Corp was the only begetter of the iAPX-432, which looked like a brilliant chip with all the features needed by fault-tolerant computer manufacturers, PABX builders and embedded systems designers, and yet died a miserable death as a result of a number of factors, most notably lack of software support, the new Intel Corp N-10, described last week at the International Solid State Circuits Conference in New York looks like a runaway winner. Those who nevertheless still feel that there's many a slip twixt cup and lip will feel vindicated by the fact that the chief designer on the part was also on the team that created the National Semiconductor Corp NS32000, by all accounts a technically splendid microprocessor that nevertheless is a distant number three in the CPU stakes to the Motorola 68000 family and the iAPX-86. Still, Intel has learned a bucketful of lessons from the 432 failure, and is today a financially much stronger company with the resources to make sure that there is no skimping on software support.

The N-10 is a 1m transistor part in 1 micron CHMOS - Intel's proprietary CMOS process, built around a 64-bit bus and an architecture borrowed from the supercomputer designers. Approximately 330 transistors are devoted to creating the 32-bit integer processor, memory paging unit and bus control unit; an equal amount of real estate accounts for the floating point control unit, adder unit, multiplier unit and three dimensional graphics unit, and the remaining third is devoted mainly to static RAM - the 4Kb instruction cache and the 8Kb data cache, each two-way set associative with 32-bit line size. Since the integer unit, the floating point add and the floating point multiply units can execute in parallel, Intel claims that at peak performance, the N-10 runs at 150m operations per second when it is clocked at 50MHz - at which speed it dissipates about 3W.

Because the caches are on chip, Intel says that an aggregate data rate of 1.2Gbytes-per-second is achievable. Rated at 105,000 Dhrystones and 21 MFLOPS on the double precision Linpack inner loop benchmark, the part is heavily pipelined, so that as well as concurrent operation of the three separate processing functions, there is a four-stage pipeline in the integer unit to execute integer, control and load/store instructions. By holding load data in the data input latch until the next load, avoiding using a separate port in the register file to store load results, load instructions are executed in one cycle, and because the thing has a 64-bit bus, the 32-bit integer unit can fetch one or two instructions in a single cycle, in the latter case sending one to the integer unit and the other to the floating point unit for parallel execution. There is a five-port floating point register file so that 128-bit floating point load or store instructions can be executed in parallel with floating point instructions, and a pipelined load enables data to be brought from external memory at full bus bandwidth without disturbing the on-board data cache.

3D Graphics

The floating point adder can produce a 32-bit or a 64-bit result each cycle, and the floating point multiplier can produce a 32-bit result every cycle and a 64-bit result every two cycles. The three dimensional graphics unit includes Z-buffer and intensity interpolation and can generate up to 21m Gouraud shaded pixels per second with hidden surface elimination. The part measures 10mm by 15mm and comes in a 168-pin package. Intel stresses that the device, work on which started in mid-1986, was conceived from the ground up as a general purpose stand-alone part, and not as a back-end processor for the 80386 and forthcoming 80486.

The fact that Intel sees the part as a good emulator for complex mainframe and minicomputer architectures such as the IBM 370 and DEC VAX is intriguing: the company hints that it could perform in the 1990s the rescue act that the Advanced Micro Devices Am2901 bit-slice microprocessor performed in the 1970s for smaller companies with proprietary architectures - the Concurrent Computers, Norsk Datas, Prime Computers and Data Generals of the computer world - by providing them with a processor that can dramatically reduce the cost of developing powerful new processors on which to run their proprietary software.

Internal sampling of the N-10 has been going on since September, and direct memory access, input-output and disk controller support chips are fully developed - but Intel concedes that it does still have bugs in it. A sampling schedule is expected along with the official unveiling on the eve of Uniforum, February 27th.

SUN, DEC LEAD HIGH GROWTH WORKSTATION MARKET

The latest report on the workstation market from Dataquest Inc claims that 1988 saw a 53% growth in annual revenue, despite the fact that workstation penetration remains relatively low in terms of the overall available market. The Dataquest findings reveal that only around 20% of the worldwide engineering community currently have workstations, and less than five percent of the office, university and financial markets increasingly seen as targets for new workstation sales have so far taken the plunge. The market grew from \$2.7 billion in 1987 to \$4.1 billion in 1988, according to the report, influenced by the low market penetration, price reductions, volume buying, and a weakening of the minicomputer market. Estimated 1988 revenues for workstation sales worldwide show Sun Microsystems as the clear market leader with \$1,165m revenue, or 28.3% of the market. Second is DEC, with an estimated \$765m workstation revenue (18.6%), followed by Hewlett-Packard (16.9%), Apollo (13.5%), Intergraph (6.7%), Silicon Graphics (4.4%) and IBM (2.6%). And while Sun, Intergraph and Silicon Graphics all achieved growth rates of 80% or over, Apollo's growth was way down at 18%, above only IBM's lacklustre 10% growth in RT sales this year.

UNISYS EXTENDS 6000 RANGE WITH CONVERGENT, SEQUENT BOXES

Unisys Corp has now revealed its plans for the multiprocessor 80386-based supermicros it bought in through the recent \$250m OEM deal with Sequent Computer Systems Inc (UX No 216). The new machines have surfaced in two configurations: the U6000/70 with up to ten 16MHz 80386 processors, and the U6000/80 with a maximum of 20. These join the existing 6000/50 machine based on Convergent Technologies hardware, and a new entry-level system, the 6000/30, also from Convergent, allowing Unisys to claim "the broadest compatible Intel-based product family in the commercial marketplace". The systems support up to 400 users and have a price range of under £10,000 to £600,000. The 6000/30, for workgroups or small departments, support from four to 12 users and has 12Mb memory, a 16MHz 80386, floppy and SCSI controller, seven I/O controller slots for PC and AT style controllers, and 32-bit memory expansion bus. The multi-processors support from 8- 240Mb main memory. All the 6000 series use common peripherals and integrate MS-DOS and Unix, as well as applications development tools Mapper and Ally. The 6000/30 prices range from £8,200 to £30,000, while the 6000/70 costs from £100,000 to £300,000, and the 6000/80 from £250,000 to over £600,000. US prices range from \$11,500 to over \$1m. The new Intel-based range now looks to be the prime focus for commercial systems, with the lower to mid-range U5000 series serving the 68020- based market, and the U7000 series from CCI using proprietary technology and supporting up to 200 users.

...AS UNISYS INVENTORY CUTS HIT ARIX HARD

Unisys Corp appears to be overstocked with Unix systems and has embarked on an inventory reduction programme that has hit at least one of its OEM suppliers, Arix Corp, San Jose, California hard. The company says that certain orders from Unisys scheduled for delivery in the third and fourth quarters of its fiscal 1989 have been rescheduled until first quarter fiscal 1990 and that new orders for the fourth quarter ending June 30 are likely to be delayed. Arix chief executive Gene Manno says that while the impact on the company's fiscal 1990 business is not yet clear, it has no indication of any reduction in demand for Arix products from Unisys customers. Analysts have projected that Arix fiscal 1989 fourth quarter financial results would approximate \$23m in net sales and \$1.7m in net income. Arix warns that the rescheduling and delay in new orders from Unisys is likely to result in a decrease in fourth quarter 1989 net sales of approximately 35% and a decrease in earnings of approximately 50% from these analyst projections. As well as its now wholly-owned Convergent Inc, Unisys also buys in Unix systems from STC Plc- owned Computer Consoles Inc and from NCR Corp; no word on their deliveries.

IBM's AIX-370, PS/2 ADD-ONS LATE

In an announcement likely to prove a bit of an embarrassment to the Open Software Foundation alternative Unix club, IBM yesterday said that its AIX-370 mainframe version of Unix, due to ship next month, will be late and deliveries will now be phased in over 1989, with early support in second quarter and a general availability date announced in July. AIX PS-2 Network File System, Transparent Computing Facility and X25, all for PS/2s, also promised for next month, are put back to the fourth quarter of 1989.

CCI ADDS NEW POWER6 SERIES

Computer Consoles was preparing to launch new systems within its Power6 Series of hardware as we went to press. The new L Series replaces the older S series as CCI's entry-level offerings, and are expected to be priced 20% below existing models, which will not be discontinued, but bought into the range. The machines are rated at between 3-8 MIPS, and include the 3MIPS LB and LE, 5MIPS L, and 8MIPS LX systems, and support from 32-192 users. CCI also offers 380 or 760Mb disk drives, with total storage of up to 6Gb, an expanded 150Mb cartridge tape drive, and up to 64Mb main memory: prices start at \$50,000, with availability in April.

NAG HAS EXPERT STATISTICAL ANALYSIS PACKAGE

According to Professor John Nelder, one of the world's leading experts on statistical modelling, "existing statistics packages give the user some help on how to do things, but almost no help on what to do." Oxford-UK based software company, the Numerical Algorithms Group Ltd (NAG), has launched an expert system for statistical analysis, which it claims, redresses this imbalance by encapsulating statistical expertise in a form directly accessible to the user. Glimpse - Generalised Linear Interactive Modelling + Prolog + Statistical Expertise - is the culmination of a five year UK Government Alvey project by NAG in collaboration with Imperial College, London. It is a user friendly, knowledge based front end to the well established Glim 3.77 - generalised linear modelling - statistics package, now estimated to have over 1400 users worldwide. Running Glim as a subprocess and executing a Prolog interpreter, Glimpse sits on top of an "abstract statistician," a body of expert statistical knowledge which can be called upon by the user for guidance and help with problems - or to provide a complete model building strategy, if required. It has a task based, menu driven command language, freeing the user from detailed knowledge of the Glim language, an on-line manual and an interactive question and answer interface environment. Glimpse is presently available on Sun workstations running Unix BSD 4.2, priced at £7,560 a year at a commercial site - £2,520 for academic users. It is particularly appropriate for research in the areas of medicine, agriculture, insurance, econometrics and meteorology according to Professor Nelder. He went on to say that if the statistical methods and models used by GLIMPSE had been employed by NASA scientists prior to the Challenger space shuttle launch, they would have revealed a 13% probability of catastrophic failure - great enough to have prevented the fated mission from taking off.

JAPANESE COMPANIES QUEUE TO JOIN UNIX INTERNATIONAL

Representatives of Unix International Inc, backers of the original AT&T Co version of Unix have been in Tokyo for the past few days, explaining their activities to the Ministry of International Trade & Industry and to the Japanese computer industry. The delegation, led by chief executive Peter Cunningham, includes Larry Dooling, head of AT&T's Unix Software Operation Division; Don Herman, chief organisation officer; William Booning, an X/Open Ltd vice-president; and Larry Crume, president of AT&T Unix Pacific, who is resident in Tokyo, plus one representative each from Toshiba Corp, Dr Shigenori Matsushita, and from Fujitsu Ltd, Takeshi Maruyama, general manager of research and planning in the computer systems group. Of the 46 members of Unix International so far signed up, 11 are Japanese and of the 14 principal members, full half come from Japan. No fewer than 130 Japanese hardware and software companies turned up to talk about joining Unix International at a meeting last week, leaving the delegation "overwhelmed". Don Herman reiterated that Unix International was not currently holding talks with the Open Software Foundation, although he went over the gory history of the split following increasingly angry talks with AT&T that led to the formation of the Open Software Foundation. Questioned about why so many Japanese companies were interested in joining, the panel indicated that both US and Japanese companies felt they could benefit, the "proprietary operating system being the ultimate non-tariff barrier" in the computer industry. Although the Japanese government has not followed US and European governments in standardising on Unix, US companies hope that such a move will come, and that it will lead to a liberalisation of Japanese government procurement. It was pointed out that some Japanese companies are members of both Unix International and the Open Software Foundation, but the man from Toshiba indicated that in his company's case, Toshiba America had joined the Foundation off its own bat, the \$25,000 fee being a budget decision it could make itself, and cheap enough to justify simply on the basis of the information it would receive as a result. Indeed nine or 10 of the 46 Unix International members are also members of the Foundation. The Japanese panellists didn't see Unix facing any competition from the home-grown Tron operating system for another 10 years. What was X/Open doing in Tokyo? One of its main contributions will be the determination of the specifications of a common Japanese language processor for Unix: this work is being done at AT&T Unix Pacific. Larry Dooling, who heads the new AT&T Unix Software Operations, was tight-lipped the AT&T research and development budget: "Hundreds of people are working in research and development, and the budget is too large", he complained.

PHILIPS ENHANCES MAESTRO II

Maestro II, a Unix based computer aided software engineering platform developed by Philips Telecommunication and Data Systems Division, Apledoorn, Netherlands, and Softlab GmbH, has been unveiled in Munich, West Germany. Following its predecessor - the Maestro integrated product support environment - Maestro II runs on Philips P9000 machines, an IBM version is to follow next month, and Posix compliance will be added by the end of the year. The package is primarily aimed at developing software applications within management information systems environments. There is a proliferation of software engineering tools at present, with the increasing emphasis on the automation of development processes. Many are machine and method dependent however. Maestro II on the other hand, is claimed to be sensitive to standards, supporting any methodology or development process, as well as integrating with existing stand alone tools, and providing a common database for all users. Both front and back end tools can be plugged into Maestro II, from common user interfaces to code generators. The success of Maestro in the marketplace will be especially important for Philips. Senior marketing director Dr Gert Bindels says "we are aiming for 45% of our targeted turnover from software and services by 1992, so computer aided software engineering will be the key to success in IT for us". In addition, Philips Business Systems, the UK based office automation division of the Philips group has announced that Maestro II will soon be available on IBM PC/AT compatible machines, which, via Unix servers, will act as graphics workstations. Prices are between £3,500 and £5,000 per workstation, plus £150 a month software licences.

PROTEK LAUNCHES TRANSPUTER KIT

Hardware and software designed for use with Hewlett-Packard systems has been introduced by Protek, London. Used together, the transputer module motherboard and TTS-1 transputer toolset enable the development of Inmos transputer networks supported by Hewlett-Packard series 200 or 300 workstations under HP-UX. The transputer module motherboard comes in two versions - to take four or twelve standard transputer modules. It can then be used for a variety of transputer applications including prototyping, target system support and Occam program development. The motherboard occupies one I/O backplane slot and the transputer link connections can be configured into any topology. Ten links are brought to an external expansion connection so that larger networks using multiple boards in a "daisy chain" can be constructed. An interface for the systems is supplied, enabling data to be transferred to and from the transputer network, and the network to be controlled and monitored. The TTS-1 transputer toolset is a software development environment for use with the motherboard, and can target mixed networks of transputers. It has an Occam 2 compiler, linker, syntax checker, configurer, librarian, symbolic, network debugger, makefile generator utility, bootstrap tool, HP-UX file server and device driver. A server process running under HP-UX is responsible for mediating communication between the transputers and the operating system environment. Program files are prepared and stored with conventional HP-UX functions, and user commands are available for initiating compilation of Occam 2 program modules, link loading of separately compiled modules and use of the symbolic network debugger - which all run in native mode on the transputers installed on the motherboard. Also included is run time access to HP-UX system services from within an Occam program executing on the transputers. The four slot motherboard and toolset bundled together costs £2,150, the twelve slot version is £2,400.

SONY ERASABLE OPTIC DISKS FOR NEWS

Sony Microsystems has duly launched its erasable magneto-optic disk drive - together with the 5.25" disks to match - for its range of News workstations as briefly reported here last November, (UX No 204). The NWP-539 is intended to combine the capacity and performance of optical storage systems with the erasability of magnetic storage techniques. As well as on stand alone systems, it can be used with a machine that is part of a distributed network, other systems on the network can access the drive for both reading and writing. A virtual disk system can also be operated, whereby one file may be written to several different disk stores, or disks, as in striping. but Sony claims to be the first manufacturer to offer such a drive together with disks - made possible by developments in magnetico-optic film technology and the high power lasers which enable high speed data transfer. The NWP-539 is housed in the NEWS-OS filesystem like a standard Winchester disk, storage capacity on a single sided disk is 297Mb - 594Mb on the double sided version. Data transfer is performed at 620Kb per second and average access time is 90 milliseconds. The drive costs £2,500 and the double sided disks, which can't be used on other machines cost £130 each.

NEW CDC PRESIDENT TO STEM LOSSES BY SALE OR PARTNERSHIP

Control Data Corp's new president and chief operating officer Lawrence Perlman, elevated to the number two spot at the troubled Minneapolis company after he worked miracles at the disk drive arm of the company, says he has "not ruled out any options" for cutting the company's losses, and options do include the sale of part or all of the computer business. But that is not the only option for the Cyber scientific-oriented mainframes and ETA supercomputers - Perlman says that he is also looking at seeking equity partners to help turn around the computer businesses, which had operating losses of about \$130m last year. The gossip around the Twin Cities for weeks has been that the computer operations were on their way to Unisys Corp, but Perlman insists that "It's too early to tell if we have to sell portions of the computer business." He dismisses reports that Unisys representatives have visited the St Paul assembly plant of the ETA supercomputer subsidiary (UX No 214) by saying "We have Unisys and every other manufacturer visiting ETA: "We're trying to sell them on ETA as a compatible supercomputer with their mainframes". He says he'd prefer to keep the computer business more or less intact, but acknowledges that there's "no question that one of the ways to help make computers profitable is to find the right kind of partner; we don't have to own all" of ETA or Cyber.

TEXAS, INTELLICORP TEAM FOR AI DISCOUNTS

Texas Instruments Inc and IntelliCorp have signed a co-operative marketing agreement on knowledge-based delivery systems for developers of artificial intelligence applications. The pair will join in marketing Texas Instruments' microExplorer - an Apple Macintosh II with Lisp co-processor - with IntelliCorp's Knowledge Engineering Environment; developers will get 33% off the KEE software and 20% off the microExplorer, and three months of on-line support for KEE and one copy of the KEE primer from IntelliCorp - provided they buy by March 31; run-time versions of KEE will be also be offered by IntelliCorp at 10% off. Discounts are on \$30,000 for KEE, \$5,000 for run-time versions, \$16,000 to \$29,550 for microExplorers.

JAPANESE SOFTWARE HOUSE ASHISUTO SHIFTS TO UNIX

Mainframe packaged software marketing company Ashisuto Co has decided to follow the trend and start selling packages for low-end systems, starting with Oracle Corp's Oracle, which has just been translated into Japanese for the Sun Microsystems Inc workstation family, with a version for Toshiba Corp's top-end laptop, the J3100, on the way. The company also plans to convert other packages such as Focus and Pro IV to run in Japanese on workstations and personal computers, and has created a new division to handle the new business, with some 80 young people with three years or so experience with Ashisuto. Revenue predictions for the current financial year to March are expected to be around \$62m, and by 1991, Ashisuto hopes the revenue from small system sales will match that from large system software which it puts at \$140m or so.

DATA GENERAL TO MERGE MINIS AND TELEPHONE SWITCHES

The most comprehensive attempt yet to integrate private telephone switching and general purpose computing into a seamless integrated unit - and the diversification that may well save Data General Corp from the minimakers' graveyard that many confidently predict for the smaller manufacturers locked into proprietary architectures - is due to come to fruition by July of this year. Back in October 1987, Data General and the Japanese telephone giant Nippon Telegraph & Telephone Corp announced a joint venture, code-named Asparagus, to combine Data General minis with switching systems designed by NTT. Design work on the hybrid machine, which combines a processor based on Data General's 32-bit Eclipse MV line of minis and a high-end PABX believed to be built around Motorola's new 88000 RISC microprocessors is now complete. The system integrates both circuit and packet switching technology to incorporate a wide variety of communications modes, including facsimile, "dynamically at very high speed". The system combines conventional computing with speech and data switching in a single unit; ISDN, Open Systems Interconnection and SNA support are included. The second phase of the development agreement has been completed, and Data General has supplied a prototype to the Japanese phone giant; full production should be under way by the summer. NTT will market the system in Japan, and to large Japanese multinationals throughout the world; Data General will market the hybrid PABX elsewhere. Most of the development took place in Nippon Data General's plants in Japan. Why Asparagus? Because the vegetable takes two years from planting to produce edible shoots, but once established, produces indefinitely a highly-prized commodity.

ISSCC: HITACHI CLAIMS WORLD'S FIRST BiCMOS MICROPROCESSOR...

Hitachi Ltd's Hitachi Research Laboratory and Device Development Center claim to have developed the world's first microprocessor in BiCMOS technology. The part, described at the International Solid State Circuits Conference in New York last week, is clocked at a racy 70MHz and follows Hitachi's development of the world's first BiCMOS gate arrays in December 1984 and BiCMOS static in May 1985. The uses a 1.0 micron Hi-BiCMOS process and integrates 529,000 transistors on a 13mm square chip, at a density closed to the current 32-bit CMOS microprocessors. The bipolar elements are only 1.5% of the total number of transistors, but the chip is claimed to do 32-bit integer calculations at a peak 70 MIPS. No special cooling is required, but Hitachi gave no indication of the instruction set.

...AS ANAMARTIC, FUJITSU FLESH OUT THEIR WAFERSCALE PLANS

Sir Clive Sinclair's Anamartic Ltd, Cambridge, UK, and Fujitsu Ltd, Tokyo put a little flesh on the bones of their waferscale memory chip project at the conference last week, saying that the initial product would be a 6" wafer of 1M-bit memory chips in 1.3 micron CMOS, linked by Anamartic's ingenious circuitry and software, and that the wafer would hold 202 chips for maximum capacity of over 15Mbytes if all chips were good - 150 good chips is thought likely. 200Mb modules are planned.

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Seems the silly season for bid rumours is back with a vengeance in the computer and electronics sector on Wall Street: a hostile bid is on the way for Ashton-Tate Corp, say the gossips, and AT&T Co is sizing up NCR Corp for a bid; for what it's worth, we're agnostic on the Ashton-Tate gossip, but AT&T going for NCR looks highly unlikely because any bid would almost certainly have to be hostile, and making hostile bids is not really the AT&T style - and success would leave it with a pack of disgruntled talent at the top of NCR wanting to quit.

- 0 -

As far as we are aware, Motorola Computer Systems is out of the picture in the auction for Gould Computer Systems, but Concurrent Computer Corp may not have the field to itself: the eagle-eyed have spotted a mystery third contender..PAGEL

- 0 -

Sequoia Systems Inc of Marlborough, Massachusetts has joined the growing band of Unix systems builders offering the Universe Pick-under-Unix from VMark Software Inc, Natick - despite the fact that its own Topix environment supports Pick and Unix concurrently (Universe emulates Pick under Unix; Sequoia gives VMark its first fault-tolerant box.

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Plans for Advanced Computer Communications, Santa Barbara, to buy the Wollongong Group, Palo Alto, are on hold: the two have suspended talks.

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Turns out that the \$10,000, 17 MIPS Unix workstation on the way from Everex Systems Inc (UX No 218) will be based on the 80386-based Everex Step 386 machine with a Motorola 88000 co-processor board.

- 0 -

The MAI Basic Four Inc bid for Prime Computer Inc threatens to become the longest-drawn out in the history of the computer industry: the company has now been told that the US Court of Appeals in Boston has granted MAI's motion for an expedited appeal to the ruling that it can't proceed with its bid until it reveals more financial information, and has scheduled a hearing of the appeal for Thursday March 2.

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Correction: Andrew Fox is Amdahl Corp's marketing manager for Unix systems in Europe; his title was incorrectly given in UX No 218.

Sony Corp may show its first MIPS Computer Systems Inc RISC-based workstation as early as May: the new generation of workstations will be one of the first on the market to use the 20 MIPS R3000 chipset according to Mips Computer Systems Inc President Robert Miller, using the 20 MIPS R3000 processor, at the Uniforum trade show in San Francisco, starting February 28: Miller said the two began talks six months ago.

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Altos Computer UK managing director Archie Thomas resigned his position last week, reportedly to "pursue his own interests", only a few months after his appointment as vice-president, Northern European Operations at the systems company.

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Software house Freedom Hard Co of Yokohama has developed a local area network communications system called Woodpecker, claimed to run 10 times faster than Sun Microsystems' Network File System on local networks of 10 or more stations: the software can be used on Sun Microsystems and Sony Corp workstations; prices for a basic system start at \$1,440, and the first year sales target is 3000 copies.

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Intel Corp has filed a civil suit against ULSI System Technology Inc, Santa Clara, California alleging that the company misused trade secrets and confidential information in the development of a plug-compatible alternative to Intel's 80387 maths co-processor: it reckons ULSI has had access to confidential data on the 80386, 80387, and N-10.

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Novell Inc has licensed Sun Microsystems Inc's Open Network Computing/Network File System technology as part of its effort to meet its commitment to Unix workstations running the File System under its NetWare network operating system.

- 0 -

Fujitsu Microsystems of America has taken Capital Software Ltd's Envision software for high volume document storage and retrieval on write-once optical disks, and will offer it on its Series 2000 Pick machines as a complete system, including a document scanner at from \$39,000.

Another radical restructuring at AT&T Co is on the way, although the only change expected at the Data Systems Group is that Robert Kavner's title will change to group executive from president; elsewhere AT&T wants to give managers lower down profit-and-loss responsibility and eliminate arguments over what product or service expenses should be charged to, and to reduce the present system of decision by committee: as a result of the changes, the company is expected to end up with between 15 and 25 business units, each run as a profit centre under a manager with more autonomy.

- 0 -

Pyramid Technology's chairman and CEO, Dick Lussier, revealed last week that the company was talking to a large US-based computer firm interested in an OEM deal for the new Corporate MServer (UX No 218), and expected an announcement to be made "in the next few months": current OEM Nixdorf Computer is also expected to take the new high-end machines to fit above its Targon range.

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DATA GENERAL FIGHTS BACK WITH FIRST RISC-BASED SYSTEMS

Data General Corp, previously one of the most stubborn opponents to the general computer industry rush towards open systems, has swallowed its pride and bet its future on a new range of "industry standard" hardware, due for announcement on the eve of San Francisco's Uniform Unix exhibition. The new machines, unnamed as we went to press, are the first results of Data General's pact with Motorola last April (UX No 176), and are based on Motorola's 88000 Risc processor - Data General is the first major manufacturer to announce its support for the chip, apart from Motorola's own computer systems division. The new hardware includes a 17 MIPS workstation and a multi-user/server, both based on single board technology, and running Data General's DG/UX 4.1 Unix implementation. The workstation, using a 16.67 or 20MHz 88000 with integrated floating point and two 16Kb cache and memory management units, comes in a 16 x 16 inch chassis, 2.5" high, with from 4 - 28Mb memory (using single in-line memory modules), a 20" mono or 19" colour monitor with 1280 x 1024 resolution at 70Hz, graphics hardware accelerators, Ethernet and RS-232/422 communications, SCSI bus, and up to three desktop housings for 5.25 inch disk drives. The stations support X- Windows and can be used as a diskless NFS node. No prices were available before the announcement, but the company was promising that the workstation could be had "for the price of a PC". The first of DG's new multi-user and server hardware range is a deskside unit supporting single or dual 20MHz 88100 processors, with two CPUs and up to 16Mb of ECC memory on the single board. A ten slot VME bus allows further memory and VME board extensions. As a multi-user system, DG reckons the machine can support up to 512 asynchronous devices using only four VME slots, through a terminal services system which handles character interrupts and buffers data at the cluster control level. Up to three 322-Mb disks can be housed within the cabinet. Both workstation and system models are the first of a new family, according to DG.

AT&T TO SHIP OPEN LOOK SOURCE CODE BY END OF MARCH

AT&T has reached the next stage in the introduction of its Open Look user interface with the announcement that source code for the graphical Unix interface and X Window toolkit will be available for shipment by the end of March. AT&T first introduced Open Look, which it developed in association with Sun Microsystems Inc using technology licensed from Xerox Corp, back in April 1988 (UX No 175), as a written specification and style guide. It provides users with a multi-windowed environment, and allows "pop up" menus to be accessed anywhere on screen, and kept on screen by "pinning" them with graphical push pins. Other features include stacks of push buttons for program access, and an elevator at the side of the screen to show position in a document. AT&T says it has now sent copies out to around 60 beta test sites. Available from AT&T's newly established Unix Software Operation, the products will include source code for the Open Look End User System, which allows an end-user to run Open Look graphical and text applications, and for the Open Look X Toolkit, including an X "widget" library, for programmers creating applications that use Open Look. Based on X Windows 11 release 2, the toolkit runs on top of AT&T's XWIN implementation of X Windows for Intel 80386-based systems. Along with the software, the company also released a trade mark guide, setting out terms and conditions for licensing the source code of both Open Look and XWIN.

INTERGRAPH UPGRADES RISC

Intergraph Corp, which claims to have the largest stand at Uniform this year, is set to introduce a new workstation product based on an enhanced version of the C300 Clipper chip, rated at 20 MIPS. Intergraph, with announced its first C300-based workstation - the 10 MIPS 3070 - back in October last year, says the new performance is the result of adding large external caching to the chip. The company is expected to reveal workstation and server configurations: at the beginning of the year it announced that it would sell hardware unbundled from its CAE/CAD software for the first time, and is now becoming increasingly interested in the general commercial computer markets. Software announcements should include Relational Integrated Services, a layer between applications and database on the network designed to facilitate transparent distributed databases across the network.

INTEL UNVEILS N10

Intel was set to reveal marketing and sampling information on its N-10 Risc processor on the Monday night preceding Uniform - technical issues were fully described at the International Solid State Circuits Conference in New York earlier this month (UX No 219). As well as providing a name for the highly integrated, 64-bit, 50 Mips chip, Intel will presumably explain where it will target the chip: all the major workstation vendors have now chosen their next generation CPUs, leaving only a few of the proprietary mini-makers still looking for an entry into high performance Unix markets. Only the news that IBM and Apple Computer have been sampling the chip puts future market share predictions on a more optimistic footing. It has been suggested that IBM could use the chip for future generations of the RT, although that would mean IBM abandoning work on its own ROMP Risc processor. Full details of the Intel announcement next issue.

CYDRONE LIQUIDATING

An orderly run-down of its activities leading to liquidation is under way at minisupercomputer manufacturer Cydrome Inc, Milpitas, California. The company designed a Directed Dataflow symmetrical multiprocessor, but never recovered from the body blow dealt it when Prime Computer Inc abandoned marketing of the Cydra 5 machine last July, writing off its Cydrome stake (UX No 190). Cydrome installations included a machine at Stanford University.

AT&T SECURE UNIX NOW GENERALLY AVAILABLE

With concern over the security of commercial Unix installations mounting following the series of security breaches and virus scares recently, AT&T is making its multi-level security extensions to Unix available to the general marketplace for the first time. System V/MLS has previously been available only to the US Government. "Commercial customers share the government's concern about safeguarding sensitive information" said Unix Software Operation president Larry Dooling, who claimed that the product would give customers control to implement security classifications for individual projects and administer secure systems "without alienating the users". AT&T has submitted System V/MLS to the National Computer Security Center for evaluation, and hopes to achieve a B1 security level rating based on the Department of Defense "Orange Book" guidelines.

...AND MORE TOOLS FOR AT&T AOE

The Data Systems Division of AT&T has expanded the set of programming tools it will support on AT&T hardware platforms, as part of its Application Operating Environment. The products include a Fortran compiler and debugger for the AT&T 6386 WGS computer, including LPI-Fortran and LPI-Codewatch from Language Processors Inc, Waltham, Massachusetts; version 5.1 of Oracle Corp's SQL relational database and toolset for the WGS and 3B2 series computers; and Informix-Net from Informix Corp, a distributed database tool running under StarLAN or TCP/IP.

OPUS, EVEREX CHALLENGE WORKSTATION MARKET WITH 88000 PUSH

Co-processor specialist Opus Systems Inc is moving into the systems business following a development and marketing agreement with PC manufacturer Everex Systems Inc of Fremont, California. The two companies have developed a new line of high performance PC-based workstations using Motorola's new 17 MIPS 88000 Risc processor, alongside an Intel 286 or 386 processor used as an input/output subsystem. The Opus version, launched just before Uniforum, is the Personal Mainframe Series 8000, which features up to 20Mb on-board memory, high resolution graphics terminal and mouse, Ethernet controller, hard and floppy disk drives, Unix System V, X-Windows, and the ability to run Unix and MS-DOS simultaneously. Prices start at \$9,995. The Everex version, said to be substantially the same, will be launched during the show. Options include tape cartridge back-up, high capacity ESDI hard disk, and multiport adaptors, along with NFS, and a Berkeley programming environment with BSD utilities system calls and library calls. Opus Systems marketing manager Tom Lacey said the association with Everex had speeded up the Cupertino, California-based company's entrance into the systems market, and allowed Everex to upgrade its PC systems to take advantage of the lucrative workstation market. Opus has also launched a separate co-processor board for OEMs, the Series 400 Personal Mainframe board, with prices (including Unix) ranging from \$5,000 to \$12,000, and still produces co-processors using National Semiconductor 32000 and Intergraph Clipper chips. Availability is scheduled for the second quarter.

88OPEN CONSORTIUM LAUNCHES SOFTWARE INITIATIVE WITH 30 SUPPORTERS

Thirty independent software vendors committed to support Motorola's 88000 Risc processor last week in a new initiative from the 88open Consortium. The consortium's new Software Initiative Organisation will also be responsible for certifying that software is compatible with the 88000's Binary Compatibility Standard, based on Unix V.3 at present, but also set to be compatible with Unix V.4 when it is released later this year or in early 1990. Initial backers of the organisation include Frame Technology, Informix Corp, Insignia Solutions, Phoenix Technologies, Relational Technology Inc, and Fortran compiler developer Absoft. Hardware vendors with products or plans for the 88000 series so far include Data General, Integrated Micro Products, Motorola Computer Systems, NCR, Sanyo Icon, Tadpole Technology and Tektronix. 88Open now has around fifty members in total.

CONCURRENT BOOSTS REAL-TIME UNIX - PLANS MIPS LINE

Concurrent Computer's Uniforum efforts will be concentrated on a live demonstration of its future release Version 5.0 RTU real-time Unix operating system, which runs on the Concurrent (previously Masscomp) 6000 range. The new version, a development of Masscomp's RTU version 4 operating system, reportedly bridges the gap between real-time response on Unix when compared with Concurrent's proprietary OS/32 operating system, as used on the Series 3200 superminis, which according to Concurrent typically deal with 100,000 interrupts per second. RTU Version 5 is expected to be compliant with Unix System V.3. Concurrent says it will also be demonstrating connectivity between its Unix and OS/32 machines at the show. Having now fully completed the merge between the old Concurrent Computer Corp and Masscomp Computer Corp initiated back in August last year (UX No 191), the Westford, Massachusetts-based company has said that it is working towards an integration of its currently separate hardware lines around a Risc platform within two years. Industry sources suggest that Concurrent is currently working with Risc processors from Mips Computer Systems Inc on a new line of hardware including up to eight CPUs, each rated at around 25 MIPS.

GSS TURNS PCs INTO X TERMINALS

PC graphics supplier GSS Inc of Beaverton, Oregon, has launched PC-Xview, allowing DOS-based PC users to access Unix-based X Window applications via Ethernet. According to GSS, the product allows a PC to be used as a low-cost X terminal, giving users the ability to hot-key between Unix windows and DOS without interrupting X applications. The software supports mouse devices from Microsoft, Logitech and Mouse Systems, and runs within 640Kb of memory, although a future LIM 4.0 expanded memory is scheduled for future release. EGA, VGA and graphics boards implementing the Direct Graphics Interface Standard are supported. List price is £295 in the US.

INTERACTIVE TO BUY LACHMAN ASSOCIATES

Underlining its commitment to the Unix systems software market, Eastman Kodak Co of Rochester, New York has agreed for its last acquisition in the field, Interactive Systems Corp, Santa Monica, California, to buy up and coming Unix communications software specialist Lachman Associates Inc. A definitive agreement is expected within 90 days. Interactive was an early implementor of Unix versions for specific hardware architecture, and contributed some of IBM's early Unix offerings; it is now majoring on Unix for the Intel 80386. Lachman Associates is best known for its networking and telecommunications services and products, which include implementations of Network File System, the TCP/IP protocol, and Integrated Systems Digital Networking software. The move, says Interactive, is a major step towards its strategic goal of being the leading supplier of systems software products and services in the Unix and Open Systems markets. Based in Naperville, Illinois, privately held Lachman Associates employs over 170 staff.

**RTI UNVEILS \$20m INGRES
"COOPERATIVE ARCHITECTURE"**

Relational Technology Inc yesterday accompanied the UK launch of Ingres Release 6 with the revelation that it is part of a planned Cooperative Systems Architecture environment. This is Relational's answer to emerging user demands for a system that looks, feel and act like one system, regardless of its components. Ingres 6 can be networked through Unix, VMS IBM MVS and VM operating systems, IMS, DB2, SQL/DS, RDB and other Ingres databases, as well as supporting X-Window, Presentation Manager, the Open Software Foundation's Motif and AT&T's Open Look user interfaces - in any combination - through a plethora of gateways and network protocols developed by the Alameda, California based company over the last two years. One Ingres interface is presented throughout the system, and programs written using Ingres tools can be stored in and accessed from any part of the system, not just the local operating system. Ingres 6 supersedes both Ingres/Net and Ingres/Star and customers can buy the various bits and pieces for their individual systems - which fit on top Ingres 6 - from June. Ingres 6 hit the US in December but the new Architecture is not due there until April. 90% of Ingres was rewritten for the major new effort, which cost \$20m.

RANK XEROX TAKES 43% OF FRENCH UNIX EXPERTS

Rank Xerox is getting into the Unix systems business through its French subsidiary Rank Xerox SA, which is taking 43% to become the largest single shareholder in a new holding company, Axis International SA, capitalised at \$500,000 and formed to take over the Axis Digital SA group, headquartered in Boulogne Billancourt, just outside Paris. The operating companies coming under the new holding company will be Axis Digital France, Axis Digital Italie, Axis Digital Suisse, Axis Design and Alias. The move is in response to Xerox Corp's new strategy of taking its XNS Xerox Network System architecture into the Unix world. Axis Digital is primarily a Unix services and support house and will bring to Rank Xerox its integration skills for marrying XNS and Unix, its training arm, which turns out sales and support engineers for Unix systems, and test products and services. Since by this move, Rank Xerox is making it clear that it is in the market for Unix services companies, it may well also be interested in Sphinx Ltd, the one-stop Maidenhead Unix shop that's for sale.

NCR TOWERVIEW INCLUDES IXI X.DESKTOP

NCR Corp is expected to launch its new Towerview range of intelligent terminals designed to run X-Windows in Europe early in March rather than at Uniforum this week (UX No 219), but it has been showing key customers the devices for some time now, and a close look at old brochures from software partner IXI Ltd reveals a sneak preview photograph of the machine - without badge of course - running the IXI X.desktop package. The system will join competitors Network Computer Devices Inc and Acer Counterpoint who have already launched similar products, and last week MIPS Computer Systems Inc also included a low-cost X-display workstation amongst its new range of graphics workstation products. Meanwhile IXI Ltd, a small UK company from Cambridge is getting hard to ignore: at Uniforum it is to be seen on systems from Biin, Motorola, Network Computing Devices, Sony, Sun and Tektronix, and working with software from Locus Computing, Uniplex and Unipress, Versions for Apollo, HP and 386-based workstations are also available.

DELL CONFIRMS UNIX PLANS

Dell Computer Corporation has confirmed its intentions to enter the multi-user market with its own implementation of a merged Unix/Xenix operating system for Dell 80386-based hardware (UX No 218). Claiming to be amongst the first companies to execute a trademark license from AT&T for use of the Unix name, the company said it would unveil its first product, Unix V/386 3.2 for Dell System 310 and 325 systems, on the first day of Uniforum. The product is the first to be released by Dell's new Unix development team, assembled under former AIX development manager Glenn Henry, who joined the company last year after 21 years at IBM, and includes simultaneous access to MS-DOS and support for X-Windows: it is a modified version of Interactive Systems Corp's System V/386. Dell will sell the systems in the same way as its PCs, through a direct relationship marketing strategy, and plans to install Unix on the systems at the production line stage, rather than leaving installation to the user. 310 and 325 systems also support DOS and OS/2, which can be partitioned on the same disk and selected at boot time. Other software bundled with the system will include TCP/IP, NFS (from Lachman Associates), VP/ix MS-DOS under Unix from Phoenix Technology and PC-Interface from Locus Computing. Prices will range from \$6,599 to \$11,950 for the 20MHz 310 for up to 16 users, and from \$8,199 to \$13,550 for the 25MHz 32 user machine. A basic Unix-ready System 310 or 320 will come with 4Mb of RAM, 90Mb hard disk, floppy disk drive, VGA monochrome monitor, and six open expansion slots. Options will include tape backup, 150 or 322Mb hard disks, and RAM to fill the 16-meg capacity. Dell is also offering dumb terminals and 3Com's EtherLink adapter cards. Worldwide sales of 386-based Unix systems should reach almost 200,000 units in 1989, and exceed 400,000 units by 1990, according to research carried out by the company.

JSB PC MULTIVIEW CONNECTS MS-DOS TO UNIX

UK software developer JSB Computer Systems of Macclesfield in Cheshire will be taking its Multiview Desktop user interface for Unix and Dos along to Uniforum. Multiview, which was previewed at the European Unix Show last year (UX No 183), enables PC users running DOS and connected to a central Unix server to access remote Unix or local DOS applications via a Microsoft Windows environment, or through JSB's existing Multiview interface, allowing links to several different applications at the same time. Multiview Desktop will be shown on various machines running SCO Xenix and Interactive V/386. there are likely to be some bundling deals in the future. Cost is £95 in the UK, availability in April.

PHOENIX IN UNIX PACT

Phoenix Technologies Ltd, Norwood, Massachusetts, has signed a licence licensing agreement with AT&T Co under which Phoenix will offer standard versions of Unix System V.3 for a variety of processor types. Phoenix is planning to announce a number of marketing and product initiatives to help accelerate the emergence of a Unix and MS-DOS workstation cloning industry, and is rumoured to be collaborating with Sun Microsystems Inc on the packaging of Sun operating system software for workstation cloners.

PHILIPS LANDS £2m INLAND REVENUE SALE

The Business Systems division of Philips Telecommunications and Data Systems UK has been chosen by the UK government to supply hardware and software for the Inland Revenue's Office and Management Support System, OAMSS. Philips won the £2m contract at the expense of final contenders ICL and Nixdorf; over 100 companies were given initial project consideration. On the hardware front, Philips will supply 700 of its Motorola 68000-family P90X0 Unix workstations, and a range of 200 desk-top-to-laser printers. Software installations comprise Uniplex Corp's Stock Control, Purchasing and Procurement software, and an Informix relational database. The contract also covers the provision of X25 links to IBM and ICL mainframes, via the Government Data network, and an X400-based electronic mail system. Full scale installation at 19 different Inland Revenue locations is due to begin in March; national sales manager Richard Blake believes the majority of the systems will be up and running by October. Hand-in-hand with installation comes a training programme for some 500 employees; with OAMSS, the Inland Revenue aims to place a workstation on all professional and managerial desktops. Marketing manager John Williams claims that top priority has accordingly been given to ease-of-use and system integration considerations, primarily through the provision of consistent user interfaces, and the automation features offered under Unix 5.3. The contract is the first major government contract to be won by the Colchester-based Business Systems arm, which contributed £100m of the £2,000m turnover reported by the Telecommunications and Data Systems division last year. The latter has now been identified by Philips, with components, defence, and mobile radio, as one of the company's four key areas for future growth.

AT&T SELLS QNX-BASED PCs TO RAMADA

AT&T has sold over 550 of its 6386 PC workgroup systems to Ramada Inc, owners of the Ramada and Renaissance chain of inns and hotels throughout the United States and Canada. The PCs, which run the QNX Unix-like operating system from Quantum Software Systems Ltd of Ontario, Canada, will network with Ramada's RoomFinder III reservations system, based in Phoenix, Arizona. Each system will support up to five terminals. QNX is a distributed processing Unix-like operating system for Intel-based hardware.

WYSE UNVEILS TOP-END XENIX MODELS

Wyse Technology Corp, San Jose has expanded its personal computer family with two high-end models. Called the WY-3225 and the WY-2116, the AT-alikes have been designed as both single and multi-user machines. The WY-3225 uses a 25MHz 80386, is the new line-topper and supports up to 24 active users, the 16MHz 80286-based WY-2116 up to eight. Out in May priced from \$8,600 and \$2,900 respectively, they support Xenix and MS-DOS.

COROLLARY EXPANDS TO TEN CPUs

Irvine, California-based Corollary Inc has expanded its multi-processor hardware and software offerings with the 386/smp shared memory multiprocessor subsystem, designed to provide OEMs with a binary-compatible upgrade path for 386-based PCs. Corollary first upgraded its 80286-based ATtain multiprocessing technology to the 80386 at Uniforum last year, offering support for up to four processor modules, but later in the year was revealed as the company behind Zenith Data Systems' multi-processor 80386 Z-1000 box (UX No 185), unsuccessfully bid for the Air Force AFCAC 251 project won by AT&T. Zenith used an upgraded version of the ATtain technology using 25MHz 80386s to produce an (as yet unannounced) 15 MIP, 64-user system, and Corollary later introduced its own version, the six processor ATtack system (UX No 195). At Uniforum, the company's 386/smp is a further extension, allowing up to ten processor modules with 64Mb memory to be used. The system includes the proprietary 64-Mb per second C-bus for processor and memory traffic alongside a standard AT-bus for peripherals, up to ten 386 processor boards, memory and operating system software. The modular design will allow for evolution from AT to EISA bus in the future, according to Corollary. The operating system, based on SCO Xenix has an extended multiprocessor kernel modified by Corollary under licence from the Santa Cruz Operation: it overlays the standard kernel and is binary compatible, allowing off-the-Unix and Xenix applications to run unchanged. Symmetrical multiprocessing is achieved by dynamically allocating user programs and system code to all available processors, while the software detects the number of processors and spreads the load among them. Each CPU has an independent 64Kb "write-back" cache, and one processor remains an AT-compatible computer, allowing existing I/O driver code to be run without change. OEM prices for a typically configured core system start at under \$10,000.

HEWLETT TAKES 5% OF NETWORKER 3COM

Hewlett-Packard Co is making it a practice to cement commercial partnerships by taking minority equity stakes in its smaller partners, and the latest to benefit is 3Com Corp, San Jose, in which Hewlett will initially take up to 5%. The collaboration with 3Com on distributed computing covers products that will combine 3Com's 3+Open LAN Manager operating system; the HP LAN Manager/X version for Unix being jointly developed by Hewlett and Microsoft; TCP/IP; network management under the HP OpenView architecture; electronic mail; and Hewlett's NewWave environment. The two firms will work together to promote LAN Manager as a standard across multiple computer types, and Hewlett has a letter of intent for an OEM contract for 3+Open, to be the basis of HP 3+Open LAN Manager for OS/2.

INSTRUCTION SET HELPS FILL SKILL SHORTAGE

The long-established UK software technology specialists The Instruction Set will be introducing its range of consultancy and training services at Uniforum following the recent establishment of its US office in Boston, Massachusetts. According to Richard Medlock, chief executive officer of The Instruction Set's US operation, the new company will help to fill the open systems technology skill shortage. "Our European success means that we already have many leading US clients, and our experience in Boston to date has shown that we can look forward to a rapid expansion of our US client base", said Medlock. Having opened its Boston office in January, the company claimed to be already exceeding its targets. The Instruction Set specialises in operating systems, networking and communications, human computer interface, software development tools and project management skills.

WILL THEY OR WON'T THEY - IBM KEEPS QUIET

IBM was keeping very tight-lipped about its plans for Uniforum as we went to press on Sunday evening, although it was looking increasingly unlikely that the expected power boost for the RT workstation would be among the announcements - despite the ideal opportunity the show would afford. The best IBM has said is that the machines will surface "this year", and that the machines will match or better the top workstation in the market, which it sees as being the DECstation Mips Computer Systems Inc Risc-based machine. But in the same interview the company indicated that the new models would not arrive until the third quarter, by which time a whole host of workstations, led by a string of fast Sparc-based systems, will have hit the market and moved the goalposts one more time. Other announcements we might look for include more details on what IBM intends for the NeXT Inc NeXTStep graphical user interface, and news on an IBM database development for the RT. And what about the new "advanced" version of AIX? The Open Software Foundation has already said that it expects to have saleable code of its own version of the new AIX by June (LIX No (217).

NETWORK BACK-UPS FOR OPTICAL DISKS

17-year old electronics manufacturer Zetaco Inc, of Eden Prairie in suburban Minneapolis, is using Uniforum to introduce a new data archiving system for Unix-based networks. The NETstor Archivist is a software and hardware package that can automatically archive data onto optical WORM (write once read many) disks for permanent storage. Acting as another workstation attached to an Ethernet network, the product serves all workstations via TCP/IP with on-line access to archived files. According to Zetaco, the approach wins over the conventional use of magnetic tape back-up by allowing a centralised control of archiving and back-up for higher reliability, and allows for the faster and more convenient restoration of archived data. Multiple 12" WORM drives can be used, with "juke boxes" available to store up to 190Gb of data. Residing on a Sun-3 workstation, the NETstore Archivist can poll the disks of all TCP/IP workstations on the network, automatically archiving data under command options specified by the network administrator, without operator intervention. It can then be restored by the administrator, or by password-holding users to any target workstation. Zetaco will supply the system as software and optical drive only, or as a complete system including Sun workstation and disk drives, including optional juke box. Prices range from \$35,000 to \$200,000.

SNIFFER AIDS X-NETWORK OPTIMISATION

A network analysis tool that should ease the integration of X-Window based workstations into Unix and VMS environments is to be launched at Uniforum this week by Mountain View, California-based Network General Corp, following a joint technology exchange with neighbouring firm Network Computing Devices Inc. The X Window Sniffer was co-developed by Network General and Network Computing Devices, and is a diagnostic tool which will allow service engineers and users to monitor a network and capture and analyse its data packets. According to NCD's Judy Estrin, the Sniffer will allow the optimisation of X-Windows running across a multi-vendor environment. "The tools can help an engineer tune the system for higher performance by determining where bottlenecks are likely to occur, or they can help software developers write X applications in a way that minimises network traffic". The Sniffer - full name Sniffer PA-1311 X Protocol Interpreter - runs on the Sniffer family of laptop or portable network analyser hardware for Ethernet, Token Ring, StarLAN ARCNET and IBM PC broadband networking. Other Sniffer protocol decoders are available for OS/2 LAN Manager, Banyon Vines, Novell NetWare, TCP/IP, LU6.2, DECnet, NFS, ISO and AppleTalk. The X Interpreter, which costs \$995, will be available for Unix and VMS TCP environments by mid-April, or DECnet within three months - additional TCP/IP or DECnet protocol suites are also required. The Network General P300 Laptop, and the P400 and P500 portables range in price from \$15,750 to \$24,000.

Uniforum Software Roundup

Text retrieval specialist Fulcrum Technologies Inc has introduced a new client/server distributed processing architecture version of its Ful/Text package, which supports remote searching of document collections across local and wide area networks: Ful/Text runs on a variety of MS-DOS and Unix-based systems, and is a free form, full text retrieval system popular amongst commercial software developers wanting to include text retrieval facilities within their packages - Hewlett-Packard Co, Data General Corp, Siemens AG, Nixdorf Computer, Philips International BV and ICL are amongst the Ottawa, Canada-based company's OEM customers.

Cadam Inc, Burbeck, California, which claims to be the world's largest supplier of computer-aided design, manufacturing and engineering systems, has announced a range of hardware independent software, Professional Cadam: this is the second generation of a software package originally available only on the IBM RT, but now able to be sold on Apollo Computer and Sun Microsystems workstations, due to the isolation of all hardware specific code into an easily modified portion of the program called PowerLink - industry graphics standards and Sun and Apollo networking standards are also supported.

Glendale, California-based software house MCBA has completed its ambitious 19-module MCBA Classic manufacturing software system for Unix-based computers with the launch of the final package - Capacity Requirements Planning: the full system runs on NCR, Compaq and Altos hardware using Motorola 680X0 or Intel 80X86 processors, and is deemed suitable for small to medium-sized job shops and discrete repetitive manufacturers.

Abraxus Software, from Lincoln, California, will be showing its Athena 4GL wholesale distribution and accounting system at Uniforum, written using the Accell fourth generation language from Unify Corp: but in case the attractions of such a system are not sufficient to draw huge crowds to its stand it is also offering a trip for two to Athens, drawing a name from the business cards of attendees who stop by for a product demonstration.

Quicksilver for Unix, said to be the world's first dBASE compiler for Unix environments, will be shown at Uniforum running under Interactive's 386/ix - Quicksilver adds windows, graphics, and a range of other functions to the dBASE language while remaining file and syntax compatible with dBASE III Plus: Orinda, California-based WordTech Systems, which introduced its first dBASE compiler back in 1984, says it is currently working on ports for SCO Xenix and other Unix versions, and will ship the first products in the second quarter of the year.

And Finally: Empress Software is releasing Version 4 of its relational database management system - Comtrol Corp and The Santa Cruz Operation have signed a VAR/distributor agreement to bundle SCO Xenix in with Comtrol multi-user boards - Chuck Hickey, the founder and President of Microport Systems Inc will be at Uniforum with his new company, Unistar Software - compiler developer Green Hills Software will be talking about its recent merger with Oasys of Waltham, Massachusetts - Epoch Systems Inc will be showing its Epoch-1 Virtual Disk Architecture storage technology, said to integrate magnetic and optical disks for application transparent on-line storage - Motorola Inc's message to Uniforum attendees appears on a billboard over the main freeway into the City by the Bay - "We like RISC takers".

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Along with its Open Look and Secure Unix announcements at Uniforum this week, AT&T is also launching its System V Application Verifier, for testing the conformance of applications to the System V Interface Definition, and a multinational language supplement for System V Release 3.2.

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And AT&T says it has "updated" Unix System V/386 Release 3.2 to include support for Locus Computing's Dos under Unix package Merge 386, and has added system and Remote File System administration facilities, source code for PC AT and Multibus I and II drivers, and support for additional graphics boards.

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Uniforum attendees will have a chance to see the much hyped NeXT computer system on Relational Technology Inc's stand, where it will be running the NeXTStep windowing package acting as a front end to the Ingres relational database: Ingres versions for the NeXT computer, and for the recently announced Mips-based DECstation 3100, will be available in the second quarter of the year.

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Bugs showed up in version 0.8 of the system software on the NeXt Inc computer during its recent showing at the ACM Computer Science Conference in Louisville, Kentucky recently, reports Microbytes Daily, causing the wrong pictures to be displayed with definitions from the database of Webster's Dictionary, bundled in with each machine: however, demonstrators were able to amaze on-lookers by searching the optical disks to prove that Shakespeare used the word "love" only 76 times in the seven megabytes of his Complete Works.

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The show-wide vendor network installed around San-Francisco's Moscone Center for Uniforum this year has a 10Mb twisted pair backbone, external connections to Arpanet and NSFnet, and TCP/IP-based network management: installed by Hewlett-Packard Co and Cisco Systems Inc, Menlo Park, California, the network will have an operations center which will show available wiring and connections, and demonstrate the various directory, mail and network services provided.

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Prime Computer Inc is to offer Apollo Computer Inc's Network Computing System on its EXL supermicros.

AT&T has some new hardware waiting in the wings, which should be announced "within a month" according to industry sources.

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Aurora Systems Inc, a wholly-owned subsidiary of Chyron Corp of Melville, New York State, is planning to introduce a new line of workstations - the Aurora 3DS series - at the National Association of Broadcaster Convention at Las Vegas in late April: the workstations will combine three-dimensional animation software from Intelligent Light Inc, Fairlawn, New Jersey, with Chyron enhancements for video production, running on hardware from Apollo Computer Inc.

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Banyon Systems Inc has released a new version of its Unix-based Vines networking environment: Vines 3.10 supports the new Vines Applications Toolkit, which allows the development of distributed networking applications that can use the Vines security, administration, control and transparent communications.

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Active Memory Technology Inc has installed a DAP 510 massively parallel computer system at the Automation and Robotic Research Institute at the University of Texas at Arlington.

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AT&T Unix Europe is holding a series of two day seminars on Unix System V.4, grandly entitled Software Developer Conferences for Unix System Unification, during April and May: the three locations are Frankfurt (13-14 April), London (25-26 April) and Paris (9-10 May).

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The Fortran 8X standards effort, originally intended to replace the existing Fortran 77 standard some time this decade, looks as if will have to be renamed Fortran 9X: Microbytes Daily reports that the American National Standards Institute's ANSI X3J3 committee will have its final proposal ready for public comment this Autumn - vice chairman of the committee is Jerrold Wagener of Amoco Production Research in Tulsa, Oklahoma.

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The Wall Street Journal has now picked up the gossip of a bid for NCR Corp by AT&T, and NCR stock has been rising at the news: but apparently AT&T is not the only one interested in the Dayton, Ohio-based company, with other names mentioned being the Ford Motor Company and the ubiquitous Unisys Corp.

An interesting press launch has been scheduled for the first day of Uniforum: DEC, Locus Computing Corp, Relational Technology Inc, Santa Cruz Operation and Tandy Corp are due to make a joint announcement; although all parties were keeping a discrete silence on the announcement, we understand that the companies will introduce a cut price software package for 80386-based systems, including SCO Xenix with PC Interface from Locus, the Ingres database, the OSF Motif user interface and X-Windows along with DEC's X toolkit, all packaged and distributed by SCO, and costing less than Ingres on its own: although the price we had heard - \$995 - was the only aspect of the announcement that no-one would confirm; the package is presumably aimed at those who would otherwise consider OS/2, and will be offered - though not exclusively - on Tandy PCs, which DEC also takes and re-badges.

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IBM Corp's Gerry Lautenbach is the keynote speaker at the conference this year, and he will be followed on the Wednesday morning by AT&T Data Systems Group chief Robert Kavner - and rumours suggested that OSF chief David Tory might be speaking on the third morning of the show.

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Many in the Unix industry had hoped that AT&T and the Open Software Foundation would have patched up its differences at last year's Uniforum show in Dallas, Texas, but here we are, one year on with two sharply polarised industry groups: even so we hear there were moves afoot before the show to attempt some sort of reconciliation between Unix International and the OSF, centered around the common link of X/Open, and that at one stage a press conference had been pencilled in for Wednesday afternoon.

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Meanwhile the Open Software Foundation has apparently considered taking out full X/Open membership, saying that it is entitled to do so as a software developer (implying that Unix International would not be eligible): moves are afoot to clarify how both groups can work to implement X/Open's Common Applications Environment.

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DEC PULLS MULTI-USER MIPS RISC LAUNCH FORWARD FOR UNIFORM

DEC waited until the second day of Uniform before revealing its main Unix show-stopper - a multi-user version of the DECstation 3100 workstation technology introduced at the beginning of January, using the RISC CPU from MIPS Computer Systems Inc. Dubbed the DECsystem-3100, the new hardware uses the 16.7MHz R2000 version of the MIPS RISC with R2010 maths co-processor, and comes with Ultrix licence, X Window, DECwindows, TCP/IP communications and optimising C compiler, and is rated by DEC at 14 MIPS, 3.7 MFLOPS on the single precision Linpack benchmark. DEC is pitching the machine at the commercial multi-user, laboratory data reduction, and engineering simulation and analysis markets, and is touting the launch as a price breakthrough in multi-user Unix machines. It costs \$20,400 with 8Mb, three 332Mb disks and support for four users, \$22,004 with 8Mb, one 332Mb disk and support for eight users, and \$55,604 for a 32-user system with 24Mb and three 332Mb disk drives. It is taking orders now for ships in June. In the UK, a four user, 8Mb system starts at £10,000.

INTEL CHANGES RISC RULES WITH THE i860 - OLIVETTI, AT&T, IBM ADD SUPPORT

Those foolhardy major workstation vendors that have already chosen their next generation of CPUs had better think again, claims Intel as it launches its 64-bit floating point, 32-bit integer, million transistor microprocessor the i860. Heralded by the company as the vanguard chip for the next computer revolution, the i860 is a totally self-contained processor designed for high-speed multiprocessing systems, 3D workstations, and graphics subsystems. As previewed (UX No 219,220) the processor contains integer, floating point and graphics units, a memory management unit, and instruction and data caches on a single component and was designed with the desktop supercomputer of the future in mind. The main technical details have already been outlined in preview, but it is worth pointing out that the chip has a 32-bit RISC core (not 64-bit) and loads two 32-bit instructions in the same clock cycle sending them to integer and floating-point units for parallel execution. Another important point is that the performances claimed for the part at the International Solid State Circuits Conference related to a version of the chip clocked at 50MHz, and that will not be released in 1989. The 40MHz version of the part is rated by Intel at 33 VAX MIPS and 80 MFLOPS single precision. Olivetti says it has chosen the chip for "a broad range of RISC-based products" at the top end of its range, and along with Intel, AT&T and Prime Computer Inc is participating in the development of a multi-processor Unix operating system based on Unix V.4 for the 80386, i860, and upcoming 80486 chips - work which will incorporate features from Carnegie Mellon University's Mach slimmed down multi-processor version of Unix. A joint agreement between Intel and AT&T will also result in System V release 4.0 Application Binary Interface compatibility for the 80386 and 80486 architecture in the fourth quarter of this year - AT&T will publish the ABI specifications for general distribution. And Intel has been working with IBM to develop a bus master card, codenamed "Wizard", that will combine the power of the i860 with IBM's Micro Channel to accelerate applications for PS/2 - perhaps creating inter alia a lower-cost replacement for the IBM 5080 graphics display subsystem. A prototype version was demonstrated at Uniform. Intel is adamant that the i860 was really designed to give desktop supercomputing power built around multiple 860s bolted together, and predicts that such systems will be on sale next year for under \$10,000. The chip itself (to be manufactured in the CHMOS 4 process at Intel's Oregon and New Mexico plants) is available in sample quantities now, and will be available in 40MHz and 33MHz clock speeds in the third quarter of 1989 with prices starting at \$750 when you buy 1,000 or more. A starter kit for people wanting to get the feel of the thing includes the chip as a back-end to an 80386 running Unix System V.386 with C and Fortran, and costs \$24,500.

SUN MATHS CHIP FOR SUN-4

Sun Microsystems Inc has a floating point accelerator for its Sparc-based Sun-4 workstations that it says improves floating point performance 100% or more. The TI8847-based is rated at 2.2 MFLOPS in single precision Linpack work. It is out now at \$3,000 for the Sun-4/110 system.

PYRAMID ADOPTS NCD16 X-STATION

Pyramid Technology Inc, Mountain View, California has given X Window System workstation pioneer Network Computing Devices Inc its first big OEM contract, signing a \$5m two-year deal to incorporate the NCD16 stations as a key element in its new commercial user environment for its family of high-performance commercial servers. The 68000-based NCD-16 is a million-pixel graphical display tuned to run X Window, and connected to Pyramid servers will provide a workstation-like environment "at a fraction of a workstation's cost per seat". Volume shipments began this month. Network Computing Devices' management staff includes co-founders of Bridge Communications Inc and Ridge Computers Inc.

SCIENTIFIC SHUTS DOWN MINISUPER BUSINESS

Minisupercomputer developers are falling like autumn leaves, and the latest to exit the business is Scientific Computer Systems Inc, San Diego, which thought it was on to a sure thing with its SCS-40 minisuper, the key selling point for which was that it took Cray Research Inc's operating software - the machine runs both the Cray operating environments - right down to a \$500,000 entry price. The company has had to suspend operations at the SCS-40 division because its backers refused to come up with more money, and the company is now struggling to survive on the back of its embryonic VectorNet product line for very high-speed networking of high-end computers - but even for that it needs more cash and says it is looking for a partnership. The SCS-40 design team and some support staff have lost their jobs, but the company hopes to continue to support existing users. Staff is down to about 40, against 100 a year ago, and 180 at peak.

IMP RESURRECTS PARALLEL WITH FAULT TOLERANT XRS

The fault tolerant expertise Integrated Micro Products Ltd acquired when it bought Parallel Computer Inc, Santa Cruz, California, from General Automation in September of last year, (UX No 198), has now been incorporated into its IMP-Parallel family of systems with the release of two machines from the US company's range. The dynamic UK Unix manufacturer, IMP of Consett, Co Durham, is now bringing what it regards to be "the broadest possible range of binary compatible systems" to the market. All use Magix, a "fully standard" version of Unix V.3 - the fault tolerant element was developed jointly by Parallel and international software house UniSoft - and means that applications software will run across the whole range of IMP-Parallel systems, from workstations through to the multi user and fault tolerant machines. It has been revealed that on the basis of this, UniSoft is to license IMP's fault tolerant technology and will be responsible for marketing the software to manufacturers and system integrators. The fault tolerant machines, developed with \$5m of Parallel funds, use dual 68030 processors - the XR350 incorporates 16MHz versions of the chip, has 4Mb of RAM, and 155Mb to 500Mb of hard disk for 8 to 64 users. The XR650 uses 25MHz versions of the chip, and has 64 Mb RAM with 1.4Gb hard disk, for 32 to 128 users. Fault tolerant systems have traditionally been very expensive, due to the proprietary nature of the operating systems they have required. With the UniSoft seal of approval IMP hopes that its technology will become the Unix standard for fault tolerance. Deals with "major" companies are reported to be under negotiation, and IMP expects to achieve revenues of \$10m this year, up from the previous year's \$6m. Entry-level cost for the new system is £65,000.

GOULD COMPUTER: ENCORE NEXT IN LINE FOR ACQUISITION

Nippon Mining Co is finding it quite remarkably difficult to offload its Gould Computer Systems Inc unit, and there seems to be a revolving door operating as companies enter, take a look and exit again. Out have gone Motorola Inc and now Concurrent Computer Corp, and in has come Encore Computer Corp, which only just sold one of its units to Gould. According to Electronic News, the Marlborough, Massachusetts company is talking in terms of only \$150m to \$200m, where Nippon Mining had been looking for \$250m - equivalent to just one year's sales at the Fort Lauderdale, Florida minimaker. The paper reckons that if Encore revolves right out again, Nippon will turn to Elxsi Corp. At \$15.5m in its last fiscal, Encore is about one fifteenth the size of Gould.

DAVIN COMPUTER GOES PUBLIC BY REVERSING INTO SHIFRIN CORP

Davin Computer Corp, the Irvine, California company formed by Computer Automation founder David Methvin in 1985, is going public by reversing itself into Shifrin Corp, a quoted shell company. Davin was formed to develop a 64-bit minicomputer intended to sell for under \$10,000 in large OEM quantities. The machine, previewed in June 1987 as the BAT-64, is designed for transaction-intensive work under a proprietary real-time operating system called Darts, with Unix System V as an option (UX NO 135). Development has moved on since then, and the scope of the machine has been extended to support data communications, text processing, database processing, transaction processing, manufacturing control and similar applications; the machine will be marketed to systems builders and other OEM customers rather than end users. Prototypes have been built and production models are scheduled for delivery late this year after completion of a public share issue in the new company to finance operations. Shifrin Corp was formed by Vintage Group Inc as a shell with 2,000 shareholders with the aim of acquiring a private company.

SPIDER SYSTEMS GETS £3m VENTURE FUNDING

The Edinburgh-based networking company, Spider Systems Ltd, has successfully sought venture capital funding to enable it to expand its operations in the US and Europe. The specialist information technology venture capital fund led by Syntech (supported by County NatWest Ventures and CIN Venture Managers) will provide £1.5m for the development of US operations and to set up local offices in France and Germany. The money will also be used in research and development and in the expansion of the newly formed Spider UK division. A further £91.5m is to come from the Scottish Development Agency and through bank and European Coal and Steel Community loans to finance a purpose-built head-quarters and factory, Spider Park, in Edinburgh.

DG'S AViiON RISC SYSTEMS ARE DISTRIBUTED COMPUTING CENTERPIECE

Data General has bet the company on its AViiON family plunge into Unix running on Motorola Inc's 88000 RISC came to fruition at UniForum with launch of the AViiON computer system, servers and workstations (UX No 220), and the company outlined its plan for building a distributed, networked computing environment around them. The Marlborough minimaker reckons that the AViiONs are the first industry-standard, RISC-based systems and servers to incorporate two processors, and new with the machines is the DG/UX 4.1 implementation of Unix - which it claims is compatible with System V.3.1, BSD 4.2 and Posix, and which it hopes to license to other vendors. The system or server version of the AViiON uses a VMEbus and one or two 88000s, making it the first 88000 box to support symmetrical multiprocessing, Data General believes - the machine as a multi-user system is claimed to support up to 250 users and the dual processor model is rated by the company at 40 MIPS. The workstations come in a 2.5" high enclosure, with 4Mb to 28Mb of memory, with up to three 322Mb disks and 150Mb tape cartridge drives - choose your combination, performance is from 17 MIPS to 20 MIPS or so on the Dhrystone benchmark. Workstation prices start at \$7,450, system/servers at \$52,000. Production ships to software developers and system builders begin next month.

SUN MICROSYSTEMS RETURNS TO AT&T FOR ANOTHER \$79m

With the need to finance its superfast growth, Sun Microsystems Inc is going through cash like a Paddy on St Patrick's Day, and it has had to go back to its sugar mummy, AT&T Co, for another handout, this time a cool \$79m, which it says it needs for working capital and to expand its capital base (which latter enables it to borrow more easily if it has the need). The agreement with AT&T is a superb one, both for the company and its other shareholders, since it allows Sun to demand that AT&T buy new shares - up to a limit of 15% of the expanded equity - at a 25% premium to the closing market price for the previous 20 trading days. This time it is issuing 3.2m shares at \$24.632875 a time to raise another \$79.1m for the Mountain View, California workstation builder. By its calculations, it reckons that AT&T will then have about 13% of its equity; the agreement limits AT&T to 20%, including shares it buys from time to time in the market, by January 1991. Sun will now have to get by with what its got for a bit, because it is not permitted to return for another sub for 90 days.

SPARC VENDORS MOVE TO FULL SOFTWARE PORTABILITY...

The Sparc International Inc club formed by chipmakers fabricating versions of Sun Microsystems Inc's Sparc RISC are hoping to make machines based on different versions of the Sparc as interchangeable as MS-DOS micros, and to that end plan a Unix System V.4 Applications Binary Interface and testing procedure, so Unix programs can be retailed as freely as MS-DOS ones. The group, which is seeking a chief executive, also announced availability of the SunOS Unix for the Sparc through two third parties, Phoenix Technologies and Interactive Systems Corp. Hardware members such as AT&T, ICL, Solbourne Inc and Texas Instruments Inc all backed the move, but there was no news on when more SPARC-based hardware would become available, despite assurances of around 100 design wins currently in the pipeline.

...AS SCO OPEN DESKTOP PACKAGE CHALLENGES OS/2

IBM's ability to impose standards on the personal computer business will be severely challenged over the next couple of years, and this week's UniForum announcement of Open Desktop for 80386 (and 486) micros running Unix could well prove an even more serious challenge to OS/2 than the Extended Industry Standard Architecture bus poses to the Micro Channel. Open Desktop, put together by Santa Cruz Operation Inc with the help of DEC, Tandy Corp, Locus Computing Corp and Relational Technology Inc, is an integrated operating environment designed to give business and technical users of 80386-based AT-alikes the features and benefits of high-end graphical workstations at micro prices. Costing \$1,000 and out in September, with a software developers' version promised for next month, Open Desktop combines a standard graphical user interface, Relational Technology's Ingres SQL database, full networking and true virtual memory. Open Desktop therefore effectively gives single-user Unix micros - a multi-user version is planned - a complete alternative to OS/2 Extended Edition with Presentation Manager, right down to the ability - courtesy of Locus - to run multiple MS-DOS tasks concurrently with Unix. Although DEC and Tandy are the only manufacturers who have formally declared for it, Hewlett-Packard Co, NCR Corp, Unisys Corp, Zenith Data Systems, Data General Corp, NEC Corp, Olivetti & Co, Siemens AG, Wang Laboratories and Wyse Technology are all expected to offer it on their 80386 boxes. It is noteworthy that Microsoft Corp is hedging its bets on IBM succeeding with OS/2 - it has taken a significant stake in Santa Cruz.

SUN INTEGRATES OPEN LOOK, X11, XVIEW IN OPENWINDOWS

Also on the user interface front, Sun Microsystems Inc has unveiled its migration path to AT&T Co's Open Look graphical interface and X11 Window standard. OpenWindows integrates Open Look, X11/NeWS and a new XView toolkit, the latest generation of the SunView toolkit, which now implements Open Look on X11. Sun, which wants to pursue Apple into the high-performance personal computer market with its next generation Sparc-based machines, also has a suite of Mac-like applications, Sun Write, SunPaint and SunDraw that are based on the Open Look specification and designed to give users a low-cost, window-based environment for preparing WYSIWYG documents on a workstation, and the XView toolkit is designed to enable developers to create applications that use the Open Look specification. Sun is also giving XView to Massachusetts Institute of Technology for release as part of its X source code tape, so that anyone will be able to develop applications to the Open Look specification. A handful of evaluation copies of OpenWindows are available now, release to developers is set for spring, and full availability is scheduled for July. SunWrite, \$695, SunPaint and SunDraw, each \$495, \$1,000 the lot, use core technology from Island Graphics Corp of San Rafael, California.

NCR ADDS NEW TOWER 32/825 ALONG WITH TOWERVIEW

NCR Corp accompanied formal launch of its TowerView line of X terminals (UX No 220) with the Tower 32/825, designed for use in distributed processing networks, as a departmental system serving many users, or as the primary computer system in a small-to medium-sized business. Using from from one to six 30MHz 68030s with 40Kb cache and a 68882 maths chip apiece, the 825 comes in a 10-slot cabinet, and prices start at \$98,160. The Towerview X windowing graphics workstation consists of 68020 CPU with 15" 1,024 by 800, mouse and IBM PS/2-compatible keyboard; no price or delivery given.

DEC BACKS APOLLO NETWORK COMPUTING SYSTEM

Apollo Computer Inc and DEC are joining forces to extend the capabilities of Apollo's Network Computing System for distributing software programs across a network of disparate and incompatible computer systems. The pair will work together to extend the remote procedure call component of the system to support a broader range of distributed applications and services, including wide area networking, large applications, international markets and additional processors and protocols. The extended capabilities will be made available to third party software developers. The partners will announce the next phase of their joint effort in June.

IBM's "COMMITMENT TO UNIX" COMES OUT IN ITS TRUE COLOURS AT UNIFORM

It would be wrong to suggest that IBM was invisible at last week's UniForum event in San Francisco - with a prominent stand, RTs networking away like mad with 3090 mainframes on both sides of the continent, and top brass led by Terry Lautenbach and James Cannavino talking like mad from podia in the Moscone Center, there was heat galore from IBM. What was strikingly absent was any light. No new products of any substance - indeed IBM's regular Tuesday announcement last week was perfunctory in the extreme - users would no longer have to install their own RTs: IBM or its resellers would now do the work for them. Big deal. The 4381 Models 23 and 24 were also reprieved in the US, but that was hardly likely to set the growing army of Unix buffs salivating. By contrast, DEC, in many Unix supporters' eyes IBM's evil twin in precipitating the schism in the Unix world, exhibited unwonted showmanship, confining its first day announcement to an agreement with Apollo Computer Inc to extend the Network Computing System to cover additional heterogeneous processor types.

Minnows

The minnows of the Unix world - the ones who have done much of the hard work in turning the operating system into the whitest hope for common standards in the future, heaved a sigh of relief - with IBM apparently content to sit back and watch others make all the running at the show - its most striking announcement being the eve-of-show news that AIX/370 was late - and DEC relying on the lingering glow from its January announcement of the MIPS Computer Systems Inc RISC-based workstation, the lions of the computer industry could safely be dismissed as paper tigers - at least for the next few months. And then DEC upstaged everyone, but most of all IBM, by announcing in mid-show the multi-user DECsystem-3100 version of its MIPS processor, and its detractors had to eat their words in a hurry. Because the new machine is an out-and-out multi-user business computer - albeit one that is fitted out to do sums fast for armies of lab technicians and such as well. As a scientific machine, it sounds very interesting when used as a server to a string of the DEC RISC workstations, as a business computer, it makes it very clear that Hewlett-Packard Co is not going to have the traditional mini-based business systems market all to itself in the new Unix generation. San Francisco seems to have marked the turning point where DEC jumped down off the fence, came out and embraced Unix wholeheartedly and unequivocally. The contrast between the DEC and the IBM approaches could not have been more stark. IBM's Unix offerings consist of the RT, which stopped being a personal computer in IBM's parlance last year - hardly a bold, confident decision by the company, more like a deliberate attempt by the company to confuse the market as to just what the benighted machine is intended to be. Then there's AIX on the PS/2 line - but all the things that differentiate it from the generality of Xenix-derived offerings on 80386 personal computers are also late - promised for this March, they have now been delayed until the fourth quarter.

Usurious

Then there's AIX/370: also late, but clearly a grudging, inferior product anyway. Amdahl Corp, which has to spend a frightening 16% of its annual turnover on research and development to keep its mainframes ahead of those of IBM, which has a research and development budget perhaps 20 times as large, still finds the resources not only to do a native 370 implementation of Unix instead of one that has to run under VM, which by definition means that users have to donate a proportion of their super-expensive mainframes to the IBM benefit fund if they want to run Unix on them, but has also started to extend its UTS offerings to make use of the architectural advances that have been taking place in the 370 world.

The only conclusion has to be that Amdahl really believes in Unix, IBM does not. The heat generated by IBM's top brass at UniForum is in a time-hallowed tradition - that of spreading fear, uncertainty and doubt. Unix is as much of a threat to IBM's hegemony as it ever was, and it has to be in IBM's interest to keep the operating system as cribb'd, cabin'd and confined as it possibly can, lest the fact that the box is not "Unix-compatible" starts to inhibit users from buying the AS/400, lest large 3090 users start rebelling against the exorbitant cost of IBM software - and its not nearly as expensive as IBM intends it to be, because the company has a target of 30% of its revenues from software, and the present figure is only about 20% - and start putting Amdahl's UTS up in one Domain, MVS in another, and over time transferring more and more of their workloads over to the Unix Domain, where open competition promises to generate an unrivalled panoply of alternative applications at prices that make those charged by IBM seem usurious. It is unfair to suggest that no-one in IBM believes in Unix - many of the people working on Unix systems in Austin, Texas and in the various subsidiaries around the world believe in it as ardently as does X/Open Group Ltd. Indeed the top brass believes in it too - but only as a potentially mortal threat to IBM's hegemony. So we can expect IBM to continue to pay lip service to a full commitment to Unix while doing all it can behind the scenes not only to muddy the waters but discreetly to handicap its own Unix efforts - the designer of the RT himself is on record as saying that he designed the machine on the understanding that it would appear 18 months before it actually came out, and became more and more frustrated at the delays, as minnow after minnow came out with machines that outperformed what he had designed to be competitive during a very specific marketing window that had been closed tight shut by the time IBM agreed to sign the product off and put it on the market.

Watershed

UniForum '89 therefore can be seen as a watershed in two ways - it marks the point at which the Unix industry truly came of age, and the wealth of product announcements that dominated computer publication front pages all last week made it clear that the excitement that has been missing from the computer industry since the flood tide that swept MS-DOS to its dominant position, is back, and that Unix is the catalyst. And UniForum '89 was also the occasion when the emptiness of IBM's claimed commitment to Unix became manifest. The same company seldom dominates the personal computer industry for more than one cycle: Digital Research's CP/M and the Z80 took the 8-bit generation with Apple Computer and the Apple II close behind; IBM and MS-DOS took the 16-bit generation by a walkover; Open [Desktop makes it increasingly likely that Unix on a string of different processors will leave IBM and OS/2 as also-rans in the 32-bit generation - even Microsoft is hedging its bets. Where does that leave the other members of the Open Software Foundation? The entrance fees are a small price for IBM to pay to keep the Unix world in schism, but can anyone seriously believe that without IBM in it, the Foundation would be taken remotely seriously?

SEQUOIA BOOSTS TOP-END WITH SERIES 300

Sequoia Systems Inc of Marlborough, Massachusetts has now launched its top end Series 300 range of 68030 based systems running Pick and Unix as promised back in January, (UX No 214). The fault tolerant, on line transaction processing machines are compatible with existing Sequoia systems and can support up to 1,000 users. Each Series 300 box is capable of supporting up to 64 CPUs and is claimed to deliver 50% more performance than the Series 200. A 300 user version with four processors costs \$653,000 and is available now. Sequoia, which sells hardware and software technology on to the UK's ITL Information Technology Plc, is aiming to tempt customers away from traditional on line transaction processing system manufacturers such as IBM and DEC, as well as from fault tolerant vendors such as Tandem and Stratus. Sequoia has reported revenues of \$14.7m for the first six months of its fiscal year. Meanwhile ITL is working on its own hardware range, but will retain the Sequoia Topix operating system software.

WIDE INDUSTRY SUPPORT FOR PRIME-NOVELL PORTABLE NETWARE

Coming only a couple of weeks after it signed a strategic alliance deal with Prime Computers Inc, (UX No 214), networking specialist Novell Inc, of Provo, Utah, has announced Portable NetWare - a version of its NetWare network operating system - designed to be ported to host platforms and developed in conjunction with Prime and NCR. From April, source code licences for Portable NetWare are available from Novell, although no prices have yet been given. Companies will be able to port NetWare to their own system environments, and in turn pass the application on to customers. At present the product enables connection from DOS, OS/2, Mac and Unix workstations, to a range of mini and mainframe machines. NCR, Prime, Data General, HP, Intel, MIPS, Northern Telecom and Acer Counterpoint have already signed up for Portable NetWare licences, which is part of Novell's Open System Strategy. Novell says existing NetWare compatible applications will run unmodified in networks based on Portable NetWare technology. Companies intending to develop further applications include Oracle, Relational Technology, WordPerfect, Informix, Unify Corp, Lotus, Access Technology and Uniplex. Portable NetWare includes the full range of NetWare services, including the Internetwork Packet Exchange/Sequenced Packet Exchange protocol and IPC/RPC tools will be available in future releases. Portable NetWare is to be demonstrated at NetWorld, part of the forthcoming Hanover Fair, March 8-15.

GRAPHON'S OPTIMAX SETS LOW ENTRY COST FOR X TERMINALS

It was a case of all quiet on the DEXPO front at the four day, seventh European DEC-compatible exhibition - DEXPO Europe '89 - which got under way at Olympia in Kensington, London, on Tuesday. The masses present at last week's Which? Computer show were missing from this event, but just the same, new products were few and far between. But Dicoll Datasystems, Basingstoke, Hants, chose the venue to show off a new X- Windows terminal from Graphon Corp, Campbell, California, which was also introduced at Uniforum. The Optimax 200 has a 14 inch page white display, VT220 keyboard, 3 RS 232 ports and can run X-11 applications both locally and remotely - having the X-Server software resident on the host system reduces memory constraints and allows for much cheaper X terminals. At present the Optimax can only plug into Sun 3 and 4 workstations or DEC VAXstations, and costs £1,400.

APOLLO FDDI NETWORK TECHNOLOGY FOR GENERAL SALE THIS SUMMER

Apollo Computer Inc is to develop a Fiber Distributed Data Interface (FDDI) network for a US government department - possibly the National Security Agency - based on the Series 10000 RISC workstation. According to spokesman Mark Lederhof of Apollo, the sole source contract is the US government's first order for a FDDI compliant network. Apollo is to develop a FDDI board enabling the workstations to act as ANSI network servers, and must pick machines from at least one other computer manufacturer to put on the network. At least three 10000 systems will be included in the network, which is due to be delivered in the autumn. It will use dual counter rotating fiber optic rings, yielding a combined performance of 200 Mb per second - Apollo's current network offering is a 12 Mb per second token ring design. The FDDI network is also to be marketed commercially, the board will be available from mid-summer for Apollo systems, and will be developed to support others in the future.

CONTROL DATA TOPS CYBER RANGE WITH 910-600

Control Data has added the RISC based 910-600 series of machines to the high end of its Cyber family of Unix workstations, claiming a power improvement of between two and five times that of its other models. The 910-600s are the Minneapolis, Minnesota based firm's versions of Silicon Graphics' Power Iris workstations, released in the US last year, (UX No 200), and are aimed at the scientific and engineering marketplace, particularly the automotive and aerospace industries. Based on the RISC chip from Mips Computer Systems, the 910-612 has two 16MHz processors rated at 13 MIPS, and the 910-622 and 910-624 use two and four 25MHz, 21 Mips versions of the chip respectively. Prices range from \$95,000 for the 910-612 to \$115,000 for the 910-622 and \$140,000 for the 910-624. All include 8Mb of memory which can be extended up to 64 Mb, a 19 inch colour monitor, 182 Mb disk drive, 48 colour bit planes, 4 bit planes for windows, two serial ports, four VME expansion slots and an Ethernet controller. Software bundled in with the series includes Unix V.3, TCP/IP, Extent File System, C compiler and development environment, window manager and graphics library.

LANGUAGE PROCESSORS TO BUY AUSTEC - INCLUDING RYAN McFARLAND

Aspiring Cobol king from Down Under, Austec International Pty, crashed at the turn of the year, but a new home has been found for the company's assets, including the Ryan-McFarland Inc micro Cobol and Fortran compiler development and marketing business, and Austec's AceBridge and Ace Cobol line. The would-be buyer is Language Processors Inc of Framingham, Massachusetts, which is stressing its intention to build Ryan-McFarland back to its former strength, running it as a separate entity. Terms of the agreement in principle were not disclosed.

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NEXGEN DEVELOPS MULTI-CHIP 80386 CPU

Nexgen Systems Inc of San Jose, California, is developing a seven chip implementation of the architecture of the Intel 80386 to produce a "much more powerful" compatible processor for use within its own future machines. According to Nexgen, the first system to exploit the technology will reach the market within a year from now. Marketing director Pete Janssen said the company will target its first and subsequent products at the top-end of the MS-DOS, OS/2 and Unix workstation markets. And the fact that the ex-chief of IBM's Personal Computer division, Sparky Sparks, has surfaced as Nexgen's vice-president of marketing, almost certainly means that the company is destined to become a head-on IBM competitor. Sparks, who has spent time with Compaq and Tandon since he left IBM, was last heard of resigning as head of Wyse Technology's Amdek division last April. The arrival of OS/2 and increasingly sophisticated Unix workstations leaves Janssen in no doubt that "that amount of power" - said to be five times that of a standard 80386 processor - will be in demand within 18 months. Although unwilling to name names, Janssen implied that clues to the identity of its chip manufacturer could be found in its list of investors. Olivetti, Chips & Technologies, Yamaha, Mitsui and venture capitalists Kleiner, Perkins, Caufield, Byers currently own around 60% of the two-year old company. Preferring the label of systems house to semiconductor company, Nexgen says that it has no immediate ambitions to market its chip technology pure and simple. However, it does plan to strike up technology exchanges with strategic partners, and does not appear to exclude rival manufacturing outfits from these ranks. Nexgen now has an engineering-based staff of 55.

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Sun Microsystems Inc is expected to set a new price-performance standard with its next generation Sparc-based Unix workstations in April.

The feeling at Uniforum last week was that the influence of Sun Microsystems over future Unix development had now been reduced to no more than any of the other Unix International members - although Unix International did come out in support of the Open Look user interface, despite rumours that they might look elsewhere: it appears that the Sun SPARC processor will no longer be the first product on which new releases of Unix are implemented, and that Sun will not be developing Unix System V.5 as originally intended, although Computer Systems News hears that one bit of work begun by Sun, the modularisation of the Unix System V.V kernel, could still be adopted by Unix International, with the consensus of all members.

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Last week it appeared all cut and dried that UK software house Sphinx Ltd would be bought by French software house Metrologie SA from Paris - no announcement yet, but the deal is still on, despite reports to the contrary.

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Another sale going on behind the scenes is that of Control Data's Systime - a deal may already have been worked out, and an announcement is expected within the next two weeks.

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Despite UniForum, the best IBM could do for the battered RT was to announce that users could now get the machines installed by IBM or by resellers instead of doing the work themselves and having to call in an engineer when they ran into snags; at UniForum, the company is demonstrating AIX Enterprise Networking, linking 3090s in California and New York with PS/2s, RTs and 9370s.

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But under wraps, IBM apparently has ready a prototype 50 MIPS version of its RT workstation which uses a new chip and new architecture - the system will be launched in July 1990, according to industry sources.

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Intel Corp is promising full launch details on the 80486 "in 60 days".

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Zenith Data Systems Inc has finally announced the multiple 80386 machine developed with the help of Corollary Inc and extensively previewed all last year, as the Z-1000.

Also launching 88000-based machines is Motorola Computer Systems Inc itself with the Delta Series 8000 line, costing \$28,000 to \$80,000, the larger models coming with up to four 88000s and supporting up to 500 users - the machines are built around the OEM MVME 188 boards, which also have up to four 88000s and cost \$22,950 with one, \$27,300 with two, \$33,500 with four processors, when you buy 100-up; the price includes offered with Unix System V.3 and a real-time operating system, and the single processor boards arrive in May, the others in June.

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Pick Systems Inc, Irvine, California says that it plans to join the 88open Consortium Ltd Software Initiative programme and develop versions of the Pick operating system compliant with the 88000 RISC application binary interface - the new Advanced Pick is due third quarter.

- 0 -

Nixdorf Computer Corp has taken an option to build the RISC minis it buys OEM from Pyramid Technology Corp and markets as the high end models in its Targon Unix family.

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ALLIANT'S FX/RT EXTENSION CREATES NEW OPTION FOR SIMULATORS

Alliant Computer Systems Corp yesterday unveiled the FX/RT real-time operating system for simulation and control applications on its parallel and visual minisupercomputers. FX/RT resides within the new Version 5.0 of the Littleton, Massachusetts firm's Unix-based Concentrix operating system, and was designed in close collaboration with customers to handle the demanding computations needed for realistic real-time simulations. Boeing Commercial Airplane Co of Seattle, which aided development for two years, is already using FX/RT on its Alliant FX/80 to develop a commercial aircraft flight simulator, saying it likes the improved ability to schedule processes for real-time and the ability to link directly with the VMEbus, enhancing the interface between the FX and Boeing's VME-based real-time input-output system. FX/RT uses a special process scheduler that orders execution based on the importance of particular functions, never modifying the priority set by the user, who can also specify functions that must stay locked into memory so as to be immediately available. Real-time functions can synchronise their execution, share information, directly program input-output operations with no interference from the operating system, and service interrupts from external sources. It supports programs in Ada, C and Fortran, and starts at \$5,000, now.

PRIME BACKS AWAY FROM NATIVE UNIX ON SERIES 50

Prime Computer Inc is discontinuing its efforts to offer Unix on its 50 Series of minicomputers, first revealed a year ago this month (UX No 170). Series 50 minis have a processor architecture optimised for Prime's proprietary PrimeOS operating system. The plans, now shelved, were described as "unfeasible". But the company is set to announce new high end additions to its EXL 80386 based workstation line at the company's forthcoming Prime Time exhibition at Olympia, London, April 19-21. These Unix systems will be available from the third quarter, while Prime expects additional Unix V.4 level offerings to be announced by the end of the year. Future releases are likely to include technology brought in from elsewhere, but Prime says it will not OEM complete systems. Unix development has not been shifted to its workstation division as hinted elsewhere, there are now three streams of development at Prime's Natick, Massachusetts headquarters - PrimeOS, Unix and workstations.

NIXDORF PHASES OUT 370 COMPATIBLE BUSINESS FOR UNIX

Current users of Nixdorf Computer GmbH's 8890 series of IBM compatible machines are being given five years to move over to Unix-based alternatives. The company has guaranteed support and maintenance until 1995, but has already frozen the development of new products and software releases - it offers the compatible but unlicensed NiDOS/VSE, and a distributed derivative of VM developed from work done by Spartacus Inc. The 8890 family comprises four top-end D Models, built around Hitachi processors supplied by Compares Informationssysteme GmbH, and three low-end C models, manufactured in part under licence from Isreal's Elbit Computer Systems Ltd. Excluding peripherals and certain software products, 8890 sales have never exceeded 5% of Nixdorf's total sales, but that still implies over \$100m annual business.

MORE SUPPORT FOR NCS

Nixdorf Computer AG and software start-up On Technology are the latest companies to take out a license for Apollo Computer Inc's Network Computing System, as speculation mounts about whether or not the Open Software Foundation will choose NCS as the basis of its future networking technology. NCS is the technical favourite over the less sophisticated Network File System from rival Unix International advocate Sun Microsystems, and has now been licenced by a number of OSF members, including Bull, DEC, Hewlett-Packard and IBM.

AT&T HARDWARE DUE THIS WEEK

AT&T Co has a faster - 24MHz - version of its 32200 32-bit microprocessor that is expected to make its debut in a new top-end 3B2-1000 processor family this week. The three-model line - 1060, 1070 and 1080 - also features an improved bus structure, the P-bus, designed to route data from the main CPU direct to co-processors, according to Computer Systems News. It will be the first machine in AT&T's line to run Unix System V.3.2.2, optimised for the new circuitry. The machines are rated at 9 MIPS to 16 MIPS and support up to 100 users. Main memory will go up to 64Mb, and to ease its inventory problems, AT&T will offer only one disk drive - 300Mb, and one 120Mb tape drive, the 60 having one of each, and costing \$39,900, the 70 and 80 having two of each, the 70 at \$65,980 with four expansion ports, the 80 costing \$74,900. AT&T is also cutting tags on the 3B2/500, 600 and 700 by up to 28%; based on slower versions of the chip - although the one in the 700 is clocked at 22MHz, they now start at \$19,900, \$33,100 and \$65,200 respectively; AT&T is expected to phase out the low-end 3B2s in favour of its 80386-based boxes - based on boards from Intel Systems - running Unix.

PLEXUS CUTS IMAGE BUSINESS

Plexus Computers Inc, San Jose had to take drastic measures last week after its principal financial backers withdrew their support. The company dismissed 75% of its workforce, leaving it with just 50 people, and terminated its core image processing product line. Most of the 50 still with jobs are in engineering. The fund managers pulling the plug were Kleiner, Perkins, Caufield & Byers Inc and Technology Venture Investors; with a host of others, they have pumped a total of \$40m into the company since it began life as a Unix systems pioneer in 1980. The company has ended manufacturing of its Unix-based image storage and retrieval systems and now hopes to build a new business by marketing its database management system, which is designed to handle both text and image, and its development tools; Motorola Inc, which already took over the Plexus base of general purpose Unix systems users, is expected to take on the maintenance of the image systems base too. Grumman Data Systems had been bidding a Plexus Extended Data Processing System on the US Environmental Protection Agency Image Processing System contract, and now may either bid the software on other hardware, or buy rights to the hardware.

SCO REPLACES 8086 OPERATING SYSTEM WITH PERSONAL XENIX

Following the Open Desktop announcements at Uniforum earlier this month, the Santa Cruz Operation has withdrawn its multi-user version of SCO Xenix System V for 8086 AT architectures. Instead, a 'Personal Xenix' is now available, supporting a maximum of two concurrent users. The rationale behind this move appears to be a perception that with the rising power of 286 and 386 multi-user machines, 8086/8088 machines are now being pressed into service as single user workstations or intelligent terminals to servers. Personal Xenix - a chopped down version of SCO Xenix System V which cannot be upgraded from its two user format - is aimed primarily at this workstation and PC market. In addition it will be used as the basis of SCO's future 'Workstation Xenix' for 386 machines, due for release in April. This will include SCO TCP/IP, SCO X-Sight and SCO NFS, the latter two also available from the spring. SCO is to inaugurate a revised pricing system for complete SCO operating system bundles in an attempt to make Personal Xenix attractive to customers. On a 386 based AT-bus machine the price is £450 - the complete operating system, including development and text processing systems, costs £1,100.

...AND BOOSTS ITS OFFICE AUTOMATION SOFTWARE EFFORTS

SCO's Watford, Hertfordshire based European division has also released SCO Professional 2.0, a Lotus-alike package for Xenix and Unix. The application can be used as an MS-DOS connectivity tool, and is not bound by the the DOS 640Kb memory limitation. It has increased worksheet size, extended macro functionality, and integrates with SCO's Office Portfolio applications. SCO Professional 2.0 costs £600, and an upgrade from version 1.1 is available. The product is one of the tools that can be integrated into SCO's recently launched Office Portfolio system, which can be used to combine word processor, spreadsheet and database packages from SCO or third parties. The core of the product is SCO Manager, which apart from providing tools such as agenda, calender and electronic mail, controls the menus and includes an "intelligent" clipboard that can transfer data between different packages. SCO offers its own Office Portfolio suite as a package including Professional, the SCO Lyrinx word processor, and SCO Integra SQL relational database: prices start at £495 for the Portfolio Manager, £895 for SCO Xenix 386 with the Portfolio Manager and £1695 for the full suite. SCO says it is working with third party software vendors to provide support for popular word processors, spreadsheets and databases.

INTERACTIVE TO BUNDLE OSF/MOTIF

Interactive Systems Corp, Santa Monica, California, which recently strengthened its position in the Unix environment with the acquisition of Lachman Associates, (UX No 220), is to offer the Open Software Foundation's Motif interface technology on its workstation solutions: bundled in with the 386/ix X11 Windowing System Runtime Package it costs \$295 - available from the third quarter: meanwhile the development tool kit system will be on sale for \$795 sometime in the second quarter.

WISH FROM NSL OF PARIS JOINS X INTERFACE RACE

The 1989 European Unix Systems Show at Porte de Champerret, Paris, turned out to be rather a painful affair, which was only to be expected really, taking place at the same time as the very lively UniForum in San Francisco. Many exhibitors made no attempt to conceal their dissatisfaction with this faux-pas, and most of the talking revolved around what was happening on the other side of the Atlantic. One of the more interesting products on show was WISH - an icon based graphical interface which will run on any Unix based workstation implementation of X-Windows, from Non Standard Logics, Paris. It features easy to use menu and icon displays for users, which can be customised at runtime by developers with Non Standard's Graffiti design application, and includes a file editor, WX, specifically for use with X-Windows. It uses a server called WiX, windows are managed by X, and it can handle different fonts and colours in different windows. It operates under a menu structure with an iconised elevator, and has special modes for editing programs. WISH, Graffiti and WX were all developed at the Universite de Paris-Sud in Paris.

...AND AXIS DIGITAL PREPARES XNS-UNIX INTEGRATION

Now 43% owned by Rank Xerox SA via the formation of Axis International SA, (UX No 220), Axis Digital SA, the Paris based Unix services and support house, was showing off its new parentage with an integration of Unix and the Xerox XNS networking protocols (UX No 206). The company was promising that new products - combining XNS and Unix - would be launched later in the year.

FRAMEMAKER TO SUPPORT NETWORKED WORKSTATIONS

San Jose, California based software company Frame Technology is a latest addition to the growing list of manufacturers developing X-Window conformance for their products. A new version of its publishing software - Frame Maker 1.3-X - runs on Sun and HP Series 300 workstation hosts, but is accessible to any user with a networked display that supports the X11 standard. It is claimed to be the only publishing application currently available for X-Windows. FrameMaker 1.3-X costs £2,500, and current FrameMaker 1.3 SunView customers can upgrade for \$190. Frame is also developing Frame Maker for Motorola's 88000 Risc technology. Frame is a member of the 88open's Software Initiative Organization - and its offering will be available in the third quarter of this year.

UNIPLEX DEVELOPS GRAPHICAL OFFICE SOFTWARE WITH IXI

A new version of the popular Uniplex integrated office automation suite is being developed by Uniplex Ltd, Hemel Hempstead, Hertfordshire, which will integrate IXI Ltd's X-Desktop technology as a front-end to the Uniplex software. The application was shown in a test format on the Uniplex stand at UniForum, but at present it remains nameless and without a price, scheduled for a June launch. Both companies will be selling the package into their respective markets, and neither see a clash of interests. Uniplex hopes to push into the workstation arena with this addition to its range, and has no plans to adopt any other interfaces at present. In addition, X.desktop - developed on top of X-Windows by the UK Cambridge based firm which has scored a notable success by getting NCR to take the application as its graphical interface, (UX No 219) - is to be distributed throughout the US by Unipress Software Inc, Edison, New Jersey. X.desktop was previously only available from selective hardware and software companies.

INTEL PUSHES DEVELOPMENT OF MULTI-PROCESSOR UNIX

The multi-processing version of Unix being developed for Intel's 80836, i860 and forthcoming 80846 chip technology revealed last week, (UX No 221), will be available from the end of this year, around the same time that System V.4 is to be launched. Intel is spearheading development of the operating system, but a consortium of companies including Olivetti, Prime, Convergent and AT&T - to which other names will be added - have been working since the middle of last year to ensure that the resulting software will run on their machines. Where the project fits into Unix International's plans is as yet unclear, all the firms are members of the Unix body formed back in January, (UX No 216), but it is understood that AT&T's Unix Software Organization will be licensing the operating system. The new strain of Unix will combine V.4 with the multiprocessing features of Carnegie Mellon University's Mach implementation. Mach was originally commissioned by the US Department of Defence to meet its needs for a kernel that could be quickly changed to meet the needs of rapidly evolving high speed networks and multiprocessor machines, was released by the University in 1986, and went into public domain in February 1987, (UX No 117). Mach supports both loosely and tightly coupled microprocessor architectures, separating Unix processes into tasks and threads which can then be executed simultaneously on multiple processors in the system. Ian Wilson explained that Intel's efforts were prompted by the fact that AT&T's plans for a multiprocessing version Unix were not due to come to fruition until around 1992 - far too late for Intel's plans - which include strengthening the campaign to move from its base in the PC market to the minicomputer and mainframe sectors. The Santa Clara, California based company is currently working with V.4 and Mach source code to produce the operating system, and machines based on the new version are to be announced by Intel in January 1990.

TRW DEFENCE CONTRACT INVOLVING CARNEGIE'S MACH, ADA

TRW Federal Systems Group in Fairfax, Virginia has a \$3m multi-year research contract from the US Defense Advanced Research Project Agency for its Advanced Computing Systems Project, in which TRW is setting out to use advanced process models, formal reasoning systems and software engineering environments in an innovative manner. Technology advances achieved via the research will be demonstrated by application to specific target system efforts. The first phase calls for development of a next generation risk-driven software development paradigm for trusted systems, with significant security, integrity, reliability and trust requirements. In the second phase, the development paradigm will be applied to an exploratory prototype of trusted components of the Mach operating system in Ada (see above). As an option task, to proceed in parallel with the second phase, TRW will develop a trust analysis tool to be incorporated into an advanced Ada software engineering environment. Subcontractors include Computational Logic in Durham, North Carolina and Trusted Information Systems in Glenwood, Maryland. TRW is also working on neural net computers.

MICROSOFT, IBM PLAN OS/2 FOR RISC PROCESSORS

Microsoft Corp has confirmed that there is an effort under way between IBM and itself to do an implementation of the OS/2 operating system for reduced instruction set processors, including, but not confined to, Intel Corp's new 80860 as the N-10 is now called. It is likely that IBM will one day offer a version of OS/2 for the RISC-based RT, but with comprehensive alternatives to everything that OS/2 offers coming on apace in the Unix world, it looks increasingly likely that OS/2's attractions will largely be confined to mainstream IBM mainframe and mid-range users who adopt IBM's strategy of making PS/2 the future primary terminal for use with its 370-type machines and AS/400s.

ARIX FORMS IMIX IMAGE UNIT

Arix Corp, San Jose is not letting the painful rescheduling of orders from its largest customer, Unisys Corp, put it off its stride: in an effort to build itself a complementary business, the builder of multiprocessor Unix supermicros has opened an image management systems division in Washington, DC. The new company is called Imix, and it is planning to introduce its first hardware and software products for image storage, retrieval and manipulation at the back end of 1989.

SPHINX LTD IN FINAL STAGES OF SALE TO METROLOGIE SA

The sale of UK open systems software house Sphinx Ltd to Intel distributor Metrologie SA, headquartered in Paris, now looks certain to go ahead, and bar disasters, should have been completed by the end of this week (UX No 215, 221). [Metrologie, which until recently was 17% owned by the British quoted components distributor Unitech Plc which claimed its stake when Metrologie was known for distributing Intel chips, Oki peripherals, and TeleVideo terminals and micros. Metrologie, whose shares are quoted on the Second Marche (the French equivalent of the Unlisted Securities Market), pushed into the Unix market in July 1986 when it formed Top-Log SA as a 60% subsidiary to adapt, market and support Unix and DEC VAX/VMS software in France (UX No 87). The subsidiary began with products such as Informix, the integrated Uniplex II Plus Unix applications suite from Uniplex Ltd, (then Redwood International), 20/20 colour spreadsheet from Access Technology and the Tango terminal emulation program from Cosi. To this impressive portfolio was added both Parallel Computers' and Tolerant Systems Inc's fault tolerant Unix machines at the end of 1986. Products like the Tolerant Eternity Series of NS32000-based multiprocessors enabled Metrologie to strengthen its presence in the transaction processing and data communications sectors of the French banking and manufacturing markets. The company began implementing plans to expand its base internationally in 1988 when it acquired 20% of London-based microcomputer distributor Trinitec Plc. These imperial plans really took off, however, at the beginning of this year when Metrologie's former partner Unitech sold it the big Rapid Recall group (comprising its Celdis Italiana SpA subsidiary in Italy and its Nye Enatechnik GmbH in Germany) for £45m (UX No 213). As part of the deal Unitech sold its stake in Metrologie for £10m to French shareholders. Against this background of growth and expansion in the Unix market, Sphinx looks to be an appropriate acquisition for Metrologie.

REAL TIME SYSTEMS OFFERS IDRIS UNIXALIKE FOR TRANSPUTER

The biggest factor in inhibiting widespread adoption of the Inmos International Plc Transputer has been the lack of a widely-used operating system for the part, but Real Time Systems Ltd, Douglas, Isle of Man has taken a big step towards that goal with the introduction of TransIdris, a multi-tasking, multi-user operating system for the Transputer based on the Idris Unix-like. Idris, from Whitesmiths Ltd, is now claimed to be compliant with the Posix standard, has many features of Unix System V, and includes real-time extensions. Another selling point is its small size compared with standard Unix. Initially developed for the Parsys SN1000 multi-Transputer machine, TransIdris is now being offered for use on Transputer add-on boards for MS-DOS machines. TransIdris supports parallel execution of Idris programs by separate T800 worker Transputers and Occam harnesses can also be run on one or more workers designated by the user for that purpose. It comes with ANSI C and ISO Pascal-conformant compilers and a C source level debugger, as well as about 100 utilities, including line and screen editors, file and text manipulation tools and a text formatter. It is currently available for the Qunitek Fast1, Fast4, Fast9 boards and for the Inmos B004 or compatible boards, and a minimum host configuration required is an XT with 512Kb memory and 10Mb disk, although an AT-bus 1Mb 80386 machine with 40Mb disk is recommended. Licences for from one to 32 or more Transputer systems are available, and a complete development kit for a single Transputer is £580, plus £700 for the C cross compiler, £900 for Pascal, £600 for the Mimic simulator and debugger, and £400 for the XA8 cross-assembler. For a system with 16 to 31 Transputers, the environment is £1,880, other prices are the same. Real Time Systems has won a \$2.3m order from Aleor Communications Corp for TransIdris.

RADIUS TO PAY £2m FOR SYSTEMSOLVE

Radius Plc, Hull, has agreed to pay £2m - £1.2m cash, 618,500 new shares to be retained by the vendors, for the venerable ICL systems house Systemsolve (Computer Services) Ltd, Feltham, Middlesex. Some 950,000 shares will be placed to raise the cash portion and give Radius about £280,000 in working capital. Systemsolve, which did £200,000 pre-tax before exceptional items on sales of £2.5m in 1988, provides software and services to ICL customers and to ICL itself - especially in the local authority field. Year-end figures from Radius out recently showed a slowing rate of growth - 20% against 38% last year - put down to the recent acquisitions of Slinn Computer Group and MGB Computer Systems (UX No 189), though chairman Edward Sharp was particularly unhappy about the performance of Radius Commercial Systems, which should by now be marketing Data General Unix systems. He claimed that the DG range has come out much later than expected, and although business opportunities are still there, the delay has led to "frustration".

INFORMIX BACKS OPEN DESKTOP

Despite being bested by the choice of rival Relational Technology Inc's Ingres as the database integrated into the new Open Desktop environment for 80386-based Unix machines (UX No 221), Informix Software Inc says that it will nevertheless be supporting Open Desktop with its Wingz graphic spreadsheet and its line of applications development tools; it also plans to introduce its own extended version of Open Desktop that will include Informix-Turbo - presumably in place of Ingres.

CONCURRENT FORMS SUPERCOMPUTING SOLUTIONS VENTURE

Unfazed by the sound of minisupercomputer makers crashing all over the US, Tinton Falls, New Jersey-based Concurrent Computer Corp has decided to put its embryonic efforts in the field into a 50-50 joint venture with General Microelectronics Corp. The new company, Supercomputing Solutions Inc, will market the General Microelectronics Capps parallel supercomputer, and will complete development of and start marketing a commercial version of the Navier-Stokes developed at Princeton University - Concurrent's first interest in the rarified field. It will also assist in the US government's efforts to develop an application-specific supercomputer to solve a number of compute-intensive scientific problems for which there are currently no solutions. The new firm will work toward the development of both hardware and software for a family of parallel supercomputers. The National Aeronautics & Space Administration and a Department of Defense agency, which have been supported both the Capps the Navier-Stokes computer developments, will be potential users of the company's line.

ARDENT'S DORE GRAPHICS SUITE TARGETS INTEL'S NEW 80860

Quick off the mark, Ardent Computer Corp, Sunnyvale, California developer of the Titan Graphics Supercomputer, has done and implementation of its Dore three-dimensional visualisation software to Intel Corp's hot new i860 microprocessor - also known as the 80860. Intel is using Dore - it stands for Dynamic Object-Rendering Environment, on its i860 CPU development system to illustrate the new level of computational power provided by the processor for compute-intensive tasks such as interactive graphics and simultaneous graphics and data processing computing. Ardent reckons that Dore is easy enough to use that i860 CPU programmers will be able to take full advantage of the new processor's power with minimal effort, and Intel has been able to merge real-time visualisation with computationally intensive codes in a suite of interactive demonstrations. The object-oriented Dore toolkit enables interactive users to get a graphics picture of the results of compute-intensive applications such as molecular modeling, computational fluid dynamics and animation, and then manipulate the results on the screen. It supplies a single interface for both interactive dynamic imagery for modelling and for high-quality static images for presentation and animation sequences, and is extensible so that developers and users can contribute their own attributes, primitives, textures, shading, and rendering functions with C or Fortran code. And these extensions will be portable across all implementations of Dore. Dore also interfaces flexibly with different types of applications databases so that users can run a calculation and simultaneously look at results as the computation proceeds. The Intel effort is part of Ardent's attempt to establish Dore as a widely available standard for advanced visualisation (UX No 166), and the source code can be licensed from Ardent by developers of i860 and other products. The licence fee is \$250 for universities and research establishments, and \$15,000 plus support fee for commercial organisations. It is available for graphics and other supercomputers, and workstations.

BOS SOFTWARE LINKS TO UNIX WITH APEX

In a bid to become the UK market leader in business software, the BOS Software Ltd arm of the Misys group has launched a new operating system, Apex, which marks BOS's move into the Unix market. The launch of Apex means that BOS can now offer Global 2000 applications software to users of all personal computer operating systems - PC-DOS, with or without Microsoft Windows, Unix, and DEC's VMS operating system for minicomputers. At present the Global range has a user base of 15,000, but the introduction of Apex looks set to expand that base. If it doesn't win converts from the technology, BOS hopes to catch them through aggressive marketing. For, no doubt with a little entrepreneurial push from Misys chief Kevin Lomax, BOS has joined forces with Technology for Business Plc and Altos Computer Systems to sell a "total" business solution. The solution comprises an Altos 5/386 Unix system that runs Global 2000 software, marketed through the London EC1-based Altos distributor Technology for Business, which has exclusive rights to the distribution of Apex on Altos 5/386. The three companies involved have invested about £200,000 in this marketing initiative. The system was being demonstrated at the Which Computer? Show last month, where visitors were shown the range of Global 2000 modules, plus third and fourth generation programming tools running under Apex on Altos machines. However negotiations are currently under way to sell Apex on other makes of hardware as well.

NEW PICK/UNIX RANGES FROM ULTIMATE

Ultimate Corp, East Hanover, New Jersey, picked Uniform week to launch its first product to include the Pick to Unix bridge it licensed recently from VMark Software Inc (UX No 217). The Ultimate 1700 Series of Unix-based multi-user micros are based on hardware from the company's traditional supplier, now called Bull HN Informations Systems, including VMark's UniVerse software, renamed ULT/ix. Machines come in three models supporting up to 64 users. They use 25MHz or 16.7MHz 68020 processors with up to 32Mb memory, 2Gb disk. The model 1722 is rated at 2.1 VAX MIPS, the 1725 at 4.1 VAX MIPS, the 1745 at 8.0, each field-upgradable to the next. Pricing will be given in 30 days, Ultimate said. And the company has also announced Pick implementations for four models of the RT, also running the ULT/ix implementation of UniVerse: it is offering the desktop RT Model 115 with 4Mb memory and 114Mb disk, with eight ports at from \$28,500; the floor-standing 125 with 8Mb CPU, 114Mb disk and 10 ports for from \$43,000; the desktop 130 with 16Mb CPU, 140Mb of disk and eight ports at from \$46,000; and the floor-standing 135 with 16Mb CPU, 310Mb disk and 16 ports for \$59,500.

...AS VMARK, SYNTHESIS AIM PICK AT MIPS RISC

MIPS Computer Systems Inc's Synthesis Software Solutions Inc is hungry for applications for the MIPS RISC, and those 3,000 Pick programs out there are too tempting to resist. It has therefore teamed up with Natick, Massachusetts-based VMark Software Inc to do an implementation of VMark's UniVerse Pick-under-Unix for the R-series RISCs. It is now in beta test and Synthesis is to distribute it worldwide.

OMRON HAS 68030 SIGMA STATION FOR \$11,000

Omron Tateishi Electronics wants to be the low-priced leader in workstations built to the specifications for the on-going Sigma Project proposed by the Japanese Ministry of International Trade & Industry: the Luna-Sigma is built around a Motorola 68030 and runs the Unix-based Unios-Sigma for its operating system; it will come standard with a Multi-Media Window system based on the Sigma specifications and will have local area network support, so that it can use all the Sigma tools developed so far, while running under Unix; prices will start at around \$11,000.

Unix in Japan

Soulborne Computer Inc has pre-sold some 20 of its Sun-4-compatible Sparc-based workstations since the end of December, the Colorado company controlled by Matsushita Electric Industrial Co is claiming - not too surprising perhaps since the thing is rated at 70% faster than the Sun-4 at a 17% discount: Soulborne says it will develop Series 5 this year and move on to a Series 6 next year; the line is manufactured for it by Matsushita in Japan.

- 0 -

Matsushita Electric Industrial Co, presently making Solbourne Computer Corp's Sun-4-compatible workstation in Japan, has decided that it won't be able to meet US demand unless it manufactures the thing there: it will shortly pick a location to make 1,000 a year.

- 0 -

Eleven Japanese companies led by Ascii Corp have joined forces to form a group to promote the development of software for B-Tron, the business variant of the Tron operating system developed by Ken Sakamura of Tokyo University: while the development of microprocessors to Tron specifications has progressed rapidly, development of applications to run under B-Tron has been slower, and the new move is intended to rectify the shortage of programs.

- 0 -

Alliant Computer Inc has been talking with the Nippon Keizai Shimbun, inter alia revealing that new machines are on the way for launch later this year that will incorporate parallel processing technology, and feature a new operating system and language compilers - and that it is considering licensing its parallel processing technology to Japanese manufacturers: Alliant established a subsidiary in Japan last year, and it will be increasing the staff at its local unit to around 80 people; looking in this direction, the company indicated plans to make a splash in Europe, with the intention of establishing a solid base ahead of the Single Market.

- 0 -

Fujitsu Ltd is developing a graphics workstation for launch in the summer that will add a signal processor to the 680XOs in the company's G-series machines, and is being put together to compete with graphics workstations from Stellar Computer, Ardent Computer, both of which have been making waves in Japan, and Silicon Graphics - but priced to undercut the competition: Fujitsu hopes to gain an advantage here through its ability to fabricate its own signal processors, and the workstation will be able to display 10.6m colours, and have memory of 4Mb to 256Mb.

- 0 -

Nippon Unisys Corp has rather belatedly got around to following its US parent's plunge into Unix, and will launch its first Japanese foray later this year with the new U6000 series from Sequent Computer Systems Inc at the high end and Convergent Inc at the low end: the move is part of its strategy, stressed even more in Japan than elsewhere, of growing a substantial systems integration business.

- 0 -

Seiko Instruments Inc has joined the increasing number of Japanese companies marketing Sun Microsystems Inc workstations, taking Sun-3s and 4s, as a stop gap to building its own graphics workstation and server around the Sun Sparc chip: Seiko has the Sun-3/60, 3/260, 4/110 and 4/260 which will be sold on as the SN range with the same numbers, and packaged with the GR series of graphics displays, plotters and custom software; Seiko prices range from \$10,370 to \$55,375.

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The joint AT&T/Sun development lab working on future versions of Unix under the control of Bill Joy from Sun Microsystems now continues to work only on "a modest joint program", according to Electronic News, which says that the operating system experts have now been reassigned: Bill Joy was quoted as saying "it's not my lab any more, it's AT&T's - because of OSF AT&T wants to have a relation with everybody".

- 0 -

AT&T is reportedly licensing LM/X, the Unix version of LAN Manager developed by Microsoft Corp and Hewlett-Packard both for use on its own PC StarLAN server hardware and as part of the StarLAN software package available to other vendors: StarLAN has been re-named StarGroup.

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Prime Computer Inc has signed to offer Apollo's Network Computing System on its EXL family of 80386-based Unix micros: Prime is reportedly ready with a new low-end EXL model.

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AT&T Co says it has "updated" Unix System V/386 Release 3.2 to include support for Locus Computing Corp's MS-DOS under Unix package Merge 386, and has added system and Remote File System administration facilities, source code for AT and Multibus I and II drivers, as well as for additional graphics boards.

- 0 -

NKR Research Inc, San Jose, California has a Basic interpreter for the Sparc-based Sun-4 workstation, with a list price of \$1,800.

- 0 -

Designer C++, an enhanced version of C++ from Oasys Inc of Waltham, Massachusetts, is now available for Sun-4, Pyramid, BBN, BBN Butterfly and Mips Computer Systems Inc: Designer C++ includes data abstraction, optional strong type checking and dynamic typing.

- 0 -

Tektronix Inc has now released X Windows Version 11 Release 3 for all 4310 series graphics workstations.

- 0 -

Interactive Systems Corp has agreed to integrate the Relational Technology Inc Ingres relational database with the 398/ix version of Unix: Relational reckons that Interactive and Santa Cruz Operation share 90% of the 80386 Unix market, and coupled with the Open Desktop agreement (UX No 221) Ingres is now tied to both versions.

Santa Cruz Operation Inc has agreement from Autodesk Inc, Sausalito, California for the AutoCAD MS-DOS computer-aided design package to be supported on Intel iAPX-86-based boxes running SCO Xenix 386: AutoCAD Release 10 for Xenix is \$3,000.

- 0 -

Sony Corp is looking at ways to reorganise its European operations, and will likely put them all under a single holding company - it plans to staff its local units with European managers and is looking at the UK and the Netherlands as the base for any holding company, and plans to locally design and make around half of the equipment it sells here.

- 0 -

Nixdorf Computer Corp has taken an option to build the RISC minis it buys OEM from Pyramid Technology Corp and markets as the high end models in its Targon Unix family.

- 0 -

AT&T Co has launched a 90-day promotion for its 6312 Workgroup System personal computer family in the US, during which the computer will be discounted up to 28%, depending on the configuration: promotional prices for the configured machines range from \$2,500 to \$4,315, and cover three configurations from a single floppy disk model to one with a 68Mb hard disk at the top.

- 0 -

Autodesk Inc, Sausalito, California has a letter of intent to acquire privately held Generic Software Inc and expects completion in 30 days. Generic, based in Redmond, Washington, develops low-end computer-aided design software - the Generic CADD system, and graphic utilities.

- 0 -

Apple Computer Inc is touting the new Macintosh IIcx as the workhorse of the Macintosh family, and it has gone down really well with US observers, so much so that the Apple share price rose \$0.25 to \$35.75 on a day when computer stocks were generally taking stick: the key attractions of the machine are its modularity - the basic price is for the console only - which means that users get a more affordable version of the high-end NuBus-based II, and can configure it to the price and to the extent that they choose - and retailers can put together packages combining the best of Apple and third party add-ons for it.

The proposed acquisition by SGS-Thomson Microelectronics BV of Inmos International Plc from Thorn EMI Plc - on terms that are still very uncertain - is not to be referred to the UK.

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Monopolies & Mergers Commission, the government has decided. By bringing its 1M line on stream at Mesa, Arizona, Motorola Inc has become the third US company to be fabricating memory chips: the other two US makers are Micron Technology Inc and Texas Instruments Inc.

- 0 -

Sun Microsystems Inc has introduced the OpenFonts technology, which creates fonts that can be used on any raster device, from screens to typesetters: it has licensed OpenFonts to Linotype, Monotype, Berthold and Bigelow & Homes, and says it expects that within a year, more than 700 brand-name typefaces will be available to users and developers.

- 0 -

The acquisition by Cadence Design Systems Inc, San Jose, California of Intergraph Corp's Tangent Systems Corp affiliate has been completed: Cadence paid 1.6m of its shares, valuing the business at \$21.2m, leaving Huntsville, Alabama-based Intergraph with a holding of some 5% or so in Cadence Design.

- 0 -

Interactive Systems Corp has signed an agreement with Spanish Unix software specialist Digital Systems Development (no relation of DEC) for distribution of its products in Spain: these products include Unix System V/386, which combines Unix and Xenix as well as MS-DOS applications under Unix with Interactive VP/ix, Interactive 386/ix with its execution and development modules, the 386/ix Windowing System, 386/ix Multiview and also various products and devices for networking machines running the various Unix variants.

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SOLBOURNE ANTICIPATES SUN'S PERSONAL SPARC BOX

Matsushita Electric Industrial's Longmont, Colorado-based affiliate Solbourne Computer Inc is turning the screws on Sun Microsystems Inc with the launch of its first Sun-4-compatible desktop workstation, the multiprocessor Series4/500, which it says is already shipping. Each processor has its own cache memory but all share a single main memory. The processors use Fujitsu's SF9010IU Sparc 32-bit RISC chip and Weitek Corp floating point chip set. The Series4/500 Sparc CPU board, memory board, optional 3.5" disk drive, and other system components reside in a desktop unit 18" by 5.5" by 21.5", which can go horizontally under the monitor, or as a vertical tower. The system is available with an optional 3.5" Winchester. The single CPU 4/501 is rated at 9.5 MIPS, 1.6 M-FLOPS and is \$19,400 with 16Mb, 19" mono monitor, keyboard, mouse and one-year warranty. With 327Mb disk and a tape drive, it's \$27,500. The dual-CPU 4/502, 17 MIPS, 2.9 MFLOPS, is from \$25,400. Sun's plans - see back page

AT&T 3B2/1000 HAS MULTI-PROCESSOR UNIX

AT&T's new additions to its 3B2/1000 were duly launched last week as anticipated, (UX No 222). Based on a new 24 MHz version of its 32200 processor - the 32206 - they come with Unix System V.3.2.2, which has been enhanced to provide remote maintenance support and multiprocessing. It is made possible by a new adaptive scheduling algorithm, which balances system and user workloads across individual processors. The 22 Mhz 1060 and 1070 models come with 4Mb and 16Mb of main memory respectively - 4Kb of cache - and are available this month. The 24 MHz 1080 has 16Mb memory, 8Kb of cache and arrives in May. Each can be expanded to accommodate up to 64Mb of memory with slot in boards, and will support up to eight SCSI host adapters, providing access to 15.9Gb of storage. Furthermore a new hardware and software migration kit from AT&T will allow existing 3B2 600, 700, 1060 and 1070 users to upgrade to a model 1080 and utilise its multiprocessing features. The kits include a 24MHz system board, a new processing element board, backplane and, for the 600 and 700, a V.3.2.2 upgrade. The full kits are available from October at a cost of \$21,000 AT&T has also cut the prices of its 3B2 500, 600 and 700 by 12% to 30%. They now cost \$19,000, \$33,000 and \$65,000 respectively. In addition the 80386 based 6386 WGS and 6386E models have been reduced by 9% to 28%.

APPLE WINS FIRST ROUND OVER MICROSOFT, HP

In a decision that bodes little good to the rapid acceptance of OS/2 and Presentation Manager, Judge William Schwarzer ruled late Friday that Microsoft Corp was not authorised to develop Windows 2.03 under its 1985 licence agreement with Apple Computer Inc; Judge Schwarzer said that while Apple received valuable consideration for the licence, it was not reasonable to construe the 1985 agreement as giving Microsoft in return an essentially open-ended licence to use whatever visual displays its named software could generate. The ruling means that the suit brought by Apple against Microsoft, and Hewlett-Packard Co, which uses Windows as part of its NewWave environment, now moves on to the issue of whether Apple's copyrights are valid and April 14 is the new date.

ENCORE BUYS GOULD

Encore Computer Corp, Marlborough, Massachusetts, has now announced a definitive agreement with Gould Inc to acquire the business of Gould Computer Inc for \$140,000,000 in cash and from 10.6m to 11.3m shares of common stock of Encore. And to help Encore come up with the cash, Gould has agreed to provide \$140,000,000 of bridge financing for one year. The deal is subject to approval of the boards of directors of both companies, and the receipt by Encore of commitments for additional financing. The transaction should be consummated by March 31st, according to Encore. Gould is currently owned by the Japanese Nippon Mining Company.

TANDEM UNIX LINE

"DUE THIS YEAR"

Tandem Computers Inc plans to use members of the MIPS Computer Systems Inc family of RISC processors asis of a forthcoming line of machines designed to bring "Tandem capabilities to customers who prefer the Unix system", founder and president James Treybig told Reuters in an interview. The new line, code-named S2, will be unveiled "within the year". Treybig explained that his company was now jumping aboard the Unix bandwagon because some of its biggest customers favoured the AT&T operating system. As for the move to RISC - Treybig is out of the Hewlett-Packard Co stable that was one of the pioneers of RISC - he said that it was necessary to keep Tandem's price-performance competitive with increasingly powerful desk-top machines, and hinted that much of Tandem's product line would in future be using RISC technology. Treybig also says that enhancements to its NonStop SQL software that will enable the database to handle much more data and compete more effectively with IBM's flagship DB2 database, particularly in the banking systems market.

KEY RT MAN RESIGNS

Another top man from IBM's RT Unix workstation team, Andrew Heller, described as one of IBM's "most prominent computer scientists", has resigned to become a consultant to venture capital firm Kleiner, Perkins, Caufield & Byers, and to IBM itself. Heller was reassigned at the same time as William Lowe last year, but had been a key member of the design team working on the RT.

NEC HAS ANSWER TO INTEL'S 80486

NEC Corp has come out with its answer to the unannounced Intel 80486 microprocessor in the shape of the V80, an enhanced version of the 32-bit V70 and 32/16-bit V60 that it rates at 16 MIPS clocked at 33MHz. The V80 is upwards-compatible with the 8086, but incompatible with the 80386 native mode. NEC also promises a simplified version, the V80L.

UNIX INTERNATIONAL PLOUGHS AHEAD WITH WORKGROUP DEVELOPMENTS

The fledgling Unix International is now talking about the first workgroups set up as part of its agenda to examine the technological and commercial directions future releases of Unix System V will follow. The idea is to let those companies manufacturing and developing Unix applications to have some say the future direction of the operating system via their participation in these and other workgroups. Release V.4 is too far down the line for it to be changed now, but by assessing recommendations made by the various groups and passing them to the Unix Software Operation (USO) - responsible for the overall direction and control in the development of Unix - Unix International, (UI), is to play a key role in all releases beyond V.4.

UI's relationship with USO is still rather a grey area however, there are no formal mechanisms for deciding how, which and why UI's recommendations - if any - are taken up for future incorporation into Unix. AT&T remains tight lipped, except to say that the bottom line is "profitability." This way, the company keeps its strategic options open - eyes no doubt on the struggle with rivals the Open Software Foundation - and ensures ultimate control over the direction of Unix does not slip from its grasp. There are five groups in operation already. These are now reported to be holding discussions with the Foundation on database, languages and common network support issues, a move that has intensified since Uniform. The kernel issue, however, now appears to be beyond resolution. Recent additions to Unix International's membership list include Dupont Fiber Division, Prisma, Stellar Computer, Locus Computing and Relational Technology. The latter three firms are also Foundation members.

* **Licensing and Conformance** - led by Dick Grundmeir of Unisys, this group has produced a complete licensing and conformance policy for System V.4. A programme setting out details of early access to development versions of Unix has been completed - UI members will have equal access.

* **Multiprocessing** - Locus' chairman Jerry Popek heads this group, which is examining extensions to the Unix interface which will allow applications to make use of both tightly and loosely coupled multiprocessor systems.

* **Interface Work Group** - this group will evaluate the various standards activities, including the X/Open Common Application Environment, IEEE Posix and Fips for inclusion in the interface specification for System V.

* **File System Enhancements and Transaction Processing** - here further enhancements and revisions to Unix System V over and above current capabilities are to be examined and defined. Availability, reliability and timeliness of data are the major concerns.

* **Desktop Applications Capture** - this group is concerned with the porting of applications from other operating system environments. It will assess the technical and commercial requirements that need to occur in the next release of System V in order to shift the bulk of available applications to Unix.

UNIX SOFTWARE OPERATION OFFERS "SIGNIFICANT" LICENSING CHANGES

AT&T'S Unix Software Operation has changed its early access programme and simplified the administration of Unix System V licenses in response to talks with Unix International, it was announced at Uniform. Early access to Unix System V Release 4 begins this March for members with source code licenses, who are receiving early System V Release 4 tapes for internal use. These companies will also receive licensing terms and conditions within two months. AT&T has also agreed to develop a standard interface definition for Release 4.0 in conjunction with Unix International's licensing and conformance workgroup (see above), with terms that will allow companies to license "certain Unix V technologies" without a conformance requirement. The final change, in administration, means a reduction in paperwork for licensees changing software between CPUs and transferring source code to other licensees, which can now be reported quarterly rather than immediately a change is made.

OPEN LOOK IS UNIX INTERNATIONAL INTERFACE

As briefly reported, Unix International came out with an endorsement for the AT&T Open Look user interface at Uniform, saying that it chose the system after an evaluation of the graphical user interface issue in which it claimed more than 20 companies with Unix System V-based products took part. The announcement caused little surprise amongst journalists present at the news conference - despite rumours that the organisation was considering a rejection of the product, jointly developed by AT&T and Sun Microsystems Inc. However Unix International president and chief executive officer Peter Cunningham said that other user interfaces would be evaluated "as they become established in the marketplace" for appropriateness on top of Unix System V, and that a standard X-based architecture would be chosen to allow support for multiple user interfaces. Open Look and Unix System V will be maintained as separate products with separate licensing terms, through the directive of Unix International.

OSF READY FOR INTEROPERABILITY RFT

Meanwhile, the Open Software Foundation is preparing for its next Request for Technology procedure, following its recent user interface RFT (UX No 190), which resulted in the OSF endorsement of Motif, a combination of user interface technology from OSF sponsors DEC and Hewlett-Packard. The new RFT, the timetable of which should be announced shortly, will look to provide a framework for computer interoperability, and the main issue looks to be how the Foundation will steer a course between two of the main contenders - the de-facto Network File System standard from Sun Microsystems, and the technically superior, but incompatible Network Computing System from Apollo Computer. OSF sponsor members have one by one taken out licenses for NCS over the last few months (UX No 222). But it is thought that some OSF members had hoped to cut the long and costly RFT process in this case by choosing NFS, undisputed as the most widely used system.

NCR OPENS 9800 OLTP SYSTEMS TO TOWER USERS WITH UNION

NCR is providing closer links between its Unix-based Tower range and the 9800 on-line transaction processing systems with the release of the company's Union 2.0 software and hardware. Tower processors are connected to the 9800 system bus to provide a high performance cooperative processing environment, allowing data files to be accessed by Tower applications and input/output devices to be connected to the Tower processors. Aimed at programmers who wish to develop on-line transaction processing software for the 9800 using the Unix environment and tools as a front end, Union 2.0 also allows program development to be offloaded onto the Unix machines, increasing transaction processing capacity. Business applications (such as office automation) and decision support tools can utilise data residing on the fault-tolerant 9800 system, and the machines can be integrated into local area networks via the Tower's communications facilities. An entry-level Union system, including a Tower 23/600 and five workstations costs \$27,000, and is available immediately.

APOLLO ADDS 386 CO-PROCESSOR FOR DOS-UNIX WORKSTATIONS

One of the less publicised announcements at Uniforum earlier this month was a joint marketing agreement between Apollo Computer Inc and Cambridge, Massachusetts-based Applied Reasoning Corp, which specialises in MS-DOS-compatible co-processors. The deal means that Applied Reasoning's PC-ELEVATOR 386 board is now available for all Apollo personal workstations, allowing MS-DOS software to be run using the 80386 processor. The board gives video compatibility with PC graphics standards and supports Apollo's interconnect software for network access and remote peripheral sharing. Previously, Apollo has offered software tools to run MS-DOS on its Motorola-based workstations. According to Applied Reasoning marketing vice president Dan Scherlis, the co-processor approach "gives users superior compatibility over single processor solutions, with double the compute power available for simultaneous DOS and Unix operations." Although the company launched its first co-processor accelerator board back in 1985, PC-ELEVATOR is the first designed for the workstation market. Apollo says it will continue to offer its current PC emulation software and interconnect hardware and software, and promised further PC integration announcements mid-year. No prices were given.

HP TURNS ITS PCs INTO X-STATIONS WITH AXDS/PC

New software from Hewlett-Packard enables PCs to access X-Windows graphics applications via high performance networks. AXDS/PC is a display server, which together with the company's PC graphics controller is claimed to deliver two MIPS performance - equivalent to the HP 9000 Model 330 workstation configured as an X-Window system server. This performance will give PC users access to a previously unobtainable range of Unix applications, such as mechanical and electrical design, industrial automation and Unix development tools. X11 server code is down loaded into the memory of the graphics controller - not executed as an MS-DOS application - hence performance is not limited by the operating system or PC set up. With AXDS/PC, PC users can access both Unix X-Windows applications and MS-DOS office automation applications over LANs. To run AXDS/PC a PC user needs 640Kb of RAM, HP's PC graphics controller, ThinLAN or StarLAN 10 card and networking software - together with a high resolution colour monitor. The package will become available during the second quarter of this year, priced at \$500.

MICROPORT "UP FOR SALE"

Microport International Inc has been very quiet in recent months, in contrast to its software rivals The Santa Cruz Operation and Interactive Systems Corp, and now industry sources suggest the company is up for sale, and may soon be merged with another software company. Microport, part-owned by troubled Televideo Systems Inc, Sunnyvale California (UX No 188), recently moved out of its Scotts Valley, California headquarters to an alternative building in San Jose, and has reportedly been losing staff. Company founder Chuck Hickey, now the head of new software house Unistar Software, admitted Microport was "in a tough situation financially", but no further confirmation could be obtained. The company recently reduced prices on its run-time version of Unix V/AT and V/386 to the original price of \$149 in the US and £99 in the UK.

X/OPEN JAPANESE OFFICE "OPEN FOR BUSINESS"

X/Open Group Ltd opened its Japanese office for business at the beginning of this month: it currently has three local members, Fujitsu Ltd, Hitachi Ltd and NEC Corp: top priority is to translate the specs in the Portability Guide into Japanese, and to liaise with the European and US X/Open offices.

COMMODORE SHOWS ITS AMIGA 2500 UX 68020 UNIX V MACHINE

Commodore International Ltd was showing its new Unix version of the Amiga upmarket home computer at the Hanover Fair last week, and was also showing it at the UK's Which Computer Show in February, but that doesn't mean the machine is any nearer general release - once again the company failed to put a price or delivery date on the box, although it did give a few more details. The 2500 UX is almost the same as the Motorola 68020-based Amiga 2000, but adds a 68851 chip for memory management. The 68020 is clocked at a slow 14.2MHz and the 2500 comes standard with a 68881 maths co-processor and 3Mb of main memory. Overall, despite the similarity, Commodore claims that the 2500 UX offers up to four times the performance of the Amiga 2000. It will run Unix System V.3.1 and can also run AmigaDOS in a separate partition on the 80Mb disk drive, which has a racey 19ns access time. The bundled software includes standard Unix editors, a word processor and a C compiler. The one price revealed was for an upgrade board for the Amiga 2000, which will cost £1,700. Commodore has been promising a Unix Amiga version ever since last year's Hanover Fair (UX No 174, 180), and apparently has a 68030-based version planned. However, for those desperate to use Commodore machines in a Unix environment, there is a version of Sun's Network File System (available in the UK from Torus in Cambridge) which has been used to run 15 Amigas from a Sun Microsystems server at the University of Nottingham.

CRAY TRIPLES PEAK PERFORMANCE OF ITS Y-MP FAMILY

Cray Research Inc yesterday broadened its Y-MP family of multiprocessor supercomputers, boosting uniprocessor performance and improving software so that the net effect is that the top model in the line is claimed to deliver 2.7GFLOPS at peak, three times the previous best in the Y-MP line, although the maximum configuration remains eight processors. There are now 19 Y-MP models, and prices go from \$5m to \$23.7m; no further details available.

APPLE'S IICX IS MACINTOSH WORKHORSE

Following the boost to its Macintosh II line with the Iix back in September, (UX No 198), Apple Computer launched the much previewed Macintosh Iicx, touted as the workhorse of the Macintosh family, together with two new monitors, a floppy disk upgrade, and in the UK, the release of version 1.1 of A/UX. The Mac Iicx - intended to bridge the gap between the Mac II and smaller integrated SE range - is modular in design. It uses a 68030 processor running at 16MHz, along with a 68882 maths co-processor and features Apple's 1.4Mb high density floppy disk drive, NuBus architecture, three expansion slots, colour QuickDraw, and an internal 3.5 inch hard disk. In addition to the usual Macintosh ports - two RS232, two Apple Desktop Bus, SCSI and stereo audio ports - the Iicx has an external floppy disk drive port. It comes with a mouse, System Software 6.0.3 with Apple File Exchange, Hypercard and documentation. Also a new monochrome video card for the 12 inch monochrome monitor has been announced, to allow users to configure the lowest cost Mac II system. Mac Iicx is available from the end of March in a number of versions. With 2Mb RAM and 40Mb hard disk it costs £3,540, the 4Mb RAM, 40Mb hard disk model is £4,045, and with 4Mb RAM and 80 Mb hard disk the price is £4,385. At the same time Apple UK has announced the price cuts that caused Wall Street market to have kittens back in January. The Mac II 1/40 is now £3,295, down £800 from £4,095, the Mac II 1.40 is reduced by £1,250 to £4,045, the Mac Iix 4/fl is down to £4,330 from £4,995, and the Mac Iix 4/80 costs £4,720, reduced from £6,195. The new 1.1 version of A/UX - Apple's Unix implementation - announced in the US back in January, (UX No 215), will be available in the UK from April.

UNIVATION TO FILE CHAPTER XI AFTER ARBITRATION SET-BACK

Local area network equipment and communications software developer Univation Inc, Milpitas, California says it intends to file for protection under Chapter XI of the US Federal Bankruptcy Code in response to an adverse arbitration decision in its case against Lifeware Systems Designer Team Inc. The panel of arbitrators found that Univation had materially breached its contract with Lifeware, allowing Lifeware to terminate Univation's licence to the LifeNet software. Univation says that the arbitrators did not address its claim of breach of obligations by Lifeware.

INTEL PENS APRIL 10 FOR 80486 LAUNCH

Intel Corp plans to launch the next member of its 80X86 processor family at press conferences in Chicago (Spring Comdex) and London on April 10th. The company will also officially launch the 33MHz version of the 33MHz 80386, which has already featured in recent product launches, including Tandon's 386/33 PC, revealed at the recent Hanover Fair, which includes VGA support as standard, and runs MS-DOS, OS/2, Unix, Xenix and Novell operating systems, with an entry-level price of £6,000.

SMT-GOUPIL INTO UNIX WITH 80386-BASED SERVERS

Having acquired the computer arm of Sfena SA last year, SMT-Goupil SA of Creteil has a need to expand its micro-computer family up-market, and has decided to go the route of networking its AT-alikes with Unix servers. To this end, it has come out with a variant of the 80386-based G50 three-bus machine, specifically configured to be used as a server running Unix System V.3.2. The G50DX adds to the cache bus, direct memory access bus and AT bus an intelligent disk controller that has its own 512Kb to 12.5Mb 68000 processor configured as a disk controller. It is capable of handling one to four 150Mb or 300Mb disks. The machine is designed to use the company's MS-DOS machines as terminals, going into Unix with a simple Remote Login command; NetBIOS and the X Window System are also supported; no prices have been given.

SUN READY WITH JAPANESE VERSION OF SUNOS

Nippon Sun Microsystems Inc will begin shipping the Japanese language version of the SunOS Unix operating system from early next month - four months behind target: with Japanese keyboard and manual, the thing starts at around \$780, and is only available for the Sun-3 at present, though a local version of SunOS for the Sparc-based Sun-4 is on the way; many major software houses with applications written or converted for Sun stations now plan to put their software up under the Japanese version of SunOS - but it is not the first, because the Japanese Application Environment, from AT&T Co, has already been implemented by Toshiba Corp on its AS3000 OEM version of the Sun-3; there is also a Japanese developed by Kyoto University that is in the public domain; still Fujitsu Ltd does plan to use Japan-SunOS on its G-series line.

THORN PAYS SGS-THOMSON TO TAKE INMOS

Thorn EMI Plc has confirmed that it will get a 10% stake in SGS-Thomson Microelectronics BV as part of the sale of Inmos International Plc. It will also invest \$10m as its share of a rights issue planned by SGS-Thomson, which is currently 50% owned by Thomson-CSF SA of France, 50% by Stet SpA, the Italian state holding company. Thorn EMI North America Inc will hold on to some static memory chip patents that are the subject of a licensing programme, and Thorn justifies the near giveaway by saying it should enhance consolidated group profit and cash flow over the next two to three years - but it gave no estimate of the amount. Part of the revenue stream from the licences will be spent on subscribing to any future SGS-Thompson rights issues up to a \$30m total. The book value of the Inmos assets going to SGS-Thomson is just \$27m; Inmos recorded an \$11.4m profit before tax and interest, on sales of \$91m in the nine months to December 30 last. Followers of the company in London had hoped Thorn would get some cash from the sale.

FUJITSU TEAMS WITH VIA TO CUT COST OF SPARC CPUs

Observers have been pouring cold water on the prospects for the Sun Microsystems Inc Sparc microprocessor on the grounds that so few of the major companies that have declared for it seem to be progressing with their plans. But with chipmaking partners as powerful and Fujitsu Ltd in the Sparc camp, there's no way that the processor will not make its mark - witness the latest development on the Fujitsu front. Its Fujitsu Microelectronics Inc Advanced Products Division announced yesterday that it had made a financial investment in Via Technologies Inc, formerly Logicstar Inc, of Fremont, California as part of an agreement for the development of a complete peripheral chip set for building Sparc computers, the aim being to offer a much more highly integrated - and therefore cheaper - series of products for building Sun-4-compatible kit, from personal computers to top-end workstations.

EDGECORE UNVEILS PHILIPS OEM DEAL

Edgecore Technology Inc, Scottsdale, Arizona has finally got around to putting out a formal announcement that Philips Telecommunications & Data Systems has become the second major European company after Ing C Olivetti & Co to opt for its E2000 superset of the Motorola 68020 architecture, as revealed here last summer (UX No 186) and widely discussed by Philips since: Edgecore values the Philips pact at \$20m or more over its four-year life, and Philips looks to do \$200m of business with the new high-end P9600 Unix machines supporting 100 users and up over the same period; Edgecore's other major customer for the boards, which implement the 68020 architecture in CMOS gate arrays, is Motorola Computer Systems Inc itself, which wants the Edge processors to top off its Unix line above the 68030-based models.

25 GO AS TOLERANT SYSTEMS STOPS MAKING HARDWARE

Another Unix systems manufacturer that is finding that while its Unix-based software may have some value, manufacturing its own hardware on which to run it ain't worth the candle is Tolerant Systems Inc, also San Jose. Tolerant has laid off 25% of its workforce, reducing it to 75 people, and will now concentrate on marketing its TX fault-tolerant multi-processor transaction processing version of Unix to other manufacturers. Plexus took a wrong turning when it based its early Unix machines on the ill-favoured Zilog Z8000 and hit a hiatus when it had to switch to the Motorola 68000 line, and Tolerant was equally unfortunate, picking the National Semiconductor NS32000 family for its Eternity systems. The NS32000s are little used as CPUs. Licensees of the TX software and hardware design include RC Computers A/S in Denmark and Bull in France.

VITALINK ENTERS ETHERNET MARKET

Vitalink Communications Corp is to enter the mid-range Ethernet local area network market with the TransLan 320, a bridge designed to bring local area network interconnect facilities to networks considered too small to justify the purchase of a higher end bridging system. Vitalink says the TransLAN 320 will support one or two remote links at standard data communications speeds of up to 64Kbps; it costs \$9,750, including the software.

SUPRENUM SHOWS 5GFLOPS SUPERCOMPUTER

West Germany will join the list of countries with a super-computer industry when its quasi-national Suprenum project comes to fruition at the "real" Hanover Fair, the original April Industrial Fair, not the emasculated affair on this week. Suprenum GmbH, based in Bonn, plans to show off its eponymous parallel processor - the name stands for Supecomputer for Numerical Applications - at the Fair, with the claim that the machine solves the problem of efficient communication between the processor nodes. The prototype of the Suprenum-1, which uses a Unix-based workstation as a front-end, was shown at Hanover will have only 32 node processors, each rated at up to 20 MFLOPS to create a 640 MFLOPS peak machine. But by year-end, the aim is to have a 256-node Suprenum, which the designers claim will do 5 GFLOPS peak, topping the Cray Research Inc Cray-2. The full-scale Suprenum-1 will have 16 clusters, each consisting of 16 vector processing nodes plus four housekeeping nodes for disk control, diagnostics and communications. Each node consists of a Weitek floating point chip set, with 8Mb of memory using non-volatile RAMs made in the UK, and custom gate arrays, all under the control of a Motorola 68020 and mounted on a ceramic substrate measuring 8.8" by 18.9". According to the International Herald Tribune, software has already been developed for solving fluidic dynamics problems, Euler and Navier Stokes equations, plus demonstration software to show the machine's versatility. Suprenum GmbH, 54% owned by Krupp Atlas Elektronik AG, 18% by Stollmann AG and 20% by the GMD German National Research Centre, with another 12 investors holding the balance, hopes to have sold two or three of the machines, which run up to \$16m in price, by the end of this year. Over half of the \$100m expense of the project has been borne by the federal government, with NordRhein-Westfalen chipping in, and the universities of Darmstadt, Braunschweig, Bonn, Dusseldorf and Erlangen all contributing work. The project has slipped a bit and over-run its budget: at the beginning of 1986, when Suprenum GmbH was formed, the aim was to have the supercomputer ready by 1988, on a \$40m budget.

GIGATAPE HAS 1.2Mb DIGITAL AUDIO TAPE

Gigatape GmbH, based in Puchheim, West Germany, exhibited its new tape backup system for the first time in Europe at last month's Which Computer? Show. The 5.25" Model 1230 is the latest in the Giga 1200 range and is aimed at network systems and Unix users. It has storage capacity of 1.2Gb on standard Digital Audio Tape, and a slow 8.15mm-per-second tape speed, reducing wear and tear. However, data recovery tape speed is a much faster 3.13m-per-second and comes with electronic track finding with an average access time of 20 seconds. The system has a choice of standard interfaces: SCSI, Pertec and QIC-O2, making it compatible with a variety of host computers, including IBM, DEC, Apple, Sun, Apollo, Unisys and Siemens machines. Prices start at £3,500 for the single user, rising to £6,000 for the Novell package for network users, which comes with software developed by Gigatape and fellow German Adcomp; the drive is available now.

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DEC READY WITH GKS, PHIGS+
DEC has extended its VAX GKS and VAX PHIGS graphics sub-routine libraries with new releases that run on both Ultrix and VMS systems running the DECwindows environment. DEC GKS - Graphics Kernel System - supports two dimensional device independent graphics implementing the ANSI/ISO GKS standard, and PHIGS - Programmers Hierarchical Graphic System - is a three dimensional graphics support system, again based on the ANSI/ISO PHIGS standard, but according to DEC going beyond that and providing most of the functionality of the proposed PHIGS+ standard, and several proprietary extensions. Available on the full VAX workstation line (but not the RISC-based DECstations) DEC GKS and PHIGS 2D support is based on the X window system, while the new 3D support is based on the proposed PEX (PHIGS + extension for X11) standard (UX No 212). Through support for its Compound Document Architecture and Digital Document Exchange Format standard, DEC says it will offer the inclusion of 2D and 3D graphics within documents as a future extension. Development licences for GKS in the UK are £657, with a run-time licence is £131. A PHIGS development licence costs £2,555, run-time £511. Availability by May, except for GKS for VMS, which will be ready by April.

APOLLO MERGES

X WITH DISPLAY MANAGER

Apollo Computer Inc is also claiming to have implemented similar capabilities to the PEX extended PHIGS and X-Windows standard through its integration of X11 with its Domain Display Manager windowing environment. Users can launch either X or Display Manager-based applications from either type of window, according to Apollo, which allows native 2-D and 3-D graphics packages such as Domain/PHIGS and GMR to be run within an X application. First public release of the PEX software and documentation is not scheduled until late 1990.

Sun Microsystems' new Sparcintosh, due out next month, is expected to offer 12 MIPS to 14 MIPS performance for \$7,000, probably on April 12th: Sun plans over the next three to six months are thought to include three new Sparc machines including the low-end machine, a mid-range machine priced similarly to the \$20,000 Sun 4/110 and rated at between 10-15 MIPS, and an 11-20 MIPS system costing around \$40,000 - and then there are the two new 68030 models, including a \$30,000 model expected to use the 33MHz version of the Motorola processor, and a low-end \$10,000 machine.

And there are even rumours of a Sun 486i, although this is not expected to see the light of day until the very end of 1989, and further along, a 35-40 MIPS Sparc-based server.

Spreadsheet software house Access Technology, which recently merged with Compuserve Inc, has signed a major Japanese distribution deal with K.K. Ashisuto of Tokyo, Japan, which will have exclusive rights to the 20/20 spreadsheet, and will be translating the product into Kanji: Access has also recently open a Swiss office in Zurich to distribute 20/20 throughout Switzerland.

The binary compatibility standard version 1.0 for the Motorola 88000 RISC processor ships this week: all 88Open members will receive five free copies, and can order additional copies for \$20, while non members can obtain copies for \$40 from Lori Sahlin at the association's Wilsonville, Oregon offices.

And Foster City, California-based Diab Data announced its D-CC/88K globally optimising C compiler for the 88000 processor at Uniforum: Diab was among three new members announced at the show, the others being Opus Systems Inc, Cupertino, California, and Omron Tateisi Electronics Co, Kyoto, Japan.

Apollo Computer Inc is working with the University of Michigan to establish an advanced graphics facility: the College of Engineering's Advanced Visualisation Facility (AVF) bought an Apollo Series 10000 system last month, and has over 500 Apollo workstations connected to a multi-vendor network.

Motorola Inc has bought a 20% stake in Interphase Corp in an expansion of its relationship with the Dallas maker of high-performance VME disk controllers and networking controllers for the VMEbus. Motorola Microcomputer Division is a long-standing customer of Interphase, using Interphase peripheral controllers in its Delta Series product line. Motorola will license Interphase's proprietary VMEbus BUSpacket Interface, designed and optimised for peripheral and network controllers.

Dr Gene Amdahl has resigned his post as chairman of Elxsi Corp, San Jose to devote more time to his new IBM plug-compatible processor venture Andor Systems Inc: the post is to be taken by Elxsi founder Joseph Rizzi, formerly vice-chairman, who is also a general partner of the Matrix Partners venture capital group, of Menlo Park, California.

Control Data Corp's ETA Systems is still trying to whip up excitement over its ETA-10 supercomputers, and its latest effort is the ETA Parallel Computing Challenge, offering a \$50,000 prize for the demonstration of a massively parallel computer complex able to perform a set of real-world benchmarks at true supercomputer speed: the contest will run from April 1 to April 1, 1990.

Tandy Corp's Grid Systems Corp, now effectively Tandy's professional computer arm, is sticking its name on the Micro Channel 80386 and AT bus 80286 machines from Tandy, offering them as the Grid-Desk 386mc and the Grid-Desk 286is. It also has a new low-end laptop on its own account, the NEC V20-based Grid 140 XT, with 20Mb hard and 720Kb floppy drives, at \$2,600. All ship April.

Siemens AG has sold a VP2000 scientific supercomputer from Fujitsu Ltd to the French CIRCE laboratory.

And Amdahl Corp has sold one of the Fujitsu VPs too: a low-end Model 1100E rated at 429MFLOPS is on its way to Inteco GRI SpA's scientific computing centre in Rome, Italy.

Intergraph Corp warns that analysts have got it wrong: the Huntsville, Alabama company says sales and profits for the first quarter of 1989 will be below expectations, blaming products it has delayed to the second quarter, and falling prices.

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Number 224

STRATUS ABANDONS MOTOROLA 88000 FOR INTEL 80860

Stratus Computer Inc, one of the first companies to join the 88open club of backers of Motorola Inc's 88000 RISC microprocessor has jumped RISCs in mid-stream. The Marlborough, Massachusetts manufacturer of fault-tolerant super-micros announced yesterday that it plans to develop a family of very high-performance systems based on the new Intel 80860 RISC microprocessor. The planned systems will not be ready until "the early 1990s", and Stratus says that in the meantime it is working on several high-and low-end XA2000s using the Motorola 68030 to cover the interim until the 80860 box is ready - but makes no mention of the 88000. It says that the new 80860-based systems will also be fully compatible with its present product line by virtue of a new compiler technology that enable its own VOS operating system, as well as all customer's applications software, to be compiled and run on the planned i860-based systems, and to take full advantage of the power of the Intel i860: a version of Unix System V operating system will also be implemented. Stratus' fault-tolerant Unix development effort is in a joint venture with Olivetti & Co SpA, and the Italian, which markets Stratus machines in Europe, has also committed to the new Intel chip - but Stratus says that there is no direct connection. It says it decided to drop the 88000 for the 80860 because it believes it can gain more software leverage from the Intel product. "This was a business decision rather than a technical one", said Stratus spokeswoman Denise Ferbas. "Our hardware design is very processor independent, which allowed us to change chips easily".

...AS MOTOROLA STEALS INTEL THUNDER WITH 68040 PREVIEW

With its eye on Intel Corp's forthcoming launch of the Intel 80486 in the second week of April (UX No 223), Motorola Inc has let slip just a few more details about its own next-generation CISC processor, the 68040 - without giving away availability or pricing of course. According to Motorola, the new 32-bit chip breaks the one million transistor barrier by incorporating 1.2 million transistors on a single piece of silicon. Although it is not giving away any performance details, the company claims that the high level of integration, including an on-board, 80-bit floating point unit and four other execution units capable of simultaneous operation, will give the chip a far greater performance increase over the 68030 than that chip had over the 68020. Other execution units on-chip include the integer unit, apparently the subject of a major re-design; a paged memory management unit supporting demand-paged virtual memory and real-time operating systems, which includes two independent address translation caches; and two large separate caches for data and instructions. All execution units can operate simultaneously, and further parallelism is achieved through multiple pipelines and internal buses, and a "Harvard style" architecture also used in the 68030. Features supporting multiprocessing designs include a snoop controller to maintain cache coherency. Additional features, performance, pricing and availability will be revealed later this year, according to the company. The 68040 remains "100% compatible" with other members of the 68000-based range, said Motorola. When it originally began talking about the 68040, almost a year ago (UX No 176), Motorola was talking about integer performance of 15 MIPS, floating point performance of 4 MFLOPS, and 8Kb instruction and data caches. In a related announcement, Hewlett-Packard became the first hardware company to endorse the chip, saying that the 68040 would be used in its top-end workstation range: it will also be providing development tools for the 68040.

PEGASUS LANDS SPHINX AS METROLOGIE DROPS OUT

Microcomputer software house Pegasus Group Plc has emerged as the eventual buyer of UK Unix experts Sphinx Ltd, and will pay £2.75m for the Unix software distributor with £2m in cash, £750,000 in new Pegasus shares - which will be split between the various owners of Sphinx, including the venture capital arm of Olivetti. Pegasus, cited as one of the original companies interested in Sphinx when we broke the story here back in January (UX 215), appeared to take a back seat as negotiations with the French Intel distributor Metrologie SA took priority. Metrologie, which had made a higher offer than Pegasus, was still the front-runner until Monday night, but talks with the French company broke down and the ball was back with Pegasus. Pegasus has also been looking seriously at Control Data Corp's Systime Ltd, but may not want to digest two acquisitions so close together. Unaudited management accounts to September 30 1988 show Sphinx with pre-tax losses of £259,000 on turnover of £6.1m. Net assets are estimated at £500,000. Kettering, Northamptonshire-based Pegasus sees its main strength as PC network related accounting systems: managing director Clive Booth claimed that the company now has a 40% share in that market, but only a 10% share in the Unix market, where it sells its own Senior accounting package on Unix, Xenix and AIX-based systems. "That is where the incremental growth will be", said Booth. The Sphinx dealer network will also boost the efforts of Pegasus to build up third party sales, and Pegasus group marketing director Keith Hall said the company would support any of its own dealers wishing to move into Unix systems. For its Unix distributor business, Sphinx is likely to retain its own identity within the Pegasus Group, which recently reported record interim profits up 50.1% at £842,000 on sales up 12% to £3.9m for the six months to January 31.

BETTER MS-DOS SUPPORT, BIGGER FILES SEEN FOR MICROSOFT "OS/3"

Following the release of OS/2 Edition 1.1 for Intel 80286 processors by Microsoft last October, the Redmond, Washington company has been dropping broad hints about the details of the forthcoming "OS/3" being designed specifically for Intel 80386-based machines. According to OI Informatique, Microsoft's aim will be to offer a new file management system, whilst giving greater support for MS-DOS programs than OS/2 does. Existing OS/2 applications for Intel 80286s will be compatible with OS/2-386 via a 32-bit Dynamic Data Link, which can be used for full 32-bit programming, whilst preserving the compatibility of the 16-bit code needed in the 80286 version. Unlike the present OS/2 operating system, which uses the bank switching method of memory management, OS/2-386 will employ a paged memory management system. In compatibility mode it will support Expanded Memory System, and will run up to 16 MS-DOS applications in 8086 virtual mode. Those MS-DOS applications not in use will be transferred to disk to function in background, with Presentation Manager in the foreground. The new High Performance File System method of file management is to include a redesigned File Allocation Table with a memory extended to 64Kb, for management of disks of up to 2,000Gb volume, and files of 4.2Gb. The new system will make optimum use of the disk space available for file storage, it will also contain the base for an object orientated file management system, since Microsoft is developing a C++ compiler based on the C++ language from AT&T, and database enhancements for C and Basic languages. Preliminary tests on the new version of OS/2 with the High Performance File System have shown a performance improvement of just under 50% in real mode when compared to the existing version of OS/2. This seems to point the way for OS/2 development, and future plans for the system are already being laid. The eventual aim is to develop a version of Presentation Manager under OS/2 which incorporates a Graphic Programming Interface functioning like Adobe Postscript, offering extended bit-map graphics and screen enhancements. This version of OS/2 will have an Advanced Video Input/Output module comprising a virtual screen, mouse, virtual keyboard and window support. Finally, Microsoft sees OS/2 developing on a parallel path with Unix.

STEVE JOBS "TO SELL THROUGH BUSINESSLAND"

Having said his company would at first put the Next Computer System only through educational establishments, Steve Jobs may now be about to change tack completely, and according to the Wall Street Journal is about to market the machine through the big San Jose-based Businessland retail chain. Demonstration models of the Next black box could be on show by next month, allowing the chain to take orders for delivery by July. The machine would be the first from Businessland to run Unix. But the San Francisco Chronicle has thrown cold water on the story, suggesting instead that Businessland will be stocking the next generation of IBM's RT Unix station running the NextStep user interface, and that it was this that caused the company's recent divorce with Compaq Computer Corp. Meanwhile, Next reports that Lotus Development Corp is doing a spreadsheet, Apple Computer Inc's Claris Corp a word processor and Ashton-Tate Corp a database for the Next Computer System, each to be file-compatible with the companies' products for MS-DOS and the Macintosh.

SUN TEAMS WITH CRAY; EMULATES IBM 5080 GRAPHICS SCREEN...

Cray Research and Sun Microsystems have a strategic alliance under which Sun workstations will be integrated with Cray supercomputers, and Thursday introduced the first product out of the pact: the Cray FEI-3 channel interface to provide high-speed data transfer between the Sun workstations and Cray supercomputers. Cray will work with Sun's Strategic Industry Partners Programme to bring the power of its machines to Sun users. Sun also cocked a snook at IBM, coming out with the 58TE terminal emulator, designed to enable Suns to emulate the widely installed IBM 5080 graphics terminal. The product, part of Sun's programme to offer IBM links for workstation users, is claimed to provide 100% functional compatibility with the 5080 and runs on Sun-3 and Sun-4s. It is \$50,000 including the channel adaptor hardware, or \$30,000 for the software only.

FRONTLINE TO DISTRIBUTE XDOS MS-DOS UNDER-UNIX FROM HUNTER SYSTEMS IN UK

Personal computer distributor Frontline Distribution Ltd has signed an exclusive UK distribution deal with Hunter Systems Inc, Mountain View, California for Hunter's XDOS binary compiler and run-time package, which enables MS-DOS software to run under Unix. Frontline will be selling the software on to hardware manufacturers, software developers and end-users interested in migrating MS-DOS-based software onto Unix. XDOS enables MS-DOS packages to be converted in a on-off operation, regardless of the Unix target machine. Software developers can lease Hunter's XDOS analyser, which produces a key file specific to the application: the process can sometimes be completed fully automatically within three minutes, but normally requires some programmer intervention, which may take a few days. Once a key file is produced, it can be run in conjunction with the original package and a machine-specific converter for the target machine. Key files for 14 mainstream packages, including Lotus 1-2-3, dBase, WordStar, Paradox and Framework are currently available, but Frontline plans to approach others with vertical market packages, and is setting up a conversion centre at its Basingstoke, Hampshire offices. According to Frontline's Mike Cherry, XDOS will run 8086-based MS-DOS programs around 10 times the speed of a traditional emulation product, and between 70% and 90% as fast as the same application re-written from scratch for the target system. Sun-3/260 workstations are said to run the packages at 80386 speed, and are Frontline's initial target market, but versions for Honeywell XP, NCR Tower and Sony News machines are also ready. Cost is £5,000 for a month's lease of the analyser (a one off operation for each application package). Existing key files cost £90 (one user) £170 (four user) or £320 (eight user), and the machine-specific converter costs £450 for the Sun-2/60. Future developments from Hunter include an 80386 version, and software to convert MS-Windows applications to support X Window under Unix. Hunter is also working on several RISC versions, including the Motorola 88000, and a product to convert between the Computer Consoles Inc and Sun Sparc RISC chips, though Frontline hinted it would also be interested in an MS-DOS-to-IBM RT version. Those rumours that AT&T Co is lining up a bid for NCR Corp should not be believed, and that's official: AT&T says that there's no truth in them.

OSF PLANS NEXT RFT FOR MID-MAY

The next Request for Technology specifications issued by the Open Software Foundations will be revealed in mid-May, an OSF spokesman confirmed this week. At least two RFTs are likely to be issued at the OSF members meeting to be held in Monaco, and will include interoperability and communications, and Application Neutral Distribution Format (ANDF) - seen as the OSF answer to Unix International's concentration on Application Binary Interfaces. ANDF is likely to use interpreted intermediate code to produce portable applications across processor types, in much the same way as the old p-System Pascal operating system developed at the University of California, San Diego, distributed at one time by Softech, Waltham, Massachusetts (UX No 30). If successfully implemented, the technology would go beyond the shrink-wrapped software offered by application binary interfaces for individual processors, according to the OSF. Other RFTs under consideration for the May meeting include systems administration and security: the systems administration RFT is likely to be subject to an abbreviated version of the so-called "open process", in order to speed its implementation.

ICL LAYS OFF 800 - SHUTS 3 UK BASES

STC Plc's ICL Ltd has announced plans to close three UK bases and eliminate 800 manufacturing jobs out of a total of 4,000 people in manufacturing - the UK headcount at ICL overall is 21,000 - but it hopes to redeploy up to 300 of the people affected. Under the plan, the office systems plant in Letchworth, Hertfordshire will close in September with the work transferring to the Series 39 mainframe plant at Ashton-under-Lyne, with 660 people affected. In November, the distribution of software and literature will transfer to Stevenage, already handling hardware distribution, affecting 140 people. And in December, the other Letchworth plant, doing cabling and circuit boards for networked systems, will close with the work going to Kidsgrove, which already does similar work. ICL, which grew only 5% last year, says the moves are needed to maximise efficient use of its facilities and automated manufacturing techniques.

EASTMAN KODAK OPENS KEEPS

Eastman Kodak has a new "open architecture" version of its Ektaprint electronic publishing system, KEEPS. The new advanced printing/publishing software - AP/PS 1.0 - allows users to run both publishing and non-publishing applications on a single system, meaning that KEEPS customers can select from Kodak or other off-the-shelf packages. With AP/PS, Kodak is hoping to tempt aerospace companies, government agencies and engineering and design firms to use KEEPS's long document capabilities - into which they can now integrate their existing software. Kodak re-badges the hardware for KEEPS from Sun Microsystems. Expanded file management, communications and networked printing capabilities are included in the new system. AP/PS will be available in June - no prices as yet.

PROFITS FALL AT SILICON GRAPHICS DUE TO LATE HARDWARE

It's been a case of the good, the bad, and the ugly over at Silicon Graphics' Mountain View headquarters in California during the last week or so. The good news is that orders for its new high end Power Iris Series of parallel Risc workstations based on the MIPS R3000 chip (UX No 200) are much higher than expected. The bad is that the 25 MHz version of the chip used in the machines only became available in quantity during last month from the manufacturer, Performance Semiconductor Corp. As a result shipments of the high end workstations have been delayed. The main problem stems from an initial delivery of R3000s last December, according to Silicon Graphics' vice president Mark Perry in an interview with Computer Systems News. The chips only clocked at 23.7MHz and not the 25MHz required, said Perry. However the problem is now said to be rectified and volume shipments of the delayed workstations are set to begin in the next quarter. Silicon had hoped for a balanced mix of orders between the new R3000 machines and the slightly older 16MHz R2000 based systems. In the event it appears customers have rushed for the newer product. LSI Logic Corp and Device Technology Inc are also producing the R3000 - soon to be joined by NEC Corp and Siemens AG - however Performance claims to be the first to produce a 25MHz version of the part. The ugly news now facing Silicon Graphics is that third quarter revenue and earnings are expected to be significantly lower than predicted. Wall Street says the firm, with the top growth rate in the workstation market - 80% according to Dataquest, (UX No 219) - will do around \$69 million in revenue for the third quarter ending March 31. Earnings per share are touted at a modest 15 cents, down from earlier projections of around 30 cents - compared with \$40 million revenue and 25 cents per share earnings for the same quarter last year.

NOW PLEXUS COMPUTERS FILES CHAPTER XI BANKRUPTCY

Small US computer companies are falling like flies just now, and the latest to file for protection from its creditors under Chapter XI of the US Federal Bankruptcy Code is San Jose-based Plexus Computers Inc, whose backers pulled the plug two weeks ago, leaving it with no alternative but to fire 75% of its 200-strong workforce (UX No 222). The backers had put \$40m into the firm but balked at putting up the additional \$10m needed to keep it afloat. The company's software products and image storage and retrieval technology are expected to be of interest to several players in the overcrowded image market, and Hewlett-Packard Co - with which Plexus was on the point of forming a strategic alliance when the boom fell, AT&T Co, NCR Corp and Filenet Corp have been named as possible buyers. The firm owes \$5m to customers, investors and component suppliers, there's a \$1.5m promissory note outstanding to the Silicon Valley National Bank, and laid-off employees have not had their redundancy pay.

DATA LOGIC AXES 70 JOBS IN THE UK

Data Logic Plc, the London software house owned by Raytheon Co, has announced 70 redundancies throughout the company with about half of these coming from administrative positions. The restructuring is to strengthen Data Logic's competitive position in the trading room systems world market and is "absolutely not" part of a streamlining prior to being disposed of by Raytheon. Alan Thomas, the company's current president is taking a sabbatical to work as head of the Defence Export Service at the UK Ministry of Defence, while John Ockenden joins Data Logic from CAP Scientific to become acting chairman and chief executive.

ELXSI FOR SALE

Elxsi Corp, San Jose, California has run out of the cash that its merger with Trilogy Ltd brought in, and recognises that it must do something quickly if it is to survive. The firm has retained investment bankers Houlihan, Lokey, Howard & Zukin Capital to seek a backer or a buyer for Elxsi.

CONTROL BOARDS EXTEND SUN WORKSTATIONS

Control Corporation has added two new multiport boards to its range - enabling Sun 386i workstations to be turned into multi user systems. The Hostess 550 and Ultra 186 provide 4, 8, 16 or 32 additional serial ports, so that terminals can be attached to the 386i. The Hostess 550 is a buffered board which reduces the number of interrupts generated, allowing the CPU to transfer a burst of data at very high speed, whilst the Ultra 186 has an on-board 80186 to off load the system processor. Sun 386i drivers bundled in with the St.Paul, Minnesota based company's boards cost \$550, \$900 and \$1300.

TOPOLOGIX BUILDS TRANSPUTER BASED PARALLEL PROCESSOR

Topologix Inc, the Denver, Colorado company that builds Inmos International Plc Transputer-based parallel processing boards for use with Sun Microsystems Inc workstations (UX No 210) is now so confident of its prowess that it has created a full-scale parallel processor that it rates at 250 MFLOPS peak in double-precision work. Such a configuration consists of eight cabinets, each resembling a Sun Microsystems workstation in both appearance and colour - it is still front-ended by a Sun - and features 256 status lights on its front panel to monitor processing functions. Up to eight of the Topology 1000 parallel boards - each with four processors and up to 16Mb of associated memory - can be installed in the Topology 1 cabinet. To create the maximum system, eight cabinets are interconnected to provide 256 processing elements. Hitherto the number of Topology boards that can be installed in a Sun station is limited to eight. The new cabinet is 30" by 12" by 28" high, but it takes up to 5MW power. Pricing starts at \$27,500 with the first processing board and first ships are set for the second quarter.

STAR HALF YEAR FOR STAR COMPUTER GROUP

Star Computer Group of London EC, doing Unix accounting packages says the emergence of Unix as an industry standard has made for another firm half year with pre-tax profit up 35% to £464,000: these figures were helped by the successful launch of the Group's Practice Master System which has increased average size system sale, as well as by the introduction of the Boardroom Plus executive information system. For the future, Star says it will concentrate on its consultancy, training and third party maintenance areas - and that it is still in the market for further acquisitions.

SIEMENS COMPLETES INTERTECHNIQUE DEAL

Siemens AG now has definitive agreement to pay Intertech SA \$54.7m for 51.7% of IN2, Intertech SA - and outside shareholders will be offered the same price, although Siemens hopes enough will hang on to their shares to enable the company to retain its quote. Intertech is to retain about 20%, about 10% is in the hands of employees, and the other near-20% is traded on the Paris Bourse. IN2 had net profits of \$4.5m on sales of \$173m from its 68030-based Pick machines and its Leonard line of MS-DOS personal computers, 16% of the business done outside France, mainly in Spain and Belgium, although it also has outlets in Switzerland, Italy and here in the UK. Like Pick system dealers in the UK, the company is strongest in the public administration and health markets. Siemens says it intends to merge the marketing network of IN2 with its own French marketing operations, and give IN2 access to its other mini- and microcomputer product lines. Siemens Data Systems returned to France about five years ago, having lost its entire marketing network there when its former partner Compagnie Internationale de l'Informatique was merged with Honeywell Bull SA in 1976. Its main business in France since has been mainframes and peripherals.

NOVELL TO BUY EXCELAN TO RETAKE TOP NET SPOT FROM 3COM

Late on the eve of a holiday is hardly the best time to make a big, positive announcement, but it is difficult to believe that Novell Inc, Provo, Utah, and Excelan Inc, San Jose, California, are anything other than proud of the news that they are to wed in a share exchange valuing Excelan at about \$170m. Novell Inc made an unhappy foray into hardware and decided to back off, investing most of its resources in software development; Excelan is in hardware, and specialises in boards and software to enable incompatible machines to co-operate on a local network, while its Kinetics subsidiary specialises in networking products for the Apple Computer Inc Macintosh. Excelan did net profits of \$5.5m on turnover of \$66m in 1988, while Novell did \$30.4m net on \$281m for the year to October, so the combined company will have annual sales in excess of \$350m, and at current growth rates will likely just top 3Com Corp, which is expected to have sales of \$380m in the year to May 1989. Consummation of the deal, which involves Novell paying at least 0.475 and a maximum of 0.6 of a share for each Excelan out, is not expected until mid-summer.

MULTIFLOW TO GET A SHARE QUOTE BY REVERSING INTO ADAGE INC

Very long instruction word minisupercomputer builder Multiflow Computers Inc of Branford, Connecticut plans to go public without the expense of an initial public offering by reversing into a firm that already has a quote for its shares. The company it has chosen is Billerica, Massachusetts maker of CAD/CAM graphics displays, Adage Inc. Adage will make a one-for-four exchange of shares with Multiflow that will leave its own shareholders with 40% of the enlarged company, which will be renamed Multiflow. The deal needs agreement from both sets of shareholders. Adage had net of \$6.4m on sales of \$15.5m for the nine months to December 31. Multiflow did not give figures.

88OPEN WORKS TO COMBAT 88000 SOFTWARE FAMINE

The contention of Status Inc (see front page) that it will be able to gain more software leverage from the Intel Risc processor than from the rival Motorola's 88000 chip is something that that 88Open Inc is working hard to dispel. The consortium's Software Initiative Organisation - set up last month, (UX No 220), and composed of thirty or more independent software vendors committed to support Motorola's 88000 Risc processor - has been talking about what is, and what will be on offer from its members over the coming year. Companies porting compilers to run on 88000 architecture include Absoft Corp, Auburn Hills, Mississippi, a Fortran compiler; Language Processors Inc of Framlingham, Massachusetts, COBOL and Fortran compilers; MBP Software, Alameda, California, Visual COBOL 85, a ANSI-85 COBOL compiler; NKR Research Inc, a Basic interpreter and compiler; Silicon Valley Software, Cupertino, California, Basic, C, Fortran and Pascal compilers. Cognos Software, of Ottawa, Ontario in Canada, is porting its PowerHouse 4GL to 88000 architecture as part of its open systems strategy launched at the end of last year, (UX No 211). Franz Inc, Berkeley, California, is undertaking a LISP development for the technology, and Mountain View, California, based Hunter Systems' MS-DOS to Unix converter - XDOS - picked up by Motorola at the end of last year, (UX No 205), will also become available. Informix is set to introduce an 88000 version of its Unix based relational database management system, and Phoenix Technologies, Norwood, Massachusetts, has announced a customised edition of its software co-processor technology. Progress Software Corp, Bedford, Massachusetts, is to put its 4GL RDBMS - Progress - on to the architecture, and Telesoft, San Diego, California, is porting Telegen2, its Ada development system. All the above - together with an 88000 version of Wordperfect 4.2, from the East Rochester, New York based wordprocessing firm - are to become available towards the end of this year.

UNIFORM ATTENDEES DIVIDED OVER INTERFACE ISSUE

In an attempt to discover which Unix graphical user interface will win the battle for hearts and minds, Chicago based data analysis specialists SPSS conducted a survey at the recent Uniform exhibition in San Francisco - but found no apparent victor. Asked which user interface they supported, 38% of respondents chose the Open Software Foundation's Motif, while 28% opted for Unix International's Open Look offering. However amongst those currently using Unix the result was a dead heat - each received 36% support. Other contenders, such as Presentation Manager, Macintosh and NeXT Step all finished with less than seven per cent. Regardless of the outcome of the interface battle, it seems that hardware brand loyalty is to become a less influential factor in future purchase decisions, 66% of respondents seeing this change resulting from attempts to standardise the Unix environment. Interestingly, while 37% of respondents said that the split between OSF and Unix International had damaged Unix's chance in the market, 29% believed that it actually helped. The fact that the highest proportion of respondents were sales people seems to show that the moral of "all publicity is good publicity" is still alive and kicking in the marketing game!

MENTOR INTRODUCES WEALTH OF NEW DESIGN TOOLS

The UK arm of electronic design automation specialists, Mentor Graphics Ltd, Bracknell, Berkshire, announced a veritable sackful of new design tools last week. First, airflow modelling has been added to its existing thermal analysis software AutoTherm. It can now predict the velocity distribution and temperature of airflow within an electronic package via a range of temperature maps. Then comes ProtoTherm, a thermal analysis tool for electronic engineers designing printed circuit boards, enabling evaluation of the thermal performance of designs early in the development process. ProtoTherm is compatible with AutoTherm, costs £14,000 and is available now. Mentor's electronic packaging and analysis system - Package System - has been enhanced with the addition of an AutoSurface feature. This automatically creates shaded images and models with hidden lines removed from wireframe models, making it easier to visualise on screen designs. It generates models that can be viewed from different perspectives and with different light sources. AutoSurface is now included in Package Station and can be added to 3D Design for £5,200. Also unveiled was Analogue Station, a new member of Mentor's IDEA Series of engineering workstations, combining Apollo Computer kit with new a proprietary analogue simulator and library - AccuSim and AccuLib. Schematic capture and documentation tools, and the Monte Carlo statistical package are also bundled in with Analogue Station, which is shipping from the third quarter of this year. Adding AccuSim to an existing IDEA Series workstation is £15,000. AccuLib costs £4,200 with quarterly updates, and a Monte Carlo upgrade is £5,200. AccuSim, AccuLib and Monte Carlo are available from April. If all this was not enough Mentor has also introduced QuickGrade, a statistical fault grading tool for the evaluation of simulation and test stimulus. It is intended to complement QuickFault, Mentor's deterministic fault simulator. Allowing designers to quickly develop and analyse test vectors as part of the design process, QuickGrade supports multi level modelling methodologies and provides a list of undetected faults and an estimate of overall fault coverage. Finally, System-1076, claimed to be the first implementation of the IEEE-Std 1076, or Very High Speed Integrated Circuit hardware description language (VHDL), integrated within a complete electronic design automation environment was announced. System-1076 integrates a VHDL analyser and interactive source code debugger with the same graphical interface and database as Mentor's existing design and analysis tools. The environment also includes a graphical editor for architectural design, and lets designers move from one level of design to another. Prices for System-1076 start at £17,200. The first release begins shipping in the third quarter, a second version incorporating the architectural editor will be available early next year. The ability to run a compiled VHDL model will be a free enhancement for any Mentor Idea Station.

SCIENTIFIC MICRO SYSTEMS IN CHAPTER XI BANKRUPTCY

After coming out with daunting losses of \$43.8m for 1988, Scientific Micro Systems Inc sees no alternative but to file for protection from its creditors under Chapter XI of the US Bankruptcy Code, which it did on Monday. The Mountain View maker of controllers and peripheral subsystems says that the losses put it in violation of financial covenants of its line of bank credit. It retained Stutman, Treister & Glatt to be its bankruptcy counsel.

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Integrgraph's new InterServe 3505 family of workstations and servers - based on an enhanced version of the Clipper 300 chip rated at 20MIPS, (UX No 220) - have 32Mb of memory, expandable to 160Mb, 6.5Gb of disk storage, with twin 256Kb caches, and have been designed primarily for office and laboratory use: the Interserve 3505 will be available in the third quarter of this year priced at \$76,000, and the InterServe 3005 is upgradable to the new range.

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Technology Application Group of Los Alamitos, California, is offering a DOS and OS/2 emulation of Sun's NeWS window system for 286 and 386 machines: based on Adobe Systems' PostScript language, NewScript offers a PostScript language interpreter, device independent graphics and an object orientated user interface toolkit - in addition to NeWS emulation.

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Ready Systems, Sunnyvale, California, has teamed up with Siemens AG to provide its VRTX32 multitasking real time kernel for 80386 based Multibus II OSM boards from Siemens: the company says it is also to port VRTX32 to the Gmicro series of 32 bit microprocessors based on the Tron - real time operating nucleus - architecture, being developed by Mitsubishi, Hitachi and Fujitsu.

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Nixdorf Computer Inc has won a \$7m contract from Seattle, Washington-based department store retailer Nordstrom Inc to supply its fashion stores with retail automation systems: the order is for 2,000 of Nixdorf's 8812 point-of-service terminals and Unix-based in-store processors; the installation will begin in Nordstrom's Alderwood, Washington store and should be completed in the 58 stores across the US sometime after next year.

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Unisys Corp has added the 25MHz 80386-based PW2 Series 800-25A to its Personal Workstation2 line: out now in the US, the four configurations cost from \$7,315 to \$10,685; the new machine is based on the board-level Model 302s that Unisys is buying in OEM from Intel Corp.

Clarifying his ruling in Apple Computer's suit against Hewlett-Packard Co and Microsoft Corp (UX No 223), Judge William Schwartzer said that Microsoft cannot use the 1985 licence agreement with Apple as a "complete defence" to Apple's claims that Windows 2.03 infringes Apple copyrights: however, the 1985 agreement does license Microsoft to use the visual displays "in current and future products" - the clarification may limit damages that the defendants have to pay.

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Sun Microsystems has teamed up with Philips NV, Microwave Systems Corp, National Computer Systems Inc and Datalink Corp to establish OptImage, a software tool venture for the Compact Disk Interactive industry: OptImage will offer tools for Sun Unix servers, VMEbus systems under OS/9, and MS-DOS boxes.

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Alliant Computer Systems Corp, Littleton, Massachusetts signed an exclusive \$6m three-year agreement under which TechTrend Electronics & Computer Ltd of Hong Kong will distribute its FX and Visualization computers in Hong Kong and China.

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Are exhibition organisers going mad, or are there just too many exhibitions nowadays: following the extremely inappropriate clash of dates between San Francisco's Uniform and the French Unix Systems Exposition at the beginning of March, it now turns out that the other main US Unix event, Unix Expo in New York, is being held on the same dates as the new Cahners Open Systems 89 exhibition in London's Olympia 2 - November 1-3.

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Also on the exhibitions front comes the disturbing news that in 1990, EMAP's PC User Show will be combined with the European Unix User Show, something that could spell the end of the line for that event - all the more surprising, following the 22,000 or so exhibitors that were attracted to the highly successful Uniform show.

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However, this year's show remains in the same format, and will be held at Alexandra Palace between June 6th and 9th: Eaglehead Publishing, publishers of Unix Systems Magazine, will be producing a daily show newspaper.

The Australian Unix market showed a 123% growth rate in the number of units shipped during 1988, according to IDC Australia, which set the overall size of the Australian Unix market at SA1.5m last year.

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Sphinx Ltd, now owned by Pegasus (see front page) has reached an agreement with Systime's VisionWare division to become the exclusive UK distributor of the PC-Connect PC/Unix integration software.

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The new international edition of the Postscript Language Journal is now available for readers outside of North America and Canada: the quarterly journal can be obtained from PSLJ International Edition, 127a Notting Hill Gate, London W11 3LB - telephone +44 1 727 6045.

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Lotus Development Corp founder Mitch Kapor's new software company, On Technology Inc in Cambridge, Massachusetts, has failed to attract enough venture capital, and has therefore had to scale back its ambitious plans to design shells for personal computer operating systems to make the things much easier to use: according to the Wall Street Journal, the company has had to lay off 11 of its 32 employees and will now develop less ambitious applications, starting out with ones for Apple Computer's Macintosh, the first expected to be a program designed to assist people in managing random information - not too different from the Agenda program that he designed for Lotus.

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CONTACTS

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UNIX GOES MASS MARKET

- AIX FOR THE PS/2 IS HERE TO SELL THROUGH BUSINESSLAND AND MICROAGE

IBM finally announced last week that its AIX Unix implementation for the PS/2 is now shipping in the US. And along with the announcement, IBM seems to have decided to give AIX on the PS/2 a big push in the mass market, and has named Businessland Inc and MicroAge Computer Stores Inc as national US dealers for AIX PS/2 - starting immediately. They will get AIX PS/2 licensed programs from IBM, distribute them, and provide marketing and technical support to the shops in their chains that are authorised to sell the products. IBM also named Dickens Data Systems Inc of Norcross, Georgia and PGI Inc of Tempe, Arizona as System Software Remarketers to supply all other authorised AIX PS/2 dealers and provide technical support. IBM is also enlisting as many support software developers as possible to put their products - designed to be used by applications developers - onto the PS/2 under AIX, and it names Basis International Inc, Albuquerque, New Mexico; Thoroughbred/Concept Omega Corp, Somerset, New Jersey; Data Access Corp, Miami; and Informix Software Corp, Menlo Park, California as ones whose products are already up under AIX PS/2. AIX PS/2 runs only on 80386-based PS/2s. Shipments in the UK are expected to begin later this month.

... AS HEWLETT HP9000-300s GO OUT VIA SCHWEBER, HALL-MARK...

In a comparable move into the US mass market, Hewlett-Packard Co has authorised two of the biggest industrial distributors, Schweber Electronics and Hall-Mark Electronics to sell models of the 68030-based HP9000 Series 300 Unix-based workstations. New York-based Schweber, part of the \$625m Lex Electronics Company, has 39 US locations, and 408 sales representatives in the US; Hall-Mark in Dallas has 35 US locations, 170 sales reps and does more than \$560m a year in the US. The move into the US market follows the success of the company's UK subsidiary, which successfully pioneered marketing HP-UX stations through industrial distributors 18 months ago. The agreements authorise the distributors to sell all but the three-dimensional configurations of the HP 9000-360 and 370, and the 340. Hewlett will provide customer service and support for all workstations sold through distributors. The distributors said Hewlett's involvement in the Open Software Foundation was a key to their decision.

...AND MOTOROLA PUTS ITS FULL UNIX LINE THROUGH MICRO D

And Motorola Inc.'s Computer Systems Division has signed up another of the top US distributors, Micro D Inc to begin marketing its entire line of Unix hardware and software products. The agreement with Micro D gives Motorola access to that company's Technical Products Division's extensive national network of value-added resellers. Separately, Micro D said that from April 3 it would reflect its change of ownership by renaming itself Ingram Micro D Inc.

SOFTWARE MAJORS BACK NEXT

Although initial suggestions that Steve Jobs would be putting his NeXT Inc NeXT Computer System through Businessland Inc were greeted with some scepticism, with the news that the 110-strong company-owned store chain would be taking stations worth \$100m wholesale in the first year, the move is now being widely hailed as a positive one, and has encouraged more software developers to come forward with plans to do products for the sleek black 68030-based Unix box that is expected to sell for \$10,000 against \$6,500 to colleges, starting in July. The Pagemaker desk-top publishing software developer Aldus Corp says that it is particularly interested in NeXT's object-oriented programming environment, which makes it possible to create modular software components that can be tailored to specific tasks, and plans to do applications. Novell Inc is to offer the Portable NetWare network operating system for the NeXT machine, and reconfirmed its commitment to provide support for workstations based on Sun's Network File System client-server protocol, such as the NeXT machine, under a future version of NetWare. Other companies doing software for the workstation include Lotus Development Corp and Sybase Inc. Jobs, whose Palo Alto, California firm has sold 1,000 stations since launch, explained his change of heart over the retail market by saying that university officials US-wide had encouraged him to get the box onto the retail market. "They told us they think we've got a revolutionary product. But they said we've got to get it out into a broader market so their students will see it when they get into the workplace after graduating," Jobs said. Following its decision to take on the NeXT box, as well as IBM's PS/2s under the AIX version of Unix (this page) and Apple Computer Inc's Macintosh under A/UX Unix, Businessland Inc has formed Businessland Advanced Systems to handle high-end products, adding 30 systems engineers, training technicians in systems integration, troubleshooting and local net administration techniques. Sun Microsystems had been wooing Businessland for its next line but now seems to be locked out.

IBM "HAS BEGUN FABRICATING ITS OWN 80386s"

In a move that could scarcely have come at a worse time for Intel Corp, and is also bad news for personal computer clonemakers who compete on price, IBM has begun fabricating 80386 microprocessors at its Burlington, Vermont site according to Computer Systems News. The company has long had the right to make up to 20% of its requirement for the chips, but after finding it hard to meet demand for most of 1988, Intel caught up with a vengeance at the end of the year, so much so that customers started asking for shipments to be deferred. The move should also enable IBM to reduce its costs on 80386-based PS/2s. It is expected to come out with a PS/2 Model 70 or 80 clocked at 33MHz soon.

TEXAS INSTRUMENTS HAS FIRST 33MHz 68030 MULTI-PROCESSOR

Texas Instruments says it has doubled the processing speed of its 1500 Series computer line by upgrading it to use the Motorola 68030 processor running at 33MHz - twice the speed of the 16MHz 68020 processors used in previous models of the 1500. TI, which claims to have sold "well over 10,000" of its Series 1000 Unix-based systems, says it found the symmetrical multi-processor implementation easier than many of its competitors, because it originally opted for Motorola's own memory management unit on the 68020 machines. The 68030 CPU board, used in the new 1520, 1550, and 1590 models, includes 64Kb cache memory, eight Mb of on-board error-checking and correcting random access memory, and a 68882 floating point co-processor. A board with an optional further 16Mb RAM is also available. TI says that the system design allows 68030 and 68020 processors to co-exist, enabling users to upgrade a system incrementally. The machine runs the TI System V Unix implementation, which includes Extended Symmetric Processing support, balancing the application load across available CPUs - up to 12 CPUs are theoretically supported on the 1500 series, but around eight appears to be the practical limit. Up to 256 users are supported. TI claims that Neal Nelson benchmarks show the new machines running 27% faster than an NCR 32/850, 66% faster than a DEC 6310, 104% faster than a Unisys 5000-95, and 177% faster than a Hewlett-Packard 9000-840, in similar configurations. Suggested price for a model 1520 with seven slot NuBus chassis, one 68030 CPU, 16Mb RAM, 300MB disk and 60Mb tape back-up is \$84,500, rising to \$184,500 for a single CPU 1590 with 16-slot chassis, 24Mb memory, 1Gb disk and 60Mb tape back-up. Additional 68030 CPUs can be added for \$44,000 each.

FUJITSU STARTS WORK ON 16 GFLOPS VP SUPERCOMPUTER

Fujitsu Ltd is hotting up the supercomputer battle for supremacy with announcement of plans to develop a four-processor parallel processing version of its IBM-compatible 4 GFLOPS VP2600 machine, which it hopes will deliver 16 GFLOPS at peak, in theory making it the most powerful in the world. The new machine is slated for announcement in the middle of next year, and is likely eventually to be marketed by Amdahl Corp and Siemens AG. The Fujitsu effort is being backed by the Ministry of International Trade & Industry. NEC Corp meanwhile is working on what it claims will be the world's fastest uniprocessor supercomputer.

PRISON DATABASE SYSTEM IS FIRST HOUSE SUB-CONTRACT

The UK Home Office has announced the first major sub-contract to take place under its HOUSE (Home Office Unix Systems Environment) initiative. The project, which involves computerisation within the Prison Service, is known as LIDS II (Local Inmates Database System), and involves the installation of up to 130 mid-range multi-user Unix systems in every prison in England and Wales. The system will aim to provide comprehensive details on all inmates, and individual computers must be capable of supporting between seven and 24 users, according to the tender document. The DataFlex fourth generation language package, developed by Data Access Inc, has been chosen as the basis for applications development. The project is likely to take up to three years to implement following final selection.

ADDAMAX DELIVERS ICL SECURE UNIX

Champaign, Illinois-based Addamax Corporation has delivered the first production release copy of its Unix security extensions to ICL, which will use the software in its bid as one of the finalists in the UK government's CHOTS (Corporate Headquarters Office Technology System) project (UX No 195). ICL, along with its partners Hewlett-Packard and Data Logic, are understood to have chosen Addamax to supply its Trusted Unix Conversion Kit as the basis for the secure operating system to run on HP and ICL DRS 500 kit making up the prototype system, due for delivery to the Ministry of Defence in January 1990. The CHOTS project specifies B1 level security. Addamax was formed from ex Gould Computer Inc software engineers, and the company has retained links with Gould over secure operating system development. The Addamax system provides modification to the System V and BSD base system at both the kernel and command set levels, and incorporates discretionary and mandatory access control, extensive auditing, identification and authentication features, password management, privilege control, object reuse control and restriction of covert channels. Addamax is also working with Computer Consoles Inc and ITL, and recently signed up Integrated Solutions Inc.

...AS HEWLETT-PACKARD, SCO OPT FOR SECUREWARE

Hewlett-Packard is expected to opt for security extensions from SecureWare Inc of Atlanta Georgia, for its own secure Unix version, sources said. SecureWare offers the Portable Security Module Package, which is integrated into the kernel to achieve C2 or B1 Orange Book security levels. And the Santa Cruz Operation is also working with SecureWare to produce a B1 version of its own Unix implementation, due out in the third quarter of 1989. The SCO product will be "B1" certifiable, and will allow SCO to work with individual hardware manufacturers on secure systems.

"NIXDORF PICKS EDGECORE" ...

As hinted back last summer (CI No 186), Philips is not the only major European company to opt for the 68030-compatible but much more powerful processors from Scottsdale, Arizona-based Edgecore Technologies Inc and according to Electronic News, Nixdorf Computer AG will announce a high-end machine in its Targon Unix line using the Edgecore E2000 multiprocessor next month. A Japanese major is expected to follow suit and announce plans in May.

... AS PHILIPS BOOSTS TOP-END WITH EDGE-BASED P9600

Philips Telecommunications and Data Systems has finally revealed the fruits of last summer's OEM deal with Edgecore Computer (UX No 186), with the announcement of its P9600 minicomputer. The new machine is said to be four times faster than the current top-end system - the 68030-based P9300 - and supports between 32 and 150 workstations. It is based on the Edgecore 2000 system, and uses a Motorola 68000-compatible processor clocked at 20MHz and rated at 18 MIPS, with 32-128Mb memory. Philips has added a VME to UPL bus convertor, allowing the machines to take advantage of the same peripherals and add-on cards as the rest of the P9000 range, and has ported its MPX version of Unix V.2 onto the 9600. No prices were given, but systems will be ready for public release at the end of the second quarter of this year. Philips said the new systems would "provide a logical upgrade path towards dual processor systems planned for future release".

SD SCICON STUDIES ADA ON TRANSPUTER FOR EUROSPACE

The SD consultancy arm of SD-Scicon has been selected by the European Space Technology Centre, ESTEC, as lead contractor for an 18-month research project, combining the Inmos International Transputer and the Ada programming technologies. The centre is in the process of examining a range of RISC-type architectures and 32-bit processors for their viability in space applications. The aim of the £210,000 project is to evaluate the performance of an Ada compiler running under Unix, on a number of space applications. The compiler will be supplied by Alsys Ltd, the UK subsidiary of the Ada product suppliers Alsys SA, La Celle Saint-Cloud, France. According to SD's Bill Thomas, Ada on Transputers is a particularly suitable combination for use in space, where radiation, cramped vehicle conditions, and the need to transmit data back to the earth create a number of technological hurdles. Thomas cited Ada's ability to generate re-useable and portable code, together with the simple architecture, fault-tolerance, and high performance features of Transputers, as the chief reasons for their inclusion in the project.

OLIVETTI UK RE-STRUCTURES

Olivetti's UK subsidiary has followed the lead of its parent (UX No 200) and re-structured into two separate companies: Olivetti Office UK and Olivetti Systems and Networks. The Office division, with some 250 staff, will handle PC hardware and software along with typewriters and business products, and is headed by John Kernick. Systems and Networks, employing 1,300, will be a "value added" operation, selling Olivetti LSX and AT&T 3B computers, PC-based hardware, software and systems, networking, maintenance and training: Paolo Tosi will head the division, and is also Olivetti's UK country manager.

UNISYS WARNS OF FIRST QUARTER LOSS

Unisys Corp warns that it expects to report a loss of \$60m to \$80m for its first quarter to March 31, but says hopefully that it believes the loss to be an aberration and is expecting operating results to return to more normal profit levels in the second quarter. The company blames shipments of 1100 mainframes being abnormally low as users customers wait for the new 2200s, which are just beginning to ship; the US government's Ill Wind defence procurement investigation and temporary suspension of three major defence businesses; the new Unisys organisation announced in January, which included restructuring of its US computer business, formation of new product groups and integration of Convergent Technologies. It also sees continued industry-wide weakness in the US computer business, resulting in lower than planned first quarter ships.

NOW 700 GO AT FERRANTI

Ferranti Computer Systems Ltd is to cut a net 700 jobs in a reorganisation that will phase out operations at the Wythenshawe plant, concentrating the work at Oldham. There will be 900 redundancies at Wythenshawe but 200 will be created at Oldham. Ferranti Computer Systems now plans to specialise in five areas - industrial systems, airport information systems, health care systems, communications and energy management systems. The company is also running down its Argus 700 16-bit minicomputer line and buying in Delta Unix supermicros from Motorola Computer Systems (UX No 215).

EPOCH-1 - 150GB STORAGE FOR WORKSTATIONS

Epoch Systems' recently previewed Epoch-1 data storage server, (UX No 220), which is said to integrate magnetic and optical disk technology for application transparent on-line storage, can provide up to 150Gb of memory, and is aimed the technical workstation market. One to three 700Mb Winchester disk drives are backed up by an Optical Disk Library Unit, a jukebox with containing optical disk cartridges and four optical disk drives. The idea is to keep active files on the front-end Winchester drives, and move others on to the optical devices. Conversely, files can be lifted out of the optical jukebox and transferred to magnetic disks when required. Epoch-1 comes in three versions. Model 2 has two 700Mb magnetic disk drives and a 600Mb optical disk drive, costing \$95,000. The Model 30, again with 700Mb magnetic - but 28.8 Gb optical - is priced at \$155,000. Top of the line Model 150 comes with a 700Mb magnetic drive and five 28.8Gb optical disks - a total of 150Gb - for \$450,000. Epoch Systems is based in Marlborough, Massachusetts.

NEWS ROUNDUP

DEC UK Ltd has released the X25Portal 2000 and made enhancements to its VAX File Transfer and Access Management, FTAM, software; the X25Portal is a dedicated communications server that enables X25 systems to send information across a DECnet backbone, while DEC says the enhancements to its FTAM software mean that it is now fully compliant with US and UK Government OSI profiles, GOSIP.

You pays your money and you takes your choice: Computer Reseller News has a slightly different view of Sun Microsystems' future machines than the one printed here recently - it predicts a \$12,000 to \$13,000 workstation code-named Hydra, with 8Mb, 200Mb disk and 19" monochrome monitor rated at 6 MIPS to 7 MIPS - could be in the X86i series - and that the lowest Sparc model is code-named Campus, and rated at 12 to 14 MIPS and to cost only \$1,000 or so more than the Hydra; we shall see.

Istel SA, partowned by Dutch multi-national 'International Computer Group and nothing to do with Istel Group Ltd in the UK, has started selling its viewdata application software packages under Unix in Spain: the product, based on a modular combination of C language programs, runs at realtime processing speed to supports over 1,000 simultaneous accesses to different applications on a single viewdata server; applications include network management, statistics, X400 electronic mail, electronic mail for the general public, catalogue marketing, binary data downloading, electronic directory, information retrieval, document search, and virtual circuits.

Ex Metropolitan Police Commissioner Sir Kenneth Newman has been enlisted on the strength of his "intimate knowledge of the force" to advise Oracle UK on supplying applications to the police; the company has set up an internal law enforcement unit, and is currently working with Bull HN Information Systems Ltd on a set of "crime" applications covering arrest and charging, stolen property, firearms, and drugs.

As reported recently (UX No 223), Apollo Computer Inc has installed its 500th Domain workstation at the University of Michigan in Ann Arbor, the site of one of the largest university computing networks in the world: the network, which embraces many non-Apollo machines as well, connects all of the university's engineering and computer science departments, and provides users with the resources to research computer-aided design, semiconductor electronics, artificial intelligence, graphics and computer-aided manufacturing among other things.

Troubled TeleVideo Systems Inc, San Jose, California, is pinning hopes of a resurgence on a new TeleStation family of diskless workstations and a file server: the Telestation TS2 is \$1,400 with 80286 and Hercules display; the TS3 with 80386SX processor with VGA graphics display is \$3,000; the TSC3 is the colour VGA version at \$3,200; the server is the Tele386/25 150FS, with 25MHz 80386 CPU, cache controller with 32Kb of static zero wait-state memory at \$11,200; there is also a new TeleVideo 935 ASCII VDU at \$500.

After attracting a great deal of attention with its Portable NetWare architecture, networking specialists Novell Inc of Provo, Utah, has added the NetWare T-1 Bridge to its range. This will allow users to connect geographically separate NetWare LANs through their high speed T-1 WAN links. Available from the third quarter it costs \$6,000. Also on offer now is a new version of the NetWare Asynchronous Remote Bridge which supports the new generation of high speed dial up modems - up to 19.2 Kbps - available in the next quarter it costs \$395.

Completing a string of new arrivals from Novell is the NetWare Access Server - software which allows up to 15 remote PC users to gain access to NetWare LAN applications and utilities simultaneously, through a single 80836-based dedicated server. The Access Server was jointly developed with Quarterdeck, and Dynamic Microprocessor Associates. It incorporates DMA's PC/Anywhere remote control software, and Quarterdeck's Desqview 386, which allows the server to operate as a multitasking system running MS-DOS, multiple applications and the remote server software at the same time. Available this quarter Access Server costs \$2,000.

The list of firms that have now endorsed or licensed the new Portable NetWare Unix implementation from Novell Inc comprises NCR Corp, Prime Computer Inc, Hewlett-Packard Co, Data General Corp, Northern Telecom Inc, Sun Microsystems Inc and its TOPS unit, Unisys Corp, Altos Computer Systems Inc, Acer Counterpoint Inc, Intel Corp, MIPS Computer Systems Inc, Harris Corp, Zenith Data Systems and Cubix Corp.

Advanced Microsystems Technology Ltd of London NW has a new 80386 system, the Platform 307, which is designed for use as a Unix or Novell Inc NetWare file server as well as for advanced CAD/CAM and desk-top publishing systems: priced at £9,000 the Platform uses a 30MHz processor with 64Kb of cache to deliver a claimed 7 MIPS; the system incorporates SCSI disk transfer controllers, a 620Mb hard disk with average access time of 18mS, a 16-bit VGA card, and is shipping now.

Hindustani Computers America, Sunnyvale, California - a subsidiary of parent company HCL Ltd, based in India - has launched a family of 68030 based VME multi-processor systems, the M3000 Series. They all run Magnix, HCL's multiprocessing implementation of AT&T's V3 Unix, and use a 25MHz version of Motorola's processor. The basic one CPU model with 145Mb of disk and eight ports costs \$15,000. Each successive model has an extra CPU up to the top end model which has six, 2Gb of disk, and supports up to 64 users for \$90,000.

Users of Sun's Network extensible Window System, which includes hardware and software vendors, have formed a consortium to exchange information and develop NeWS products: founding members include Sun Microsystems, Solbourne Computer, UniPress, Rand Corporation, Parallax Graphics, Measurex Automation Systems and the University of California - based in New York, membership is open to all interested parties, telephone US 718 622 8577.

Racal Imaging Systems has chosen the Sybase relational database management system for its commercial optical disk-based document image capture, processing and management system, REOS: the management system is aimed at banks, insurance companies and libraries that frequently process large amounts of printed, handwritten and graphical information, as well as often needing to make enquiries of such information; Racal will offer REOS with the Sybase database under DEC VAX/VMS and Sun Microsystems SunOS Unix hardware, and is designed for companies performing high-volume online transaction processing applications that need regular updating.

SET-BACKS FOR IBM, DEC SPELL MISERY FOR THEIR WEAKER BRETHERN IN THE INDUSTRY

Last week's double whammy of bad news, first from IBM and then from DEC may cause a few downcast faces at Armonk and Maynard, but there are other towns that will be sunk in deepest gloom. IBM and DEC - and a few other traditional computer manufacturers like Hewlett-Packard Co and NCR Corp are strong enough to take emphatic down-turns in the market in their strides. But the last five years of patchy growth left several industry stalwarts gravely weakened, and times are hard and look like getting much harder in Minneapolis, Lowell and Marlborough where Control Data Corp, Wang Laboratories and Data General Corp have their domiciles. Because if those companies were finding profits hard to come by when the market as a whole was relatively healthy, the outlook for them in a downturn is grim indeed. Equally threatened is Prime Computer Inc, now expected to report a first quarter loss that, coupled with an industry recession will make it much harder for the company to defend itself against the ludicrous hostile bid from MAI Basic Four Inc. Unisys Corp is among the ranks of the stronger second line companies, but is likely to be hit hard by an industry recession that will leave it with a year of zero, if not negative, growth - see page 3 - DEC at least is going to grow this year, albeit at a slower rate than over the last two or three years. The outlook would be grim too for what used to be Honeywell Information Systems were it not now a distant branch of the French government, which will live with whatever losses the company turns in. With ICL now batten-

ing the hatches, all the signs are that the European market that has pulled so many of IBM's chestnuts out of the fire in recent years, has now gone decidedly soggy, and the impact on IBM at the top end is likely to be disproportionate if others follow National Westminster Bank's example and put price-performance at the top of their list of requirements and go for Amdahl Corp's 5990 market leader in the performance stakes. As for DEC, the company is thought to have been suffering slow sales of its high-end VAXes - users are impatiently waiting for the delayed new line-topper, and DEC needs it too, to improve margins. Customers are also said to be confused by the different price curves on which DEC has put its Ultrix Unix machines and its VMS machines - the former face such fierce price competition from Sun Microsystems Inc, which is likely to come through any slow-down relatively unscathed, although a fall in growth and profits will no doubt trigger apocalyptic banner headlines, that DEC has priced them much more keenly than the VMS machines, which it still tends to treat as a captive market. DEC finally came out and admitted that turnover for the third quarter would be \$100m to \$125m lower than had been expected, leading analysts to trim their sales growth forecast for the third quarter to 10% from 13%. There's some controversy over the way the information came out through analysts and not direct from the company, and gung-ho shareholders are no doubt already shortening their lawyers' DEC's defence is that it has consistently been more bearish than analysts about its outlook in the US, and that it can't be held responsible if analysts don't listen to what it says. The share price finally closed \$10.625 down at \$96.375 last Wednesday.

MODCOMP ADDS NEW LOW-END TRI-D MODELS

AEG AG's Modular Computer Systems Inc, ModComp, has extended its Tri-D family downwards with four models of the 9300 line of single-board computers, which join the 9200s announced last autumn (UX No 202). The line, based on a VLSI Technology gate array supported by Motorola 88000 and 68030 chips, comprises the 9310, 9320, 9330, and 9340. The bigger three use a VMEbus, all feature SCSI interface and have a floating point accelerator. The new line is rated at 2.5 MIPS, 80,000 interrupts per second and input-output throughput 1.5Mbytes per second. Main memory currently goes to 8Mb. They run MAX- 32 or ModComp's Realix real-time Unix and ship in May at from \$20,000.

MICRORIM ATLAS DATABASE

WILL MARRY HETEROGENEOUS SYSTEMS

Microrim Inc, Redmond, Washington, has now revealed more details of its ambitious new Atlas relational database project, which it first mentioned at the end of last year. The company claims that it will be the first relational database management system that addresses the needs for all computer users in an organisation to share data. The Atlas programme, started in May 1987 is designed to enable users working on incompatible hardware under incompatible operating systems with diverse database software to share data easily - and is aimed at non-technical as well computer professionals. Environments it will embrace include OS/2 and Presentation Manager; Microsoft Windows and MS-DOS; Macintosh MacOS; DEC VAX/VMS with DECwindows; IBM MVS and VM; and the leading versions of Unix. The first version, Atlas for IBM OS/2 Presentation Manager is promised for December, with the other versions following over the following 18 months. Each implementation will include Atlas Surfaces, for both graphical and character user interface environments; Atlas Database Engines to store, retrieve and process local and distributed data; Atlas Data Connections to enable data sharing across the multi-vendor environment; and Atlas Compilers, a developer tool to maximise run-time performance of applications with full ANSI SQL. It will feature a client-server architecture to increase performance when used on local networks and will retrieve and update data of other relational databases such as Oracle, Ingres, DEC Rdb, and IBM DB2, and data from IBM OS/2 Extended Edition's Data Manager, as well as directly reading and writing R:Base and dBase data as well as its own Atlas data.

NOW SANDERSON BUYS XSOFT RT FIRM

Having wrapped up a controlling interest in the veteran General Automation Inc - it is hoping because that agreement is still conditional - ambitious Sheffield Pick specialist Sanderson Electronics Plc has bought the business and assets of XSoft Ltd and XTech UK from Erskine House Group Plc, paying over £300,000 in cash. The move takes Sanderson, whose core business is Pick machines using Fujitsu Ltd hardware, into the world of Pick on the IBM RT, because XSoft distributes Pick on the RT. The two companies, based in Northampton, were acquired by Erskine when it bought Quest Group Plc, which had acquired the businesses shortly before, last August.

TECHNOLOGY RESEARCH SA OF PARIS DRIVES 80386s AT 42MHz

A French company with a payroll of just 10 claims to have brought out the world's fastest personal computer, Agence France Presse reports from Paris. Technology Research SA has developed the 386 Multi-X, equipped with an Intel 80386 processor that it drives at a breakneck 42MHz. This is considerably faster than most of its nearest rivals, which run at 25MHz, and beats Intel's own new microprocessor offering, due for release on April 10, by 11MHz. Another feature of the 386 Multi-X is a data access time on the hard disk of just 0.6ms. The disk is searched geographically, rather than sequentially, and this is claimed to speed up the process by up to 10 times. Designed for multi-user systems running under Unix or the French Prologue operating system, Research Technology's 386 Multi-X will sell for around \$10,000. And how does the company manage to drive an 80386 at 42MHz? Expensively. Microprocessors are not specifically designed to be clocked at 25MHz or 20MHz or 16MHz - the three speeds currently offered by Intel. Instead, all the chips that come off the line are tested at 25MHz, and if they work, they are marked 25MHz and sold at a premium. If they fail, they are thrown into a bin for testing at 20MHz. If they pass, that's what they go out as; if they fail, they are tested at 16MHz, at which speed most of them should work. And even the ones that don't perform every function at 16MHz can often be rescued for comparatively low level applications where only a few functions of the chip are needed. But those 25MHz parts may not be working at their limit at that speed, and so small manufacturers, who make only a few dozen machines a month and want to trade on their unbeatable performance, order a substantial batch of 25MHz parts from Intel and then test them at the speed at which they want their machine to motor - and hope to be able to sell on all the ones that fail at that speed without taking a loss.

SUMITOMO HAS JAPANESE VERSION OF PC-INTERFACE

Sumitomo Metals Co, which distributes Prime Computer Inc's 80386-based EXL Unix workstations, has released a Japanese language version of the PC Interface software from Locus Computing Corp of Santa Monica, California so that EXL machines can run MS-DOS applications and to support machines such as the top-selling NEC Corp PC-9801 family as terminals to the Unix machine; the software costs from \$1,500 for the workstation end, and under \$100 for each personal computer, and Sumitomo looks to sell 100 in year one. Meanwhile, another Sumitomo group company, the U-Station subsidiary of Sumitomo Electric Industries Corp, is changing its name to Sumitomo Electric Industries Workstations: up to now its main product has been the E Series of 68030-based workstations, but from this summer it will start shipping the S Series, jointly developed with MIPS Computer Systems Inc of Sunnyvale, California; built around the R2000 RISC set, it is claimed to run at 12 MIPS.

80860 BANDWAGON GATHERS MOMENTUM

IBM and Olivetti were Intel Corp's main surprises at the launch of its 80860 RISC processor at Uniform in early March, and Stratus Inc raised a few last month with its decision to change from the Motorola 88000 to the new chip (UX No 224) - but a host of other companies are also queuing to jump on the bandwagon. Following the introduction of its 64 bit attached RISC processor slot in board - claimed to turn Sun workstations into personal supercomputers and based on Weitek Corp's XL8064 chip set, (UX No 210) - Mercury Computer Systems Inc, Lowell, Massachusetts, has now opted for the 80860 as the basis for its next generation of board products, the Mercury Computer Extended Family - or MCxF. Maker of specialist graphics systems, Megatek Corp, San Diego, California, has decided to join the pack as well. The 80860 will be used in its next generation of products, because it says, the chip provides all the throughput speed needed for graphics applications - in one device. Megatek is currently building systems using Sun Microsystems' Motorola and SPARC-based workstations as a base (UX No 191). Kontron Elektronik GmbH, Munich, West Germany, is to include Intel's RISC slayer in its line of KLA/2 logic analysers and KSE5 in-circuit emulators. The KSE5 has trigger and event logic to catch complicated bugs on source and machine level and tag memory. The KLA/2 line, with a sampling range of up to 2GHz, will be developed to include support for the 80860. In addition the firm has an AT compatible processor board based on the part. It has 8Mb memory, claimed to do 32MHz and beyond, and will be sold as an upgrade to Kontron's existing workstations: multiple 80860 boards will form the basis of a new family of imaging and graphics workstations. On the system software side, Green Hills Software, Glendale, California - recently merged with Oasys, (UX No 220) - is now shipping Fortran and C compilers for the 80860 - developed under contract for Intel over the last year. Using a 40MHz version of the chip, the Green Hills compilers are claimed to do 83,000 Dhrystones and 24,000 double precision MWhetstones running under Unix V.3. And finally, Pacific-Sierra Research Corp, Los Angeles, California, has introduced a program optimizer for 80860 based systems. VAST-2/i860 incorporates "vector primitive" routines to take advantage of the 80860's pipelined features and vector capabilities. Other C and Pascal compilers for the chip are under development by MetaWare, Santa Cruz, California.

MIGRATION TECHNOLOGY IN MANAGEMENT BUYOUT

Migration Technology, Bourne End, Buckinghamshire - formerly known as MS Associates, developers of the CGEN BASIC to C converter, (UX No 29) - has been bought from its parent, TIS Group, by a management group led by managing director Dr.R.Manning. While not prepared to disclose financial details of the deal, Dr.Manning did say that there had been no aid from outside investors. The buyout was precipitated by a realisation that, as software developers, Migration did not fit in to the long term plans of hardware distributor TIS. TIS does however retain a small shareholding. Migration now intends to offer a translation service and Unix/C consultancy in addition to the CGEN code translators.

HCR, ACE COLLABORATE ON C COMPILER TEST SUITES

HCR Corp, Toronto, Canada, and Associated Computer Experts bv, Amsterdam, are to merge their respective C compiler test suites into a new integrated version. First results of the agreement will be available from the third quarter. Customers who already have both separate compilers will be offered the jointly developed C test suite for a reduced licence fee of \$15,000. HCR is to sell the thing in North America, ACE in Europe and the middle East - elsewhere the two will work together. HCR is also to begin distribution of Unix based CASE tools developed by Deft Inc, Rexdale, Ontario, for Compaq 386 and Sun/3 machines. In addition HCR will itself develop the tools for IBM RTs and Sequent systems.

UNISYS TAKES PCs UPMARKET WITH 25MHZ VERSIONS

As briefly reported last week (UX No 224) Unisys Corp has boosted its PC range with 25MHz 80386-based systems sourced from Intel Corp. The new PX2 800/25A PC - available immediately - has internal mass storage expandable to 640Mb, and according to Unisys, is "ideal for SCO Xenix, as a data/print server in local area networks, and for PC-based desktop publishing or artificial intelligence". It comes in four configurations: diskless, floppy disk, 80Mb hard disk or 140Mb hard disk systems, and has 2Mb RAM, expandable to 18Mb in 4Mb increments. Optional Intel 80387 or Wicick 3167 co-processors are also available. The machine is supplied with MS-DOS 4.01 and MS-Windows, but OS/2 and SCO Xenix are also available. UK prices start at £3,615, rising to £5,740 for the 140Mb system. New VGA monitors were also introduced.

GLANCE LTD PROVIDES MODULA-2 TO C TRANSLATOR

Swiss software company, Glance Ltd of Steinmaur, has come up with a couple of new tools for the Modula-2 programming language. The Modula-2 to C translator for PC/DOS and VAX/VMS is a portable compiler system in two parts. The front end - M2CC - translates Modula-2 statements into an intermediate code, and a translator back end - M2C - generates ANSI-C source code. Price is SFr. 1,500 for the PC/DOS version, and SFr. 5,000 for a Micro-Vax II. In addition Glance is offering a Modula-2 cross compiler for the 16-bit CMOS HPC family of micro controllers from National Semiconductor. Again the M2CC compiler translates Modula-2 statements into intermediate code, a back end - CODE - generates assembler code for the HPC. M2CC/HPC cross compilers for PC/DOS and VAX/VMS cost SFr. 3,600 and SFr. 10,000 respectively. Professor Wirth's Modula-2 more successful contribution to the commercial programming environment - Pascal - but it has enjoyed some acclaim, notably in academic spheres.

ORACLE, BANYON RELEASE VINES DATABASE SERVER

Oracle can now be accessed from geographically remote sites as a distributed database, through Banyan Systems' Vines virtual network operating system. Release 6 of Oracle's RDBMS - the on-line transaction processing version - has been ported to Banyan Systems' Unix based Vines/386 by software engineers from both companies using the Vines applications toolkit. The result, unimaginatively dubbed the 'Oracle Server for Vines,' is a SQL database server for organisational networks supporting PC, XT or AT compatible clients, as well as Apple Macintoshes running Oracle Macintosh and other TCP/IP hosts such as Sun workstations. Local or global applications can be implemented using Oracle application and development tools as well as PC end user tools. The software includes the RDBMS itself, SQL*Net and Vines Oracle support services, which run off a 386 PC with a minimum 8Mb RAM acting as a server. Up to 20 concurrent users can be supported by the server. Oracle Server for Vines begins shipping in the US in May, both Banyan and Oracle are to sell it in the UK - out in the third quarter it will cost £4,500. Oracle has rushed to get the thing out in the US before May 31st, the end of its financial year, because it claims to have several million dollars worth of business already lined up. Banyan says it is currently working on Vines support for OS/2, and expects revenues of around \$100m this year.

STAR GATE BOARDS ADD CHANNELS FOR PS/2, AT USERS

Star Gate Technologies has added two new serial boards to its family of Advanced Communication Link expansion adapters. The asynchronous ACL-MC board is IBM PS/2 and Micro Channel Architecture compatible, and has 128Kb of buffer RAM. It enables PS/2 and compatible users to add four or eight channels to a single PC expansion slot. The ACL-II can add the same number of channels to IBM PC/ATs and 286 and 386 compatibles. Both support Unix, Xenix, DOS and MS-DOS, they cost \$2,000 each, and are available this month.

...AND EQUINOX'S MEGAPORT ADDS UP TO 192 PORTS

Equinox Systems Inc, Miami, Florida, has introduced a 24 port intelligent serial controller for PC-based systems running Unix and Xenix. Megaport adds 24 RS-232 ports to a PC, offloading communications processing from the PC's processor to an on-board custom LSI Equinox chip set called the Intelligent Communications Processor. Up to eight Megaport boards may be installed for giving up to 192 ports. Boards cost \$1,695 - shipping this month.

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Tandem Computers Inc, Cupertino and Relational Technology Inc, Alameda, have signed for joint development and marketing of a version of the Ingres database tools for use with the Tandem NonStop SQL relational database management system: the financial terms were not disclosed.

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NCR Corp has expanded its line with the addition of the 25MHz 80386-based PC 925 personal computer in the US at \$8,950 with 4Mb memory.

- 0 -

Cadnetix is touting a lower cost version of its Sun-3/60 based CDX-56000SP PCB layout workstation, previously only offered with the Cadnetix Graphics Accelerator: the CDX-5600 PCB CAD workstation has 4Mb memory, 141Mb disk, and can be upgraded to the CDX-56000SP - no price given.

- 0 -

Looks like the VAX 6400s from DEC on Monday, April 10: the company has called a meeting for that day to announce "price-performance improvements" in the VAX line; some say the long-awaited true line-topper is delayed again and won't now be coming out until next year.

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The second major release of C++, the object-oriented implementation of C from AT&T, is due out on June 30th: C++ version 2.0 is said to incorporate two significant improvements over the previous version, 1.2 - it supports multiple inheritance and type-safe linkage.

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Following in the wake of NCR, Acer Counterpoint, and a whole host of smaller companies, IBM is now rumoured to be developing its own X-Terminal.

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Further to the speculations about Sun Microsystems' Campus machine on page 4, probably due out next week, different industry sources suggest that the machine - dubbed as a "Next-basher" - will cost \$7,000 - \$10,000, with 4-16Mb RAM at the low-end, up to two 3.5 inch hard disks and one 3.5 inch floppy drive: using a 20MHz Sparc processor from Fujitsu, the machine will include AT slots and a new "S-Bus" for connecting expansion daughter boards.

The Seybold Executive Uniform Symposium takes place in Santa Barbara, California between April 26-28th, and promises an interesting and controversial time, with big names such as Paul Ely (Unisys Corp), Robert Kavner (AT&T), Willem Roelandts (Hewlett Packard), Nicholas Donofrio (IBM), James Bell (X/Open) and Bill Joy (Sun) amongst those taking part: the theme is "on the road to commercial Unix - contact Seybold on 617 742 5200.

- 0 -

DEC is expected to announce that it will be bundling its Rdb relational database in with the VMS operating system this week: the move is to counteract the IBM AS/400, which has a database built in, but could also affect Oracle Corp, which relies on DEC sales for a high proportion of its business.

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AT&T is presenting a series of three European software developer conferences on Unix System V Release 4: the first will be held in Frankfurt between April 13-14th - then comes London (April 25-26th) and finally Paris (May 9-10th) - the sessions will include technical documentation on migration paths from SunOS, Berkeley and Xenix systems, and will look at other 4.0 features such as Open Look, networking, and the applications binary interface.

- 0 -

The Santa Cruz Operation has delayed the release of its latest version of Unix until June: SCO Unix (previously Xenix) Release 3.2 has been on beta test since February, and was due for general release in March - the delay is said to be due to additional testing of the new features, which include full compliance with the Posix standard, and C2 security features (see page 2).

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Meanwhile AT&T says it has kept its promise to release early code of Unix System 4.0 to members of Unix International Inc by March 31st.

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The IEEE's new 1201 windowing committee, which began work on defining user interface standards late last year, is holding a three day meeting this week, looking at standards for X-Windows - and although it had sought to avoid individual product endorsements, it is understood that the Open Software Foundation has already made a move to offer OSF/Motif as the basis of any standard.

Macintosh users are being offered full access to TCP/IP based local and wide area networks with TCP/Connect, from Maxima Communications plc, Exeter, Devon, UK, providing connectivity to the terminal emulation (Telnet), and file transfer (FTP), facilities of TCP/IP host machines, and allowing up to 20 concurrent sessions to the same or multiple host systems on a range of terminal types - Maxima also has a set of six utilities that use Mac windows under A/UX to simplify the use of Apple's Unix alike operating system: StarNine Utilities allows copying to and from A/UX and Mac HFS volumes and Audit System - TCP/Connect costs £315, StarNine Utilities is £70.

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Level V Distribution Ltd, Matlock, Derbyshire, has become the exclusive distributor of the Sea-Change range of 4GL accounting products in the UK: the move follows management changes at Thomson Computers recently (UX No 209), and includes rights to the Sea Change Applications Generator, programmers tools, and multi-database Sea Change, including Unix, MS-DOS and OS/2 versions of the product, and is expected to be worth several million pounds over the next three years.

- 0 -

NEC Information Systems has said that it will support Open Desktop from Santa Cruz Operation: the company is currently evaluating the product on the PowerMate line of systems running MS-DOS and the BusinessMate range, which runs SCO Xenix.

CONTACTS

AT&T UK 567 7711. Apollo US 508 256 6600 Banyan Systems UK 442 827028 Bull HN France 331 45 029090 Cadnetix UK 793 513400. DEC UK 734 864717. Dickens Data US 404 448 6177. Edgecore US 602 951 2020. Epoch Systems US 508 481 3717. Equinox US 305 255 3500. Ferranti UK 61 499 3355 Glance Ltd SWITZERLAND 1 853 0809. H-P UK 344 773199. HCR CANADA 416 922 1937. IBM US 817 78758. IBM USA 212 848 2737. ICL UK 1 788 7272. Intel Corp US 793 696 1000. Maxima UK 392 434071. Microrim US 206 885 2000. Migration Technology UK 628 810 909. Modular Computer Systems US 734 786808. Motorola Computer Systems UK 628 39121. NCR UK 1 723 7070. Nixdorf WGer 49 89 3610 Novell UK 892 47833. Olivetti Italy 39 125 525 Oracle UK 1 948 6911 Phillips Telecommunications and Data Systems NED 31 5543 3443. Racal Imaging Systems UK 256 469943. Relational Technology Ltd UK 1 351 7722. SD Scicon UK 276 686 200. Star Gate Technologies US 216 349 1860. Sun Microsystems US 415 960 1300. Televideo US 408 745 7760. Texas Instruments UK 234 63211. Unisys UK 1 965 0511.

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INTEL COMPETES AGAINST RISCs WITH LAUNCH OF i486

Intel Corp revealed its new i486 CPU this week at Chicago's Comdex exhibition, where early Silicon was demonstrated running DOS and OS/2. The i486, which is fully binary compatible with the 386 (now called the 386DX) and 386SX range, will compete directly with the current batch of RISC processors, and according to Intel outperforms the Sun Sparc and comes close to the Motorola 88000 and MIPS R3000 chips, scaled to the same clock cycle. At its core, the i486 has an upwards compatible superset of the 386 architecture, including all 386 instructions and 387 floating point instructions, an on-chip paging and memory management, the functionality of an 82385 cache controller, and an eight Kbyte information cache. Available in 25MHz or 33MHz versions, the chip provides from two to four times the performance of 386 processors running at the same clock speeds: Intel quotes 15 VAX MIPS for the 25MHz version, and 20 MIPS for the 33MHz system. Implemented in Intel's 1 micron CHMOS 1V process, the 1.2 million transistor chip uses pipelining and RISC design techniques to implement a core of widely used instructions (such as load, store etc) to execute in a single clock cycle, surrounded by a CISC shell. It also includes a new burst data transfer mechanism, allowing four, 32-bit words to be read from memory at once to keep on-chip cache and instruction queues filled. Multiprocessing support is provided through new instructions and cache consistency protocols. Samples of 25MHz i486 processors will be ready third quarter, with production quantities fourth quarter, priced at \$950 for 1,000. The 33MHz version (no prices) will be sampling by fourth quarter. Along with the i486, Intel introduced a family of support chips, including a LAN co-processor, programmable logic device, and Micro Channel Architecture and Extended Industry Standard Architecture compatible chipsets: it also extended the 386 range - details inside. Hardware vendors supporting the new chip were legion, including Hewlett-Packard, NCR, Olivetti, Philips, Sequent, Sun Microsystems and Unisys Corp. IBM said it would "continue to base products on Intel's processor platform".

...OS/2, MULTI-PROCESSOR UNIX BY YEAR END

Microsoft's Bill Gates has come out strongly in favour of the i486, calling it "the architecture for the rest of this century", and accordingly, Microsoft has admitted that it is working on a version of OS/2 for the 80386 and i486 processors. According to Gates, the new version "will be available to developers this year. Also available towards the end of the year will be Intel's multi-processor Unix, which it is working on in conjunction with Olivetti, AT&T and others (UX No 222): it will provide transparent symmetrical multi-processing on the i486, as well as the 386 and i860. 32-bit software for the 386 is not yet that widespread - Intel has issued a catalogue listing 149 packages - but the company hopes the additional spur of the 486, and cheaper 386DX and SX processors will provide the spur.

STELLAR COMPUTER HAS X MINISUPER SERVER

Stellar Computer Inc, Newton, Massachusetts is diversifying with the introduction of variants of its GS1000 graphics supercomputer tailored as "Departmental Supercomputers. It hopes to replace minisupers and networks of workstations with a more flexible, economic alternative, and to augment currently overloaded corporate mainframes and supercomputers. The DS1000 Departmental Supercomputers use a custom parallel, multi-processor architecture with a claimed sustained 25 MIPS performance and up to 40m vector and scalar floating point operations per second at only 25% to 30% the price of a minisuper - it is a cheaper, more flexible version of the CS1000 announced last October (UX No 201). Stellar has also struck up an OEM agreement for X terminals with an unnamed company, understood to be Network Computing Devices Inc. Stellar claims that a DS1000 with six terminals costs \$19,000 per user. Stellar is pitching squarely at the DEC market with a range of VAX/VMS compatibility and coexistence features. It comes with 16Mb to 256Mb main memory, 1Mb cache, one to four internal 380Mb or 760Mb disks, 150Mb cartridge tape, three user-accessible VME slots, four to 12 serial ports, two to four input-output processors, Stellix operating system, X Window system, and a local console. Disk can go to 27Gb with an EU-1000 Expansion Unit. DS1000 prices start at \$83,000, the X Terminal is \$3,100 now.

NO BUYERS FOR MICROPORT

Low-end Unix operating system house Microport International, which has been on the block for some time (UX No 223), is having to be run down because no potential buyers have emerged. It has moved into a corner of the Sunnyvale premises of major shareholder Televideo Systems Inc, and is completing existing orders, but will close down when business runs out for want of a buyer.

DEC HITS AT AS/400 WITH MVAX 3800, 3900

DEC is launching a major attack on IBM's AS/400 series with the addition of two top-end supermicros, the MicroVAX 3800 and 3900, which replace the 3500 and 3600 models launched in September 1987. DEC says the new models, which cost approximately 5% more than the 3500-3600 line, deliver up to 50% more CPU performance and four times more storage capacity than the two models they replace - adding that the next two top-end models in the family are already in the pipeline. Supporting Ultrix as well as VMS, prices start at £59,000 for the 3800, £87,000 for the 3900; or £41,000 and £62,000 for the server version.

ORACLE, NCUBE, BBN WORK ON PARALLEL DATABASE ENGINE

Oracle is now working with NCube Corp and BBN Advanced Computers, as well as CIT and MIT universities to develop a parallel database engine, claimed to be four times faster and 20 times more cost effective than the largest IBM mainframe available today. It is using the likes of the Inmos transputer board amongst others to develop the database, a prototype of which is expected in the summer. Running standard Oracle Version 6 it is expected to operate at hundreds of MIPS and thousands of instructions per second, implemented on a multiple computer machine, possibly BBN's Butterfly or NCube's hypercube systems.

HP HAS NEW ENTRY-LEVEL HP9000 MODEL 332, NEW PC VECTRA

One in and one out - HP has added the entry level Model 332 to its HP9000 Series 300 family, where it replaces the existing Model 310, at least in the West. It will still be manufactured for export to Eastern Bloc countries - 68010 systems can be sold there, but 68030 systems cannot. The Model 332 runs 16.67MHz 68030 and is rated at 4 MIPS - the same as the Model 340. To maintain compatibility the new machine uses the same 16 bit bus as the 310, making its input/output slower than the 340, but a 1Mb memory will be expandable to 8Mb, compared with 0.5Mb to 7Mb on the 310. Unlike the 310 it will not have to use its DIO slots for RAM extensions, a 1Mb or 4Mb RAM card can be plugged in to the CPU board. It supports HP Basic, Pascal Workstation and HP-UX. 310 systems can be upgraded to the 332 by swapping processor boards. The 332 begins shipping at the end of this month - the price for a basic model - no terminal - costs £3,969, with a 12" monochrome monitor it costs £4,639. The 332 will also be available in a rack mount as the first in a series of 68030 systems the company is planning to put into this form. It will incorporate a 9" mono screen and a 3.5" floppy drive HP is also to offer the R Series controller as an alternative to the low end 300s for measurement automation. A 310 CPU, 332 CPU or Vectra ES/RS board can be attached to it. In addition HP has a new member of its Vectra PC family. The QS/20 is based on a 20MHz version of the 80386 and has up to 16Mb RAM. It features dual bus architecture and comes in four models which are available now. The Model 46, with 1Mb memory costs £3,584. According to HP Chronicle-Europe the firm is also set to release a high end graphics accelerator board for the Vectra, putting the RS and QS models on par with the Series 300C+ and CH graphics systems. It will offer four bit-planes, 16 colours and 1,024 by 768 resolution.

...AND HAS NEW UNIX RELEASE

The Palo Alto, California based firm has also announced Release 6.5 of its HP-UX operating system for the Series 300. This looks like being a stop gap measure before the launch of HP-UX 7.0 later this year which will begin to converge the technology of HP's two strains of Unix running on Series 300 and Series 800 systems, (UX No 216). This release conforms to X/Open's CAE and Portability Guide 2, and has enhanced security features. It incorporates X-Windows, which merges with HP Starbase, GKS and PHIGS.

DATA GENERAL UNVEILS NEW ENTRY-LEVEL MV/1000 DC

Data General Corp has announced its new Eclipse MV/1000 DC as the lowest-priced, 32-bit mini it has ever offered. The table-top machine cuts by up to 34% the cost of entry into the MV/Family, with performance comparable with that of the MV/2000 with an entry price of \$8,150. With the Personal Computer Integration software, it can be configured as a low-end file on a local net, and it supports AOS/VS, AOS/VS II, DG/UX Unix and DG/RDOS from the 16-bit family, any with one in the base system price. The single board computer has a CMOS gate-array CPU, floating point unit and 4Mb memory, with Winchester, floppy and cartridge tape interfaces; two RS-232 modem ports; eight RS-232/RS-422 ports and parallel printer port. Main memory is up to 121Mb and disk goes to 322Mb. Data General has also upgraded its PC range - details, page 4.

MOTOROLA STIRS BATTLE WITH 12 MIPS, 50MHz 68030

Motorola Inc, clearly making sure that Intel Corp had plenty to think about while preparing to launch the 80486, and making it clear that despite the badmouthing it received early on, there is plenty more mileage yet in the 68030, this week came out with a version clocked at a blinding 50MHz - 17MHz faster than its previous fastest. The company claims that the speed means that the thing does 12 MIPS, "double that of all conventional processors available today". Like the i486, the 50MHz 68030 is fabricated in 1 micron CMOS, "the first conventional processor to be produced below 1.2 microns" said Motorola - but NEC Corp will have something to say about both claims: see below. The company reminds us that Apollo Computer, Apple Computer, Hewlett-Packard, NEC, NeXT, Sony Microsystems and Sun Microsystems all use the 68030. The part starts sampling next month at \$650 a time, with volume production planned for the third quarter.

...BUT NEC MAY HAVE EDGE WITH V80

A few more details have emerged on NEC Corp's new V80 answer to Intel Corp's 80486. NEC rates the part at 16.5 MIPS, 2.5 times the V70, 13.1 MIPS doing benchmarks using the Gibson Mix. The part implements a seven-stage pipeline and includes 1Kb instruction and 1Kb data caches on chip. It includes branch prediction, a virtual memory manager, and address and data bus error detection for use in multiprocessor systems. But in the integration stakes it falls behind the 80486 and the Motorola 68040 in squeezing "a mere" 930,000 transistors on the double aluminium layer 0.8 micron CMOS chip. The 33MHz version, to which the performance data attaches, costs \$1,200 in sample quantities, the 25MHz version is \$960, and a 45MHz, 22.5 MIPS version is promised for delivery in 1990. The V80 is understood to be upwards-compatible with the 8086 and 8088, but is definitely not compatible with the 80286 and 80386.

FORTH HAS MULTI-TASKING MULTI-USER O/S FOR HARRIS CHIP

Forth Inc, the Manhattan Beach, California company that licenses the Forth programming language, which comes with its own operating environment, so that very skinny programs indeed can be developed, making it ideal for embedded applications, has come out with a multi-tasking, multi-user operating system for Harris Corp's RTX 2000 microcontroller chip. The RTX 2000 is a 16-bit microprocessor designed specifically to run Forth efficiently. The new pF/x is optimised for real-time control applications in data communications, robotics, process control and instrumentation. PF/x can be used alongside MS-DOS on a micro using the RTX 2000 as a co-processor, and interprocessor communication is implemented automatically by pF/x via the use of mailboxes that enable the RTX 2000 to be dedicated to such as data collection while the micro is used for data analysis. PF/x is \$3,350 and is part of the polyForth program development environment, which also includes integrated editor, interpreter, compiler and debugger. It is out already for Silicon Composers' FOX Forth board and arrives this month for the Harris RTX 2000 Demonstration Board.

INTEL ENHANCES 80386 RANGE

Along with its brand new i486 processor, launched this week, Intel Corp took the opportunity to upgrade its 80386 range, with a 33MHz version rated at eight VAX MIPS. Priced at \$367 for quantities of a thousand, the part comes in at 36% lower than the \$575 introductory price of the original 25MHz edition - the cost savings being due to Intel's use of the one micron CHMOS 1V technology also used for the i486. The 25MHz version, also transferred to one micron technology, now costs \$338 per 1,000. Intel also introduced low-power versions of the 80386 SX chip which will operate at temperatures of up to 100 degrees centigrade, a temperature apparently common in laptops due to restricted airflow. The low power consumption saves on batteries: price \$253 per 1,000.

ALTOS READY WITH 33MHZ SERIES 1000

Altos was quick off the mark with a 33MHz version of its Series 1000 Intel 80386-based line, but by no means the first as it claimed - Tandon jumped the gun with its own 386/33 PC at the Hanover Fair last month (UX No 223), and IBM and Compaq are also expected to launch 33MHz hardware at Comdex in Chicago. The Altos 1000-33 uses the same design as the previous 1000 Series boxes, but the 8 MIPS, 33MHz processor and 32Kb cache boosts performance by up to 30% over the 1000-25, according to Altos. Supporting up to 64 users, the machine comes with 4Mb memory (expandable to 28Mb), eight serial ports, and a 1.6Mb floppy disk drive. Combined with a 80186 file processor and 80286 processor controlling the I/O subsystem, Altos claims the new machine will challenge the performance of many RISC systems, with 11.25 MIPS of combined processing power. There are two configurations: with 145Mb or 300Mb full height SCSI disks. A disk expansion unit for four more drives is soon to be announced, along with new 700Mb disks, and enhanced tape back-up facilities. Available immediately, a typical systems configuration with the terminals and Altos' AIO office automation software costs from £23,500.

CISCO SYSTEMS HAS MULTI-PROTOCOL ROUTER

Cisco Systems Inc, Menlo Park, California, the company that, along with Hewlett-Packard, installed the network at the Moscone Centre for the Uniforum last month, (UX No 220), has introduced a network device, which is claimed to combine multi-protocol internetwork routing and TCP/IP terminal service. As well as TCP/IP, TRouter provides support for DECnet, XNS and X.25 protocol environments and up to 16 asynchronous devices. TRouter uses cisco's multi-port communications interface board which supports two Ethernet networks or two serial ports, or one of each. It is basically intended to give small workgroups access to LANs and WANs, plus connectivity for modems, printers and PCs - without buying a terminal server and a router. TRouter combines a MC68020 based processor board, cisco's interface board, a 16 line asynchronous communication board, and a 32Kb memory board. Prices start at \$13,675.

TEKTRONIX BOOSTS WORKSTATION LINE

Tektronix has plunged into the murky RISC waters with the launch of the XD88 family of graphics workstations. Based on 88000 processors the systems will give a much needed boost to Motorola's flagship technology which has suffered some recent setbacks, (UX No 224). The family includes two workstations, an applications processor and a file server, all of which are compatible with Tektronix's existing workstations and netstations. The VME based systems - which also include Future Bus for the 88000 - clock at 20MHz and have from 8Mb to 176Mb memory. Rated at 17 MIPS, and 12 MFLOPS, the compute engines have four 64Kbunits of cache memory. All run Unix System V.3 with Berkeley extensions and X-Windows, and have TCP/IP, NFS, PLOT 10, GKS, PHIGS and IBM PC/AT emulation. The XD88/30 is a 3-D graphics workstation in wireframe, shaded solid and or true colour configurations, supporting 256, 4,096 or 1.3 million colours respectively, from £29,950. The XD/88/20 is a 2-D model with 256 colours, costing £24,950. The XD/88/01 applications generator can drive existing Tektronix terminals or netstations, priced £19,950. Finally, there is the XD/88/05 file server with 1.8Gb of disk. The workstations will ship in June, and the file server will be available in September. Tektronix has added raw compute power to its existing graphics engine in preparation for future expansion into the arena of visualisation technology. Later this month - and over the course of the year - the Wilsonville, Oregon based firm is to introduce animation techniques into the graphics side of its systems, based on technology from the television and video subsidiaries it owns. Visualisation and animation are expected to become state of the art technologies for graphics systems in the near future. When running, applications will resemble video - but the images will be generated by the computer rather than by a camera. In other news, Tektronix has introduced Tempest versions of its 4330 graphics workstations and netstations to meet the US government's SIM 5100A security standard, and is reported to be doing the same for the MOD in the UK.

SECUREWARE HAS PORTABLE SECURITY PLUS

As government departments around the world continue to raise the Unix flag in pursuit of hardware independent computer solutions - SecureWare Inc of Atlanta, Georgia, reckons that its software technology "will become the standard way to do security for Unix." As reported last week, (UX No 225), SCO and Hewlett-Packard have already opted for the Portable Security Module Package, PSMP, which, when integrated into their Unix kernels achieves C2 security level, according to the US government's Orange Book requirements. SecureWare says the security extensions - claimed to be a quarter of the price of similar solutions - have also been ported to Apple A/UX, Interactive and Microport Unix. As well as PSMP, SecureWare is offering PSMP Plus, which conforms to B1/B2 levels. B2 is a modular requirement, and Unix International and the Open Software Foundation have claimed that their future Unix offerings will be modular enough to achieve to support B2 security extensions. However, due to the flourishing trade in X-Windows applications on workstations and servers, the US government - which originally intended its standards to be applied to systems running dumb terminals - has awarded five contracts to develop secure system standards incorporating X-Windows, called the Compartmented Mode Workstation - or CMW - to SecureWare, DEC, IBM, Sun and Harris. SecureWare's CMW sits on top of PSMP Plus and was done for Apple's A/UX, but it also claims that it is the only version that can be ported to any version of Unix, saying it has done the same for "every major European vendor except one."

TRANSPUTER OPTIMISM AS SGS-THOMSON FINALISES INMOS DEAL

With the final agreement between SGS-Thomson and Thorn-EMI for the transfer of Inmos International (UX No 223) only signed last Monday, Pasquale Pistorio, president and CEO of the French-Italian semiconductor firm has moved fast in formulating his plans for Inmos and the Transputer within the group. Inmos, which is to retain its own identity, will be SGS-Thomson's entry into the lucrative 32-bit processor market, while Thorn-EMI is left with only a 10% stake interest in a new holding company formed around Inmos, which it bought from the British Government for £125m back in September 1984. According to Pistorio, the future for Inmos within the SGS-Thomson Group is bright, and it "will not in future be held back by lack of financial or marketing muscle". Pistorio said it was "too early" to put a figure on the investment, but claimed that Inmos would continue to show a profit over the next year "although we will settle for a lower profits in return for accelerated growth". The acquisition moves the \$1 billion company up one place to number 12 in the world and second among European semiconductor manufacturers. Benefits for SGS-Thomson include a UK presence, including advanced fabrication facilities at Newport, South Wales, and a range of technology that includes static RAMs and graphics processors.

Motivation

The prime motivation for SGS-Thomson's acquisition, is of course the Transputer, which, said Pistorio, will give his company a high-level entry into the 32-bit microprocessor market. "It was not only the first of the new generation microprocessors, but remains the most advanced", he claimed. "We intend to establish it as a world standard". Sceptics, however, point out that Intel and Motorola are fast catching up: Intel's recently launched i860 integrates memory management, floating point and integer processing on a single chip designed for multi-processing, and some forecasters claim that Motorola and Intel will have between them cornered most of the 32-bit market by 1992. But Inmos' new managing director Michael Wright claimed that the Intel part was both complex and expensive, and "has been the subject of ridiculous performance claims". As a result of the acquisition, he said, long-term investment plans were already being put into operation, including an acceleration of product development that would be manifested in both people and manufacturing facilities. Pistorio said that he was considering a second European source for the Transputer, and announced that the SGS-Thomson plant in Dallas, Texas, would begin manufacture to support growing demand from the US Defense Department. The Transputer now has 1,000 customers, said Wright, with 350 design projects underway, including 120 in volume production.

Inmos also said it would be releasing its long-term development plans to developers in the third quarter of this year, including the announcement of a standard, Inmos supported operating environment for the Transputer - currently developers are faced with a choice of five or six competing environments, a number of them Unix-like - and more effort on applications software in specific markets, such as CAD/CAM, financial and transaction processing, that will take advantage of the Transputer's parallelism. A new generation of Transputers is currently under development, with plans for a 15 MIPS chip for launch later this year, with 30 MIPS next year, and "40-50 MIPS" in 1991, said Wright.

APRICOT GAINS LUCRATIVE UK GOVERNMENT SALES

Apricot Computers' Government division is celebrating three major orders over the last few months, and is gearing up to raise both the value and sophistication of its customers' computer installations over the next year, according to the division's director, Barry Kelley. Last November, Apricot won an £8 million contract to supply PCs, networking and Unix systems to the Department of Social Services over the next two years, and followed that in January with a £2.5 million order from the National Audit Office (UX No 159), which has bought two of the Sequent-based VX9000 systems, Ethernet networking, and 300 Qi workstations for its headquarters, based in the old British Airways terminal building in London's Victoria. The third order came from the Health Education Authority, which ordered a 115 user VX9000 system from Apricot system house Kestrelinfo Ltd for £343,000. Kelley maintains that the orders show that Apricot is now beginning to be taken seriously as a supplier of mid-range, departmental systems: it signed an OEM deal with Sequent at the end of 1987 (UX No 159), but has begun selling them only over the last six months, with fifteen now out in the field. The Audit Office contract was won against bids from DEC and ICL, while the DSS contract also had NCR and Honeywell-Bull chasing the business. According to Kelley, Apricot is actively bidding for further contracts from the Lord Chancellor's Office and the Department of the Environment, all specifying open systems interconnection as mandatory: "our OSI and Unix strategy is giving us a short-term advantage over companies such as DEC", said Kelley, who also hopes to gain further business from the DSS by bidding top-end VX9000s at the expense of ICL mainframes. Apricot uses its 30% share of the public sector PC market as a lever for larger systems and networking installations, and hopes to do the same this year at the Ministry of Defence, where its micros are also widely used. "The VX9000 will earn the company a substantial share of the defence sector's massive new Unix market", said Kelley.

DATA GENERAL UPGRADES UNIX DASHER PCs

Data General has upgraded its family of Unix based Dasher PCs, adding the Dasher/386-25 model which uses a 25MHz version of the 80386 Intel chip. Data General, which turned the PC workstations into entry level Unix systems running a 16MHz version of the chip back in January, says that the 386-25 provides source code compatibility for SVID applications with its new 88000 based AViiON systems, (UX No 220). The AT compatible Dasher 386-25 runs Unix 386/ix, has up to 12Mb memory, 64Kb cache, 150Mb SCSI tape drive and allows up to 50 asynchronous serial connections. Configured with 4Mb memory the system costs \$15,480.

HEWLETT ADDS ERASABLE LINE USING SONY DRIVES

Hewlett-Packard Co has entered the market for erasable optical disk drives with a library and a stand-alone subsystem, both based on Sony Corp's 5.25" drive, and aimed at the OEM market, and will show them at Comdex/Spring in Chicago next week. The C1710A optical disk library system holds 32 platters, each with 650Mb capacity for a library capacity of 20.8Gb, and Hewlett says it has designed a simplified autochanger mechanism without motors, sensors or cables, and used integrated drives designed for heavy use with the autochanger. It includes two of the Sony drives "specifically developed" for Hewlett's autochanger. The drives use the magneto-optical record-erase system, and conform to the ISO and ANSI definitions for continuous-composite format. The C1711A is a stand-alone optical disk subsystem with 95mS average seek time, 680Kbytes-per-second read-transfer rate and an SCSI interface. The library with two drives is \$29,900, evaluation units are out now and full production is set for late this year. The stand-alone system will be available in June both OEM and at an end-user price of \$6,190 plus \$250 per disk, at which it will be offered as the Series 6300 Model 650/A to users of Hewlett-Packard's HP9000 Series 300 running its HP-UX Unix.

ORACLE EUROPE BRINGS IN ITS ORACLE*MAIL, CASE*GENERATOR

Oracle Corp took people from all over Europe to Brussels for the European launch of the first product from the company's new Office Automation Division, the Oracle*Mail electronic mail system launched in the US at the end of last year, (UX No 211), and of CASE*Generator, which generates SQL programs from the companies computer-aided software engineering dictionary. Although described as portable as well as distributed, Oracle*Mail in its first incarnation runs only on DEC VAX/VMS systems and Sun Microsystems workstations; it includes the Oracle database kernel and costs £1,800 on a Sun-3. It is designed to enable users to send images, spreadsheets and applications as well as text messages to each other, and can exchange files with 1-2-3, All-In-1, Comprehensive Electronic Office, SQLCalc, Uniplex's Oracle Link, Quadratron's Q-Office, Applix' Alis. The next release will include gateways to facsimile and telex. CASE*Generator is claimed to cut by 90% the effort needed to generate simple SQL forms, and by at least 50% that required to generate complex SQL programs, and is a step in the company's commitment to integrate its software engineering and applications generation tools. Speaking at the annual European Oracle User Group event, president Larry Ellison forecast that the decline of proprietary systems would speed up during the next decade, due to the likes of Sun, Sequent and others, which are forcing the bigger players like DEC and IBM to adopt two tier platforms to compete with the low cost open systems solutions these companies offer. Oracle intends to stand squarely in the middle of the unfolding chaos and exploit the situation with products that run right across the board, both now, and in the future. "By the end of the 90's there will be no more proprietary computers, and as the right choices are constantly changing," he said, "with Oracle you don't have to bet on anything." Future Oracle software will be built upon the underlying assumption that systems will be increasingly integrated on a network, and these new offerings are designed precisely with this in mind. Oracle intends to build "a portable layer of software to insulate users from changes in technology." On Europe, the company said that it expected its business on this side of the water to reach \$190m in the fiscal year just ending, up from just \$100m last fiscal. And in the US, Oracle is to move its headquarters to Redwood City, California from Belmont, in two phases; the first phase being planned to start in November.

POSTSCRIPT SUPREMACY FACES MICROSOFT CHALLENGE

Adobe Systems' Postscript, considered to be the standard page description language for printers, is facing serious competition in the race to improve on what it can offer, according to OI Informatique. In particular, Microsoft Corp is aiming to topple Adobe from its prime position. With the introduction of Presentation Manager and OS/2, the company is beginning to make its presence felt among printer manufacturers, and has won the attention of the leading users of Postscript, Apple Computer Inc and IBM. Microsoft has benefitted from its collaboration with West German company Bauer GmbH, which gave it the necessary help in developing its Generic Driver for Windows and Presentation Manager. Subsequent versions of Windows and Presentation Manager will incorporate this driver. Now faced with greater choice, IBM is wavering between Postscript and the Graphics Program Interface from Microsoft. Should the balance tip in favour of the Graphics Program Interface, Microsoft could make a bigger impact on the market than Hewlett-Packard Co, with its release of Page Control Language version 5. Facing attack on all sides, Adobe has been forced to introduce a licence plan, allowing Postscript clone manufacturers access to the company's technology. Although inevitably these manufacturers will add to Adobe's original fonts, the company is prepared to take this risk to compete with its rival Bitstream. Adobe has also brought out Display Postscript, which is already used by NeXT Inc and DEC, but is intended principally for Unix systems. Adobe is certainly attempting to fend off its contenders, but whether they are worth the trouble remains uncertain.

TEKTITE COMBINES 80860, TRANSPUTER IN FLUTE GRAPHICS LINE

The first applications of hot new chips usually come from tiny companies and Tektite Ltd of Felixstowe, Suffolk is the first out with a product that uses the Intel 80860 RISC microprocessor - and Tektite is using it in combination with the Inmos International Transputer. The Flute range of add-on boards for personal computers is claimed to implement a distributed graphics supercomputer. The Flute graphics and processing module consists of 40MHz 80860 with 24Mb main memory, 4Mb of dual-ported display memory, programmable display controller supporting both 8-bit per pixel video at 1,280 by 1,024 with 256 colours from a colour palette of 16.7m, and 24-bit per pixel at 1,024 by 800, using all 16.7m colours. A 10 MIPS Inmos T222 Transputer communicates with the 80860 via 8Kb of dual-port memory and handles system services with bootstrap support from 64Kb of flash EPROM, and the four 20Mbps serial communications channels to processing modules. The base module is offered as an AT expansion board, and can support multiple Processing Modules implemented in the 16-pin Inmos TRAM format, so that they can be installed in MS-DOS micros, DEC VAXes or Sun Microsystems workstations. The Graphics and Processing Module is £17,500, the Processing Module £7,500, and they will be available in the third quarter. GAFS graphics software with display routines callable from Occam and provides access to graphics facilities of Borland International's Turbo C is available at from £400.

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Toshiba Corp chose last week's Scottish Computer Show to launch the T5200, a new version of its portable Unix workstation launched last year, (UX No 165) - the T5200 has a 40Mb hard disk drive option as opposed to the usual 100Mb, and is available now, priced £5,495: Toshiba has a 56% share of the 386 transportable market in the UK according to figures from Romtec.

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UK company Standard Platforms Blackburn, Lancashire, is now offering a Posix compliant version of Charles River Data Systems' Unos real time Unix operating system.

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Chicago based data analysis specialists SPSS Inc is to offer its data analysis software for SCO Xenix as from May, and will also support Sun-4 and Sun386i workstations: in addition Unisys is to market SPSS's statistical and graphics software on its hardware in a worldwide agreement - the firm's software will be ported to Unisys systems not already supported during the course of this year - prices range from \$3,900 to \$10,000, depending on the hardware.

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Mountain View, California based Verity Inc's text retrieval system, Topic, is now available for Mips Computers systems - prices range from \$12,500 to \$20,000. Marc Software International Palo Alto, California, is offering a new NROFF/TROFF to WordMARC filter for users who would rather use an interactive menu driven word processor with desktop publishing capabilities than NROFF/TROFF's batch orientated system - the WordMARC filter is available for all Unix systems, ranging from \$250 to \$9,500 depending on CPU.

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And Marc has WordMARC-Oracle Connection - a program that provides two way integration between the WordMARC word processor and Oracle's database - running on Unix systems prices go from \$900 up to \$19,000.

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OS/2 versions of Unix vi editor, the Awk language and a revision control system are now shipping from MKS Waterloo, Ontario, Canada - they are all compatible with other MKS software for DOS and OS/2: MKS Awk is \$179, MKS Remote Control System costs \$395 and MKS Vi is \$199.

Sun Microsystems was preparing to launch its new workstations as we went to press, and was expected to reveal a 12 Mips workstation priced at \$9,000, and a low-end 10 MIPS machine at \$5,000 - not, however, likely to become available for another year sources said: full details next week.

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Unify and Oracle are to interface their respective Accell/SQL and Oracle RDBMS applications, and will offer them to customers under the terms of an independent software vendor agreement - availability from the third quarter: Unify is also offering four year old Atlanta, Georgia based Programmed Intelligence Corp's visual information retrieval and analysis tool, Intelligent Query, on its Accell 4GL technology - Accell/IQ is priced from \$750 to \$45,000 depending on hardware configuration.

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Microprocessor development tools company Microtec Research Inc Santa Clara, California, has acquired the technology of Silicon Valley Software Inc, and Silicon Valley co-founder Dr Jeffrey Barth has joined Microtec as senior scientist: Silicon Valley Software was founded in 1979 as an OEM supplier of Unix compilers and since then has sold over 200,000 copies of its Fortran and Pascal compilers via the likes of NCR Corp, Texas Instruments Inc and Unisys Corp.

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Omron Tateisi Electronics is already upgrading its Luna Unix System V workstation, launched only last October: the Luna GW adds a graphics ASIC chip that enables the user to paint graphics directly on the screen; the proprietary graphics chip is claimed to be able to draw 600,000 short lines per second.

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Not exactly the kind of helpful comment that IBM and Microsoft Corp need right now as they strive to establish OS/2 as the next desktop standard: commenting on NeXT Inc's NextStep user interface and tools, Mitch Kapor, co-creator of 1-2-3, now running On Technology told the Wall Street Journal "It definitely helps a lot, but then anything is easier to develop for than OS/2".

Dell Computer Corp Austin, Texas added the Dell System 316, based on the 80386SX. It is from \$3,000 to \$3,200 depending on the memory.

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Cray Research Inc has now won supercomputer business at the Massachusetts Institute of Technology which was persuaded not to buy a supercomputer from Honeywell-NEC Information Systems: MIT is taking a \$7.5m four-processor 256M-word Cray-2-4-256 stem, on five-year lease for third quarter delivery.

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Valid Logic Systems Inc has signed for \$3.1m of DEC DECstation-3100s - the MIPS Computer Systems Inc RISC-based ones - and VAXstation-3100s.

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Tandem Computers Inc has unveiled SNAX/CDF, Tandem OSI/AS and Tandem TCP/IP communications products to enhance its co-existence with IBM SNA, Open Systems and Unix networks.

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We apologize to our subscribers for delay in delivering the latest installations of Unigram's index service. However you will be pleased to hear that the hiccups have gone and the indexes for October, November and December 1988 will be with you this week. In addition, this year's January, February and March indexes should be dropping through your mailboxes within a couple of weeks.

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HEWLETT-PACKARD ACQUIRES APOLLO IN OPEN SYSTEMS ALLIANCE

Hewlett-Packard Co has reached definitive agreement to acquire Chelmsford, Massachusetts-based Apollo Computer Inc for about \$476m in cash in what will be the biggest acquisition in the history of the Palo Alto company. Apollo effectively put itself up for sale last November, but its quest for a buyer or a major new investor was expected to take it overseas, with major customer Siemens AG seen as a likely candidate. Hewlett-Packard says it will start the \$13.125 cash tender offer immediately; the price represents a generous premium over the \$8.125, unchanged, at which Apollo closed the night before night. Hewlett says it intends to operate Apollo as a separate division within Hewlett-Packard's workstation group, but the acquisition is one in which one and one seem to make less than two, because both companies major on Motorola 680X0 family Unix workstations and compete for a significant proportion of their business. The companies are already close, both being founder sponsors of the Open Software Foundation alternative Unix club. The acquisition will put muscle behind the innovative Apollo Network Computing System for tying dissimilar computers in a heterogeneous network and directing work to the type of machine best able to handle it. Once the arch-rival of Sun Microsystems, Apollo had fallen badly behind in the past three years and reported a 90% fall in profit to \$2.1m on sales up only 18% to \$653m for 1988. Adding in Apollo should take Hewlett's turnover to around \$11,000m this year - not all in computers, putting it ahead of Unisys Corp and just behind DEC in size.

COMPUTER CONSOLES DUMPS ITS RISC FOR ICL SPARC BOXES

Now that STC Plc is running the show at Computer Consoles Inc, the company's quixotic decision to go off and design its own RISC processor for its next generation of Unix machines (UX No 102,177) has been weighed and found wanting. The computer side of the Waltham, Massachusetts company, now under the immediate control of STC subsidiary ICL, has laid off 30 of the 70 design engineers at Consoles' West Coast base in Irvine, California and cancelled the new high-end machine. Computer Products division general manager D'Arcy Roche has resigned to be succeeded by ICL director of systems engineering Alan Rowley, who will stand in until a permanent successor is named. Computer Consoles will now adopt the machines that ICL is developing around Sun Microsystems' Sparc processor - presumably taking the version of the Sparc being fabricated by Fujitsu of America Inc given ICL's close relationship with the Japanese company. A key reason for dropping the Computer Consoles RISC was that the ICL machines will be ready about eight months earlier than the ones being designed in Irvine would have done, and, reports Electronic News, will be faster and cheaper as well. The new ICL Unix machines are due out next year. Computer Consoles' manufacturing space is being turned over to making ICL products, and ICL is putting its office products through Computer Consoles' sales force alongside the Power6 Unix line.

IBM PREVIEWS PS/2 WITH 25MHz 80486

IBM's star turn at Comdex Spring in Chicago centered around a PS/2 Model 70 with the new Intel 80486 chip inside, mounted on the daughterboard normally used to mount the 80386, 80387 and cache the 80486 of course replaces. After some "minor tweaking" of the BIOS, they had the thing running in three days flat. According to James Cannavino, the company has tested the new chip with MS-DOS, AIX Unix and OS/2, and found that the 25MHz version of the part was twice the speed of a 25MHz 80386 on run-time applications not optimised for the new chip. There are bugs in the chip, but a revised version is promised by Intel in about six weeks. And although this was a "technology announcement," Cannavino hinted that IBM would ship its first 80486-based PS/2 early next year. "But that doesn't mean we'll be skipping 33MHz 386s," he added.

NEC's SX3 SUPERCOMPUTER TARGETS 120 SALES

NEC Corp this week rattled the supercomputer community by announcing the SX-3 family and claiming peak performance of 22 GFLOPS for the top model - but the machine has not been built yet, and is not due to ship until the fourth quarter of 1990. The claimed speed is about 25% higher than the design speed of Cray Research Inc's forthcoming Cray-3, but observers doubt the NEC machine could ever achieve that speed on real work. NEC's SX family has so far attracted only 180 applications, against more than 600 for Cray machines, and in an effort to tap a base of applications, NEC will run the machine under a version of Unix that it calls Super-UX. The machine will come in four uniprocessor, two dual and two four processor models, and the scalar performance of the top model is put at 680 MIPS. Memory will go from 64Mb to 2Gb and the clock is set at under 3nS, using NEC's bipolar Current Mode Logic with 20,000 gate arrays that switch at 70pS. The machines will be marketed in the US by HNSX Supercomputers Inc, a 50-50 joint venture of NEC Corp and Honeywell Inc. Prices have been set at \$5m for the 700 MFLOPS version to \$23m for the top model. NEC hopes to sell 120 over four years, but it has so far sold only 23 of all its SX models.

...AS CONTROL DATA SHUTS DOWN ETA

Control Data Corp this week announced the closure of its ETA supercomputer business at a cost of \$350m in write-offs, and said that 3,100 employees would lose their jobs. Control Data remains committed to its Cyber 900 mainframe line, and says it is looking at ways to incorporate some of the ETA-10 technology in the Cybers. Last year ETA lost around \$100m, and was not expected to be profitable in the near future. Formed as a separate company in 1983 by Control Data, ETA was intended to produce the successor to Control Data's Cyber 205 supercomputer, but problems with the chilled CMOS chips fabricated for ETA by Honeywell Inc led to the machines being late for market, and the company never recovered. Existing customers, such as the UK's Meteorological Office in Bracknell, will continue to be supported by Control Data.

UNIX INTERNATIONAL TO DECIDE ON MULTI-PROCESSING FOR V.5

Unix International, the group of companies pledged to guide AT&T's future Unix developments, is seeking industry input to its multiprocessing Unix workgroup, which is chaired by Jerry Popek from Locus Computing (UX No 223). The group is insisting that what looks like its automatic choice - the joint project between AT&T's Unix Software Operation and industry giants such as Intel Corp, Olivetti, Prime and Unisys Corp's Convergent division (UX No 222), based around Carnegie Mellon University's Mach - will only be one of the technologies considered. Other submissions to Unix International, which has set a deadline of May 1st for any proposals, might be expected from companies such as Unisoft, which recently licensed multi-processing Unix technology from IMP Parallel, and Sequent Computer Inc, as well as from AT&T's own Data Systems Group has also worked on multi-processor Unix for its 3B 1000 range (UX No 223). The final choice will form the basis of multi-processing technology expected to appear in Unix System V.5. Unix International recently settled on the Sun/AT&T Open Look product as its standard interface, but said that it did so only after evaluating other products on the market.

...AS OSF PROMISES MORE DETAIL ON OSF1, MOTIF

A full design specification of the Open Software Foundation's OSF1 is due to be published and generally available by the end of this month, according to OSF spokesman Grenville Edwards. This will be followed, he said, by detailed information for programmers on the Motif user interface. At the same time, OSF has signed up eight new members into its ranks, boosting membership to over 100. The eight are Tektronix Inc, US Department of Transport, Brown University, UC Berkeley, the University of Illinois, Addamax and Ricoh Co. Ltd. The latter two are also members of rival Unix camp Unix International. The Foundation has also opened three regional offices in the states - in Mountain View, California; Herndon, Virginia and Bedford, New Hampshire.

SCO GAINS FAST FILE SYSTEM FROM ACER COUNTERPOINT

Future releases of Unix from the Santa Cruz Operation will benefit from a newly signed licensing agreement with Acer Counterpoint Inc, which will allow SCO to include Acer's Fast File System within its System V/386 version of Unix. According to Acer Counterpoint, the file system has been benchmarked as the industry's highest performance Unix file system, and uses a proprietary "bit map" technique for contiguously allocating space on the disk, which allows more information to be transferred each time the disk is accessed than with conventional Unix file system. Developed by Unix software engineers at Counterpoint Computers Inc, which became a wholly-owned subsidiary of the Taiwanese Acer/Multitech group back in November 1987 (UX No 155), the Fast File System should be incorporated into the next release of System V/386. Acer Counterpoint and SCO formed a strategic development partnership late last Summer, which so far has resulted in Acer's support of SCO's Open Desktop package. The two companies promise the announcements are "the first of a series of steps growing out of that partnership".

STELLAR "REVOLUTIONISES REAL-TIME VISUALISATION"

Stellar Computer Inc, Newton, Massachusetts has a new piece of software designed to make it easier to study scientific and engineering data. The Application Visualisation System is claimed to obviate the need for users to "wrestle with" graphics programming interface standards such as PHIGS and GKS or proprietary interfaces such as GL2 and Dore, instead offering "graphics supercomputing without graphics programming." The system is claimed to provide an environment as radically different from traditional graphics programming interfaces as the spreadsheet is from Cobol. The user can select multiple data files for display in one or more AVS windows, specify wireframe or smooth-shaded rendering, set colours, select the position, type and colour of up to 15 light sources and specify surface properties such as transparency or texture - all with real-time, interactive performance, claims Stellar. The system is built on a foundation of PHIGS+ and the X Window System, providing portability as well as performance. It comes with fully documented source code to allow end-users to use it on other machines that support the standards, and complete AVS source code is available as a base for visualisation application development. It uses data filters to convert existing data into geometry suitable for display and comes with a range of filters for commonly used geometry and application data formats, including data from Wavefront, Mathematica and MCS/Nastran. If a new filter is required, AVS provides a suite of fully documented tools, including example filters and geometric conversion utilities. Future releases will provide an extensible visualisation environment that encompasses all phases of the process, including data access, conversion and transformation, interactive steering of computational processes and flexible rendering, as well as AVS modules tailored for specific disciplines such as computational fluid dynamics and image processing. The Visualisation System is the application layer of Stellar's previously announced StellarVision visualisation environment, and is bundled at no charge with all Stellar graphics supercomputers.

...AS ARDENT RELEASES PORTABLE DORE

Ardent Computer Corp, Sunnyvale, California, has opened up its Dore interactive visualisation software to other hardware platforms with a new portable version. Dore, or Dynamic Object Rendering Environment, has been available on Ardent's Titan range of graphics superworkstations since May 1988, but the company now claims to have shipped the product to around 50 companies with other hardware - including the Convex C210, DEC's VAX 11/750, and workstations from Sun, Apollo and Silicon Graphics. Ardent added a device porting interface to the original Dore version, allowing the dynamic renderer and production renderer to drive any graphics hardware in real-time. It comes with a porting guide that identifies files and routines that need modification. "We provide the templates, and programmers fill in the machine specific information", said Ardent's industry marketing vice president, Gale Aguilar. The 150,000 lines of C code within Dore include a device driver that runs on a Sun-3 or Sun-4 CXP graphics system under SunView, and this code can be modified for other hosts "within two to three days", according to Aguilar. "It's the best candidate on the market for a 3D visualisation standard" he said. Portable Dore costs \$15,000 for commercial users, and \$250 for academic users.

SUN'S PRODUCT BLITZ AIMS TO MAINTAIN WORKSTATION LEAD

In its first major hardware launch since the Intel-based 386i one year ago, Sun Microsystems came out with a bevy of new products at Comdex in Chicago on Wednesday evening. The new products included Sparc and Motorola-based workstations and servers, new graphics accelerators across a wider range of systems, and increased emphasis on application development for the Sparc architecture with its "Sparcware" programme - it says there are now 500 software products supporting the Sparc, with "up to five new ports starting per day". Included in the announcement was the first Sun workstation for under £5,000 (\$6,000 in the US), and a 12.5 MIPS RISC workstation with a starting price of £7,400 - both of which Sun hopes will attract volume purchasers, boosting its sales in the lucrative business marketplace. All products are shipping today, but Sun admits to limited availability, with volume production due "in three to four months".

Sparcstation 1 - a desktop Risc

Most significant of the new launches is the Sparcstation 1, a PC sized desktop system that uses a 20MHz Sparc processor sourced from LSI Logic. The VLSI board has eight custom CMOS chips, and less than 50 components all told, increasing reliability, reducing power consumption, and making the system easy and cheap to produce, according to Sun, which claims that it will be capable of manufacturing one machine every four minutes when it reaches full production. Rated at 12.5 MIPS, and 1.4 MFlops with Sun's new FPA+ floating point accelerator, the machine includes up to 16Mb memory and a "sizeable" 64Mb cache. The 16" x 16" x 2.8" cabinet can house up to 208Mb hard disk storage, and the machine also includes a 3.5" floppy drive: storage of over 1 Gigabyte is available by adding external desktop packs. Sun says that apart from performance, the Sparcstation's main advantage over the PC is its expandibility: the company has included a new expansion bus - the S-Bus - which connects direct to memory and is claimed to be four times faster than a standard AT bus, with three slots for "post-card size" 3.5" expansion cards. SCSI bus, an Ethernet adaptor, and two serial I/O boards are also included. True to form, Sun is publishing the specifications of the S-Bus to encourage third party developers. Also included is a new DOS emulation package which allow DOS software to be run in a Sun window with cut and paste facilities "at around the speed of an XT/AT" - the software is thought to have come from Phoenix Technology Inc. Sparcstations come with a pre-loaded Unix-based SunOS workstation, and includes audio input/output facilities including 8-bit sampling facilities. Basic systems include 17" monochrome and 8 Mbyte memory, and cost £7,400. A 16" colour system with 8MB RAM, 208Mb storage and 3.5" floppy drive costs £12,700.

Motorola upgrades - but future uncertain

Sun now appears to be putting its major efforts into Sparc and Intel-based products, saying that it will be introducing an Intel i486-based product to extend the 386i range, while Sparc systems will be used to deliver higher performance systems with a better price/performance ratio. The future of the Motorola-based range, which was frequently referred to as "the technology of the 1980s", is not so clear: a 68040-based system will only be produced if the market demands it, according to Bill Passmore, vice president of Sun's UK and Nordic division. In the meantime, however, Sun has introduced 68030-based versions of its ageing Sun-3 series, including its lowest price system ever - the Sun-3/80. Using VLSI technology, Sun has implemented the 20MHz machine onto a single board, and uses the same enclosure as the Sparcstation 1. The system is rated at 3 MIPS, and like the Sparcstation can have up to 16Mb memory and 208Mb internal hard disk. Sun says the starting price of £4,900 for a 4Mb mono version puts the system in competition with "less sophisticated" systems such as the Apple Macintosh IICx, IBM PS/2 Model 70 and Compaq 386/20. And Sun has also introduced a 33MHz 68030 system, the Sun 3-400, which expands the Sun-3 range to 7 MIPS and .6 MFLOPS performance. The 12, slot, 8-128Mb machine can support up to 1.3Gb internal memory, and has a starting price of £33,600. Fileserver, database and multi-user servers are also available.

Sparcstation 300 - Sun's fastest systems

At the top-end of its RISC range, Sun has introduced a new family of workstations and servers, the Sparcstation 300 series. Delivering 16 MIPS and 2.6 MFLOPS, the new systems are Sun's fastest, and use the Cypress Semiconductor version of the Sparc, running at 25MHz: they offer double the performance of the existing Sun 4/110 for around the same price. The workstations include two models: the Sparcstation 330 and Sparcstation 370. The 330 comes with five slots, 8-40Mb main [memory, and 1.3Gb of SCSI storage, while the 370 includes 12 slots, up to 56Mb memory, and 5.5Gb storage. The server configurations can support up to 36 users (Model 330) or 68 users (Model 370), and there is an additional Sparcserver 390, which includes an Intelligent Peripheral Interface mass storage option for faster I/O performance. The 390 has a 16 slot cabinet, and half inch tape drive for high-speed backup. Sparcstation 300 systems are priced from £24,000 to £33,000, and server configurations from £23,700 up to £124,600 for a 4Gb 390 system.

Enhanced graphics across the range

Not least amongst the new announcements on Wednesday were the new graphics options, which Sun, unlike its rivals DEC on the recently launched DECstation, offers right across the workstation range. Its new GX accelerated graphics technology is said to improve all graphics related applications, from windowing to 2-D/3-D computer-aided design and electronic publishing. Using two Sun-designed VLSI chips, the GX technology supports area fills, transformations, fast scrolling, anti-aliasing and fast rendering of vectors and flat shaded polygons. It comes as standard on all Sun mid-range and high-end systems, and as an option on the desktop models. For 24-bit, 3-D solids modelling, Sun offers GXP echnology, which is optimised to accelerate advanced PHIGS+ functions. The company also extended its TAAC software toolkits for 3-D photorealistic imaging.

MISSION HERALDS MCA SPARC TREND

Mission Electronics Ltd of Huntingdon in Cambridgeshire, and its US/Canadian Mission Cyrus arm based in Vancouver, has become the second company to announce its interest in the Sun Microsystems clone market, following the introduction of Solbourne Computer Inc's market launch at the beginning of the year (UX No 214). Mission has already introduced an innovative line of PCs (UX No 143), and at Comdex Spring this year announced the first Micro Channel Architecture portable using a 25MHz 80386 processor. But the company also announced plans for a series of Sun/4 workstation clones based on the Sparc chip, which will use a version of the SunOS operating system licenced from Phoenix Technologies, Norwood, Massachusetts. Due for introduction later this year they will run a full library of IBM PC applications, via the Phoenix MS-DOS software co-processor. Phoenix spokesman Bruce Crane claimed that his company was working with "at least half a dozen" other companies working on Sparc/Micro Channel systems, providing its Advanced ROM BIOS and design help with the hardware. Initial Mission systems are likely to use the Sparc as a co-processor. "Sparc vendors are looking at establishing MCA as the bus of choice", said Crane. "The VME bus is costly and takes up a lot of room, while the MCA bus has more add-in cards".

MOTOROLA EXTENDS 68030-BASED DELTA RANGE

Motorola's Computer Systems Division has added to its 68030-based VME Delta series (UX No 153) with the Model 3200 family of network servers. Using 16.7 or 25MHz version of the chip, the new systems accept up to three VMEbus cards each, come with up to 12 serial communications ports and a parallel port, and support up to three 3.5 inch peripherals (disk drives, tape streamers etc). SCSI peripherals are supported by an on-board SCSI controller. The 25MHz version also comes with built-in Ethernet network interface, has up to 8Mb memory and can support disk drives with capacities of up to 344Mb: on the 16.7 MHz version the network interface is optional, memory is 4Mb, and disk drives of up to 208Mb are supported. Prices are \$7,500 for the immediately available slower version, and \$19,800 for the 25 MHz system, available in June. Motorola also offers the 68030-based 8000 series of integrated workgroup systems (UX No 172).

MODCOMP BUYS PART OF GOULD

AEG AG's Modular Computer Systems Inc has bought a part of Gould Computer Systems Inc, the Industrial Applications System Group, based in Knoxville, Tennessee on undisclosed terms. ModComp gets all the physical assets of the industrial systems group and rights to Gould's Pace-32 industrial software. ModComp will take over support of the Pace-32 customer base and make the Pace-32 products and services available to Gould's world sales force.

INTEL'S DARPA PROJECT PROMISES 128 GFLOPS PARALLEL PROCESSOR

The razzamatazz that surrounded Intel's chip launches seems to have gone to its head, and now, in amongst all the excitement generated in the microprocessor world, the Beaverton, Oregon based company is boasting that it can build an impressive 128 GFLOPS computer, using thousands of i860 chips. The machine - known as Touchstone - is ultimately to contain as many as 2,000 processors, each with the power of a Cray-1, and it is being developed along with DARPA, the US Defense Advanced Research Projects Agency. Much of DARPA's £7.6m contribution to Touchstone will be used for software development, and the whole thing is expected to cost £27.5m over the next three years. The aim is to push parallel computing performance up by up over 100 times, and at the same time to create a software environment comparable to conventional systems. The prototype will incorporate hundreds of processors, out of which the full blown monster will emerge. The whole project seems to be geared to that time, often allured to, but not yet reached, when supercomputers containing thousands of chips, billions of bytes and trillions of characters will be commonplace. Intel says the commercial offspring of Touchstone will be at least ten times more cost effective than conventional supercomputers. The air cooled system will incorporate its own high speed communications network, currently under development by Intel and DARPA at Caltech and MIT. The software is to include the results of recent research at Berkeley, Carnegie Mellon, Princeton and Illinois universities. As the Touchstone prototypes are developed, applications developed on Intel's parallel processing machines will be migrated. Intel and DARPA have targeted the solution of very large mathematical problems and the design of cooperating expert systems - intelligent programs - to judge the prototype's performance.

SWEDISH DEFENCE CHOOSES AT&T'S SYSTEM V/MLS

The Swedish defence department has selected AT&T's System V/MLS (UX No 220) as a new secure computing standard. Sweden first adopted the Unix System V standard way back in 1984 (UX No 8), and in 1987 picked a shortlist of hardware suppliers for its second buying phase (UX No 158), including Unisys Corp Sweden, Norsk Data AB and Diab Data AB - although the defence department also has systems from NCR Corp and Diab Data AB. System V/MLS multi-level secure Unix is currently in formal certification as a B1 computer system by the National Computer Security Center agency of the US Department of Defense, and is being provided to the US Government through AT&T's recently won AFCAC 251 contract (UX No 204). AT&T's Federal Systems Division vice president Warren Corgan said he was "looking forward to the Swedish civil administration including System V/MLS as an extension to its existing specification for Unix System V." MLS allows users with different security clearances to use the same computer, and provides an audit trail which records all data accesses on the computer. Software licenses are provided through AT&T's Unix Software Operation Europe, while technical support comes through AT&T's Nordics AB division in Stockholm.

GRAFPOINT EMULATES TEKTRONIX ON SILICON GRAPHICS AND SUN

Philadelphia-based software house Grafpoint says that it is now ready to ship its Tektronix terminal emulation software intended for Silicon Graphics workstations. Tgraph SGI will run on any Silicon Graphics 4D Series workstation, according to Grafpoint, allowing them to host graphics application packages previously inaccessible. And the company is also shipping beta version of Tgraph for Sun-3 and Sun-4 workstations. Both support Tektronix 4107, 4125 and DEC VT100 emulation. Grafpoint claims that Sun workstations using the software can perform over six times faster than the Tektronix terminals they emulate. TGRAF SGS is priced at \$2,500, including on-line technical support and free updates for a year, while the Sun version is slightly more expensive at \$2,950.

TOPOLOGIX TO BUY NBI'S INTEGRATED SOLUTIONS

NBI Inc, Boulder, Colorado has agreed to sell its Integrated Solutions Inc real-time Unix systems acquisition in San Jose, California to Topologix Inc, Denver, Colorado. Topologix, controlled by Storage Technology Corp founder Jesse Awcida, is the company that builds four-processor accelerator boards based on the Inmos International Transputer for Sun Microsystems' workstations. Its plan now is to build the boards into the Integrated Solutions machines. Topologix is getting \$6m cash plus a royalty-free technology licence on a network server being developed by Integrated Solutions for NBI that the firms value at \$1.5m, but NBI is having to write off a \$9m internal debt owed it by Integrated Solutions, and while it had been operating at a loss, most of this is accounted for by servicing the debt. It is believed to have had sales of about \$12.6m last year, against just \$600,000 for Topologix and employs 130 people, where Topologix has about 40. Topologix is to raise the cash for Integrated via a private placing.

ACORN ENHANCES ITS ARCHIMEDES 400 RISC WORKSTATIONS

Acorn Computers Plc has added three new models to its Archimedes 400 family of low-cost RISC-based workstations and promises a new machine between the 300s and 400s next month. The new models run up to 10% faster than their predecessors by virtue of improved memory cycle efficiency, and run the company's new RISC OS multi-tasking operating system, which supports up to 4Mb of main memory but runs all existing Archimedes packages. The machines come with built-in graphics and hard disk controllers, four slot backplane and co-processor bus, for which a floating point co-processor will be available in the summer. The base 410 has the operating system in 512Kb of ROM, 1Mb of main memory and 800Kb 3.5" floppy for £1,200. The 420 adds a 20Mb internal Winchester and has 2Mb RAM, running Acorn's software emulator of MS-DOS; it costs £1,700. And the 440 has 50Mb disk and 4Mb RAM, and costs £2,500. They are available now. The Cambridge-based company, which specialises in the education market has, along with its contractual foundry VLSI Technology, has also announced a new chip set, ARM 3, which adds 4Kb of on-board data and instruction cache to Acorn's RISC machines. VLSI will have the set in volume production by the third quarter of this year, selling versions at speeds up to 20MHz. This latest version of the main processor in Acorn's RISC family integrates over 300,000 transistors and Harvey Coleman, the company's managing director, is confident that it will further increase Acorn's price-performance advantages over rival companies. The announcement was made as Acorn revealed that it had weathered the losses it made last year and had returned to profit with a pre-tax figure of £1.1m on turnover up 8.5% to £39.2m. According to the Times Educational Supplement, Acorn still dominates the UK education market, cornering 62% of all machines sold in schools.

ORACLE PREDICTS VAX EXTINCTION FOR NEXT DECADE

The IBM mainframe and the DEC VAX will be extinct by the year 2000, according to Oracle Corp president Larry Ellison. This may explain why, despite the fact that 40% of its current business is generated in the DEC environment, the company appeared unruffled by DEC's recent decision to bundle Rdb on its VMS operating system (UX No 225). Ellison feels that the value of a product that traps a user in a proprietary architecture is "zero". Indeed, outlining his "view of the future" to assembled European press, Ellison claimed that proprietary architectures were already being superseded by cheaper, multi-user, commodity computers. Expounding Oracle's domino theory of the computer industry, Ellison claimed that IBM would be forced to respond to DEC's recent entry into the Unix market, prompted, on DEC's part, by the arrival of \$10,000-per-MIPS machines from Sun. He pointed to 1992 as the year when IBM would introduce the first of a series of high-speed, parallel processor, Unix machines. In the interim period, users should develop a survival strategy of co-existence", and invest in tools and software portable across a range of operating platforms and networking protocols, he argued. "The problem with our business is that the right choice is constantly changing because technology changes so fast: if you have tools that run on all machines you don't have to gamble on anything".

TEXAS WINS BACK FORD 9370 BUSINESS WITH UNIX LINE

Early hopes that the 9370 would be a runaway winning product for IBM were fuelled by two monster contracts - one from the US Postel Service, the other from Ford Motor Co - but the latter has turned bitter as gall for IBM. Ford wanted to replace the Texas Instruments DS990-based systems in 5,000 of its dealerships with IBM 9370s running the same software, but after struggling for over a year to write an emulator to enable the software from the DS990s to run on the 9370 unchanged, IBM gave up and according to Electronic News, advised Ford that it would be "prudent" to consider going back to Texas. The problem was that the architectures were so different - the Texas machines have a unique continuous memory architecture - that the software crawled on the 9370, especially in input-output operations. It would have needed a more powerful and costly 9370 than anyone had bargained for to get reasonable performance, with large dealers needing a 9377 Model 90. But Texas is moving its own base away from its proprietary architecture and on to Unix machines based on the iAPX-86 and MC68000 chip families - Ford is taking SP1000, TI1300 and TI1500 machines - how does it solve the problem? The UK company says it is a simple and efficient procedure. A pre-report source indicates the changes are needed and a suite of programs will then make 99% of the alterations. It can be done either by Texas itself, or by its resellers.

NEW VERSION OF DISPLAY POSTSCRIPT NEXT MONTH

Version 1.0 of Display Postscript from Adobe Systems is due next month, according to Microbytes Daily, and that version will be the one included in the Next Inc machines to be distributed by Businessland. The current version is 0.9. The new version will also appear on the new DECstations DEC buys OEM from Mips Computer System Inc, and on IBM PS/2s running AIX, also the subject of a Businessland distribution deal. It is also a contender as the imaging model for OSF Motif, the Open Software Foundation's "Presentation manager-like" graphical user interface. Unlike conventional Postscript, which can take several minutes to assemble an image, Display Postscript takes less than a second, according to Adobe, and the new version will include optimised features, such as primitives for generating rectangles, and caching for frequently used objects such as icons. But talks with OSF have currently stalled over the issue of source code, which the OSF insists upon. "We can't give them that", said Adobe's Ellen Nold, quoted by Microbytes.

PICK SYSTEMS SUES McDONNELL, UNIDATA

There's more trouble in the Pick world, with Pick Systems Inc, Irvine, California suing McDonnell Douglas Information Systems Co and Unidata Inc of Denver, Colorado alleging unfair competition and trademark violations. Dick Pick's company complains that the defendants used the name Pick to describe software that is not prepared or licensed from Pick Systems. McDonnell Douglas calls its unlicensed version - derived from a much earlier Pick release that was licensed - Reality and Unidata offers a UniData database management system for users of Unix on IBM and DEC hardware that it claims to be Pick compatible. McDonnell has agreed to pass Reality technology to Unidata, and Pick is seeking an injunction barring further misuse of its name, and also wants monetary damages from the two companies.

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In an agreement that mirrors the one under which Data General Corp and Motorola Inc are working on an ECL implementation of Motorola's 88000 RISC, Prime Computer Inc is to work with Intel Corp for joint development of an ECL version of the 80486 for 1992, designed to do more than 120 MIPS: it underlines the importance Prime attaches to its 80386-based EXL Unix family.

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And resigning itself to the fact that it would fall to MAI Basic Four Inc's \$20-a-share bid unless it could find a more attractive home, Prime Computer Inc has put itself up for sale, saying that it would entertain offers that exceeded MAI's \$20 a share.

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IBM has signed up Verdex Corp, Chantilly, Virginia to do a version of its Verdex Ada Development System for IBM's AIX version of Unix on the RT, PS/2 and 370s: terms were not given, and Verdex noted that IBM forbids it to discuss the likely impact on its figures that will result, but the move is a significant one, as IBM has gone it alone on Ada up until now.

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Metaphor Computer Systems, Mountain View California, has filed a lawsuit against Xerox Corp, following some letters sent by Xerox claiming that Metaphor had violated copyrights on its graphical user interface technology: Metaphor, which was formed by ex Xerox employees and licenses its user interface technology to IBM, denies infringements and filed the lawsuits to clear up the allegations - both sides appear to feel that the dispute will be settled out of court.

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Extended MS-DOS will be the leading personal computer operating system of the future, according to an attendee poll at Comdex Spring in Chicago, carried out by Byte magazine: 30% of the 4,000 respondents asked to pick what the dominant force in PCs by 1992 named Extended MS-DOS, while 26% chose Unix, leaving OS/2 third with 20% of the vote.

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The same survey also had it that Unix International Inc would win the day over the Open Software Foundation.

The Nixdorf agreement with Edgcore Technology mentioned in UX No 225 has not yet been finalised, and "may not be fruitful", sources said this week: Scottsdale, Arizona based Edgcore is still likely to reveal a major Japanese OEM within the next sixty days, however.

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Businessland Inc expects to report record third quarter sales of over \$290m with net profits of at least 25 cents a share, thanks to higher sales of Apple Computer Inc and IBM Corp products: "many of our corporate customers are moving to the advanced technology of intelligent bus architecture such as IBM's Micro Channel bus and Apple's NuBus, and we expect this trend to continue in the coming months", the San Jose company said confidently.

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Cullinet Software Inc, of Westwood, Massachusetts, has retained Goldman Sachs & Co to evaluate new sources of finance for the loss-ridden database software company, giving rise to speculation that the company may want to put itself up for sale: it declined comment on the suggestion.

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Dataquest reckons that the proposed acquisition of Apollo Computer Inc by Hewlett-Packard will shoot the Palo Alto firm into the number one spot in the workstation market, with 30.4%, ahead of Sun Microsystems and DEC: but in number of units sold Sun apparently still has the edge, with an estimated 150,000 workstations installed, compared with Apollo's 84,000 and Hewlett-Packard's 49,000 - a combined total of 133,000.

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Why did Apollo fall so far behind Sun Microsystems Inc in the workstation market? The answer lies the age old problem that besets the pioneer - Apollo was too far ahead of the game: founded two years before Sun, the Domain workstations established a new market, but at the same time there was no head of steam behind Unix, and so Apollo started out with its own proprietary Aegis operating system, and hit a serious hiatus when the burgeoning industry standardised on Unix; it lost time implementing its own version while Sun had the percipience and luck, two years later, to settle on the Berkeley version of Unix from the beginning.

Is a counterbid for Apollo likely? If the market thought so it would have pushed Apollo's share price above the Hewlett-Packard offer price last week - but the company certainly has attractions to its major customer, ambitious Siemens AG (UX No 215), and Nixdorf Computer AG is also said to have taken a look: Data General has also reportedly made takeovers, and Bull HN, NEC Corp and Sony Corp might also be in the running.

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The IEEE talks on windowing standard reported to have focused on either the straight adoption of Motif or X-Windows, or some combination of the two as its standard - a further meeting is to be held at the end of July, after which a ballot of members will be held to decide upon a choice.

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Despite rumours flying about to the contrary, it seems that there is no financial problem at the Westboro, Massachusetts based office automation company Applix Inc, manufacturers of Alis software - the company is restructuring, and aims to be positioned more as a marketing than development enterprise - it says it has recently signed a US government contract for 4,000 licenses.

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Ensuring that the thing won't lie down and die, Harris Corp now has a 25MHz 80C286 at \$142 for 1,000-up.

- o -

CONTACTS

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OSF ISSUES SECOND REQUEST FOR TECHNOLOGY NEUTRAL DISTRIBUTION FORMAT ALTERNATIVE TO ABI

As anticipated (UX No 224), the Open Software Foundation's second Request For Technology has been issued to find a method of distributing software in a single format, independent of the target hardware. OSF's Architecture Neutral Distribution Format (ANDF) RFT will follow the same process as that followed in the choice of the Foundation's graphical user interface technology earlier this year, which resulted in the OSF/Motif product, an amalgamation of technology from DEC and Hewlett-Packard, being selected from the original 39 submissions. The new RFT is not specific about the approach to the neutral distribution format, but cites the specification of an intermediate compiler format, encrypted source, or tagged executables as examples. Technology must support at least two distinct computer architectures, applications written in ANSI C, and must be extensible to additional architectures and languages, says the RFT. It must also be ready for shipment some time in 1990. Closing date for submissions is June 30th this year, and OSF says it will have made its decision on a short list by January 8th 1990. According to OSF business area manager Elizabeth Cobb, ANDF "will make purchasing software as simple as renting a video tape", and will provide a single format for all architectures, rather than a series of applications binary interfaces for individual processor families - the approach taken by AT&T and Unix International for Unix System V.4. But there may be a performance penalty - the RFT states that the implementation "should not impose a severe performance penalty or produce code less reliable than code distributed through conventional means, such as applications binary interfaces".

DEC PLANS 7 MIPS, \$7,000 RISCSTATION

DEC's late-life love affair with Unix is expected soon to lead to a low-end version of the MIPS Computer Systems Inc R2000-based DECstation 3100 to bring its base price down to \$7,000 for an 8 MIPS workstation - versus 14 MIPS and \$11,900 for the 3100. DEC has not decided whether to offer it as a cheapo workstation or a Unix personal computer. The company is also reportedly working on three further generations of CMOS chip sets beyond the 3.8 MIPS set used in the VAX 6300 and MicroVAX 3800 and 3900. The target for the next generation is 7 MIPS, says Electronic News, and machines using it could be out by late summer. The second, for 1990, is to deliver 10 MIPS, with a 20 MIPS one in 1991.

HEWLETT, SEVEN OTHERS FORM THE OBJECT MANAGEMENT GROUP

With signs of a backlash against the so-called fourth generation languages, which are sometimes what used to be called applications generators, at others a whole lot less, there is growing interest in object-oriented programming, and a new industry body - yet another - is being formed to promote the concepts and try to set some standards. The Object Management Group Inc brings together Hewlett-Packard Co, Data General Corp, Unisys Corp, Sun Microsystems Inc, Prime Computer Inc, Philips NV, Canon Inc, 3Com Corp, American Airlines, Soft-Switch Inc, and Gold Hill Computers Inc, and plans to take as its starting point Hewlett's NewWave Object Management Facility. The objective will be to develop classes of programming objects for use in specific types of application. AT&T Co's C++ object-oriented language will loom large in the group's work, but it does not intend to standardise on a particular language - not least because Hewlett is working with Microsoft Corp on its NewWave effort: it stands beside Microsoft in the dock of Apple Computer Inc's complaint about Windows and Presentation Manager - and Microsoft is said to be almost ready with an object-oriented version of Pascal. The key attraction of object-oriented programming is that it eliminates constant re-inventing of the wheel: once an object has been defined - anything from a subroutine through a library to a piece of digitised sound - it can be reused over and over again within whatever limitations are imposed by machine-dependence and portability.

INTERACTIVE UNIX FOR TRON CHIP

The developers of the GMicro family of microprocessors optimised for the Tron operating system (UX No 129, 162), want to market them in the US, but see little prospect for Tron sales over there. So Eastman Kodak's Interactive Systems Corp, Santa Monica, California, is developing an implementation of its Unix System V.3 operating system for the 32-bit microprocessor family, which will be marketed separately by the three developers, Fujitsu Ltd, Hitachi Ltd, and Mitsubishi Electric Corp. Interactive will have exclusive rights to market its own version of Unix for the new chips, having an early version for developers by the fourth quarter. Interactive will also be offering development services, documentation and support, and will work with the trio on an applications binary interface.

PRIME HAS EXL "MATCHBOX"

Prime Computer UK took advantage of its Prime Time exhibition last week at London's Olympia, to preview its new low-end EXL system due for official launch soon. The Prime "Matchbox" will be a two-to-10 user system with an AT bus, intended as a multi-user server rather than a personal computer, insists the company. It will be out in mid-May; pricing is not set.

ENVOS SPIN-OFF GOES DOWN

Yet another promising Xerox Corp venture has bitten the dust with the demise of Envos Corp last week. The Mountain View, California-based company was spun off from the ill-fated Xerox Artificial Intelligence Systems Business Unit in September last year, (UX No 195). Envos was majority owned by the employees, with Xerox and its affiliate Rank Xerox Ltd holding minority stakes. Xerox has assumed responsibility for all Envos products, but hasn't decided whether to sell them off to other companies or take them on board itself. Ironically, Envos had just announced new hypertext technology extending into the arena of analysis, with integrated tools that support information capture, organisation and communication. The Envos Notecards include text and graphics editors, and overlapping windows for viewing multiple Notecards. Development versions of the cards use Medley - a Lisp offshoot - for customising specific applications. Both versions of the card are supported on Sun-3 and Sun-4 workstations.

APRICOT SIGMEX GOES TO CHROMATICS FOR REAL-TIME GRAPHICS

UK company Apricot Sigmex, Horsham, West Sussex, the result of Apricot's acquisition of command and control specialists Sigmex, back in May of last year, has launched a range of real time graphics workstations and subsystems at the top end of its range. The AS 8000 graphics workstation series and AS 6700 subsystem are re-badged and ruggedised versions of Tucker, Georgia based Chromatics' Baja and Le Mans CX2000 workstations. The AS 6700 is the 2D Baja graphics terminal subsystem, which uses a 68020 running at 16MHz with 12 MIPS performance. The pipelining of processors is claimed to deliver one million 2D GKS vectors. It has an optional PHIGS like 3D extension, and supports both Unix and VAX/VMS environments. Priced at £20,000 the AS 6700 is available now. The AS 8500 version of the Le Mans workstation, incorporating the AS 6700 subsystem, has a Sun-3/E workstation processor - a 20MHz version of the 68020 with Sun's memory management unit - 4Mb memory expandable to 16Mb, and 300Mb hard disk. It runs Unix and supports all Sun software and tools including NFS. The AS 8700 is built upon a 68030 CPU set, again running Unix and incorporating the AS 6700 subsystem. No prices are given for the workstations. Apricot Sigmex says it has now completed the first stage of a contract supply 12 real time data management and display subsystems for the MCD's Skynet 4 military satellite communications programme, providing the user interface for Skynet's Enhanced Spacecraft Operations Facility, controlling the operation of defence satellites. French sister company, Apricot Sigmex SA, is currently installing a graphics command and control subsystem at the French Electricity Board's main regional control centre.

GRID MOVES UP TO THE DESKTOP

Lap-top manufacturer Grid Systems Corp, Fremont, California, is pushing strongly into the desk top market with the launch of Grid-Desk 386isx. Using a 16MHz version of the 80386, Grid-Desk is latest addition to a line of desk top workstations which include the 12MHz 286is and 20MHz 386mc. The 386isx comes in three models. Model 1 has a 1.4Mb floppy drive, Models 40 and 80 come with a 40Mb and 80Mb SCSI hard drives respectively. Each has 1Mb RAM expandable to 16Mb, five AT compatible expansion slots and supports SmartDrive storage devices. Running Xenix, OS/2 and MS-Dos the workstations ship in June. Working upwards Model 1 costs \$2,795, Model 40 is \$3,995 and the Model 80 comes in at \$4,495.

MEIKO BOOSTS SUN WORKSTATIONS TO 150 MFLOPS

The UK's Bristol-based Transputer specialists, Meiko Scientific, has re-packaged its Computing Surface (UX No 186) as an integrated parallel processing system to fit within a Sun 3 or Sun 4 workstation. The new product, the MK200 In-Sun Computing Surface promises performance of up from six to 40 MFLOPS and from 40 to 1250 MIPS, according to Meiko, by using up to 96 Inmos Transputers. It can be used either as a Sun-hosted parallel processing system for supercomputer-like performance, or as a multi-processing resource for the network, giving high throughput for compute-intensive multi-user workloads. Along with the MK200, Meiko introduced a set of development tools for concurrent programming, including a symbolic debugger with an interface similar to Sun's own DBxtool.

X/OPEN TO WORK WITH US STANDARDS INSTITUTE ON FIPS CONVERGENCE

X/Open is strengthening its ties with the US National Institute of Standards and Technology (previously the National Bureau of Standards), by sponsoring a research associate to work directly with the organisation in Washington DC. The associate, Douglas Simms, began what is expected to be a three month stint on March 1st, and heralds what X/Open hopes will be "a longer term relationship" between X/Open and NIST. Simms will identify differences between NIST's Federal Information Processing Standards (FIPS) and X/Open's Portability Guide 3, to determine how they affect software portability. "Making our specifications more convergent with FIPS would mean at least 19 vendors developing systems more in accord with government information processing standards", said X/Open's chief marketing officer Steve Lowen. Working with technical groups from both X/Open and NIST, Simms will aim to resolve differences and develop a process to avoid subsequent divergences.

SILICON GRAPHICS ADDS LIVE VIDEO DIGITISER FOR IRIS 4Ds

Silicon Graphics Inc, Mountain View, California has joined the race to support really sexy animation and graphics on workstations with launch of its Live Video Digitiser option for the Iris 4D/GTX Series stations. Key feature of the option is that it enables users to integrate real-time three-dimensional graphics with full colour video imagery, and the company claims that unlike other video products, which display only the video on the screen, it enables users to overlay and blend in 3D graphics with the video. Computer graphic images can move in real time, and include both real-world and computer generated components. The Live Video Digitiser takes a signal from a video source - TV camera, video tape recorder, integrates it into the graphics system of the workstation and displays it in a window on the screen - and the 4Sight windowing systems enable this to be done while other applications run concurrently in a multi-windowed environment. It digitises and displays at up to 30 frames a second; has inputs for RGB and composite video at NTSC and PAL resolution; and software control of hue, saturation, brightness and contrast. It is available in four configurations, running at from 15 to 30 frames a second in both the US NTSC and PAL - for most of Europe - TV standards, will sell for from \$6,000, with first shipments set for July.

AT&T AIMS TO CUT FURTHER ITS DEPENDENCE ON OLIVETTI

The formal announcement from AT&T Co that it will be buying fewer of its personal computers from Ing C Olivetti & Co SpA will come as no surprise, because the two companies have been growing apart for a couple of years now, and although AT&T says only that it is "looking for" a US supplier for some of its personal computer needs, it is understood that it is already buying some 80386 boards from Intel Systems. It will still buy some models from Olivetti, but is now very unlikely to exercise its option to up its stake in Olivetti to 40% - indeed the eventual sale of its 21% existing holding is more likely, and Nokia Oy of Finland has already indicated that it would be a buyer.

PRIME TAKES \$100m OF SEQUENTS OVER FIVE YEARS...

Prime Computer Inc chose the week of its Prime Time UK exhibition for a series of announcements aimed to make its long-term attractions clear to any would-be suitors (UX No 226) - although currently only the unwelcome MAI-Basic Four bid is on the table. The announcements were headlined by a decision to adopt the multi-processor Intel 80386-based Unix machines from Sequent Computer Systems Inc, Beaverton, Oregon, which already numbers Apricot Computers Plc, Siemens AG and Unisys Corp among its OEM customers. Prime will market Sequent Symmetry machines as the mid-range and high-end of its Unix family, coming in above the EXL-316 single processor Unix machines the company makes. The agreement is valued at an estimated \$100m to Sequent over five years, and Prime will market the machines as database servers under the EXL 1200 Series name. Prime will offer the Oracle, Ingres, Informix-Turbo, Unify's Accell databases, the Prime Information system derived from Pick, starting in September, when it will announce prices. Initially, the company will use Sequent's Dynix operating system to run on the 1200 series, but has its own developments in the wings, as one of the sponsors of Intel Corp's multi-processor Unix standards efforts (UX No 222). Shipments should begin in the third quarter of the year, and Prime says it will be adding value to the machines through systems integration.

...ADDS NETWORK FILE, COMPUTING SYSTEMS, LU6.2...

On the communications front, Prime has an X400 message handling application programming interface development kit for its 50 Series minis, with an end-user mail application for both 50 and EXL Series users on the way. It also plans to support the Fibre Distributed Data Interface for high-speed fibre optic local nets on both families. For the 50 Series, it has implemented Sun Microsystems' Network File System for the 50 Series, enabling other NFS users to access files on the 50s over local and wide-area nets, and has also adopted Apollo Computer Inc's Network Computing System, claiming to be the first vendor to offer it within its proprietary operating system; NCS enables developers to build applications that share resources and services with dissimilar systems on a network. Its SNA offerings have been extended with the Prime/SNA LU6.2 implementation of IBM's Advanced Program-to-Program Communications /Logical Unit 6.2 and Physical Unit 2.1. Network File System starts at \$1,000, Network Computing System at \$1,200, and LU 6.2 at \$1,500, all out now.

...AND ADDS A MID-RANGE 2850 MODEL TO ITS MINI LINE

And Prime added the 2850 to its 50 Series mini line, saying it offers 60% more power than the entry-level 2455. The 35.5" by 25" by 31" cabinet includes a superstructure with all the required peripheral mounting hardware and cabling, facilitating changing of peripherals. It takes up to six input-output and communications controllers for up to 64 async lines, and up to five 5.25" drives, including up to four 5.25" 258Mb or 328Mb disk drives. There are 8Mb, 16Mb and 32Mb memory boards and a 60Mb quarter inch cartridge tape and 8mm helical scan tape subsystem storing 2.3Gb presumably from Cipher Data. The 2850 with 328Mb disk, 8Mb, Primos and terminal is \$46,460; with 16Mb, two 328Mb disks and tape subsystem it's \$89,135, available from this June.

MICROSOFT'S LAN MANAGER TO GET HOST GATEWAY SERVER

Microsoft Corp has joined forces with Digital Communications Associates Inc, Alpharetta, Georgia to add an IBM host mainframe gateway for its OS/2 LAN Manager program, so that nodes on the network can get through to access data on a host. The DCA/Microsoft Communications Server will provide an Application Program Interface and terminal emulation functions compatible with IBM's Systems Network Architecture. It will support most of the major networking protocols supported by Token Ring and packet-switched networks, including SDLC, DFT, X25, bisync and async links. The Communications Server software is being written for 80386 boxes - 80286 at a pinch - running OS/2 on a LAN Manager network, and will act as a gateway server for communication between nodes - running MS-DOS as well as OS/2 - on the local net and the remote host. Software developers will be able to develop applications using the Communications Server architecture, which is being designed to be transparent to the MS-DOS or OS/2 user, so that micro applications can be drawing data from a host without the user needing to know about it. Ashton-Tate Corp, Cullinet Software Inc and Information Builders Inc plan to write such applications. Version 1.0 is promised for fourth quarter 1988 with an eight-user licence to sell for \$3,000, and a single-user version for peer-to-peer mainframe access will be \$500. Version 1.1, adding asynchronous communications and a Presentation Manager interface, is set for second quarter 1990. A new Workgroup Services business unit at Microsoft will handle its server-based products - currently the SQL Server and Communications Server.

IBM CREATES A VM/SP WORKSTATION - BUT FEARS TO OFFER IT WIDELY

IBM is ready with a workstation designed to bring stand-alone VM to the desktop, according to Computerworld. The box, which has the anonymous name of the 7437, is likely to be built around one of the many 370 architecture microprocessors IBM has described so lovingly at various high-flown semiconductor conferences, and is a co-processor for the PS/2. It runs full VM/SP Release 5 and is multi-tasking. Occupying five boards, the 7437 uses the PS/2 to receive VM/SP 5 from the users host mainframe, and to dump the fruits of its labours on the host. But if anyone wants the thing - and it may prove interesting for running things like CAD/CAM applications as well as for software development - they must already have a VM/SP licence, and agree to take a minimum of 25 of the things, at \$18,000 apiece. IBM is mulling selling single 7437s, but is worried about self-impact on the 9370 and even the RT. Lockheed Corp's Cadam Inc unit bought 25 7437s and uses them to demonstrate Cadam at shows - delighted that it is so much easier to move about and set up than is a 9370.

NCR'S PLANMASTER BRINGS EXPERT SYSTEMS TO BANKING

Expert systems are popping up left, right and centre these days - and now NCR has come up with Planmaster, a PC based application, which aims to bring personal financial planning advice to customers of banks, building societies and other financial institutions at their local high street branch. Written in C, it is a production rules system with an inference engine, employing both forward and backing chaining, and is basically an anglicised version of Sterling Wentworth Corp's Planman advice system used widely in the US. NCR claims that with a store of several thousand rules, representing the collective knowledge of financial advisors as well as information on the current legislative environment in the light of the Financial Services Act, Planmaster is bringing expert system technology to bear upon personal finance advice. It incorporates a graphics package and client database and generates a report of recommendations based upon individual customers requirements and circumstances. Planmaster runs on NCR's PC and workstation products, it costs £6,000 per copy.

OBJECT ORIENTATION - A NEW SPECIES OF SOFTWARE DESIGN

by Katy Ring and William Fellows

Object-orientation is a software buzz-word of the 1980s - but who really knows what it is? The identity crisis was one of many fundamental issues addressed by a MOOSE, Methods for Object-Oriented Software Engineering event, held by the British Computer Society's Object-Oriented Programming and Systems, OOPS, Specialist Group, appropriately enough, at London Zoo in Regent's park earlier this month.

According to independent consultant John Daniels, object-orientation "is like a religion" - the latest in a long line of panaceas stretching from assemblers, through fourth generation languages, to Computer-Aided Software Engineering tools. Converts to object-oriented methods are said to intuitively believe in their benefits, but have no empirical evidence to prove that they are beneficial. What is clear however, is that as design tools, object orientated methodologies are becoming increasingly popular for solving software problems, particularly those associated with distributed information systems, which, consisting of a number of disparate objects, map conveniently on to the concept. Object orientated design is today what 'structured' methodologies were in the 1970s - a theoretical paradigm for problem solving which lacks a universal model or clearly defined set of techniques.

Inheritance

So what is object orientation? Conventional methods - from Structured System And Design Methodology through to Jackson System Design - operate like oil refineries, turning crude data into refined and useful information. To do this, a problem is functionally decomposed into procedures and data. Procedures describe how the manipulation of data is to take place. Rather than taking a problem and working sequentially to its conclusion, object orientated design starts everywhere, separating the problem into objects and events, or messages. Objects are packets of information and a description of its manipulation. Messages merely specify the manipulations that a sender wants done and the receiver determines exactly what will happen. The qualities and characteristics pertaining to object and events are described only once, and are 'inherited' by others, eliminating duplication. In practical terms, despite the present lack of a uniform object-oriented design method, there is consensual opinion that four general design stages have to be followed, which using the conventional tools of information system design. First of all, programmers specify the system using entity models and data flow diagrams based on the real world. Next an object model has to be produced from the entity model, and functioning components of the data flow diagrams mapped on to the objects. Finally, the object interfaces have to be defined.

Object orientated design is based on the principle of abstraction from the real world - the same as the way people learn - and is rooted in the philosophy of Heidegger, who examined what it is to be in the world. Advantages of its methods are that objects conveniently bolt together, are easily modified, are eminently transportable and re-usable. Furthermore, the method is not prescriptive, so that if two people are given the same problem they are unlikely to come up with the same answer. The real problem facing object orientated design, as explained by conference chairman Ralph Hodgson, of Interactive Development Environments Ltd, is to establish a unified abstraction model, a methodology to which people can work, and a common vocabulary. Object orientated design is not just restricted to programming style or system implementation, and Professor S Schuman of Surrey University argued that it can be used during all stages of the project lifecycle, including formal specification.

Design

Object orientated design is currently employed in several key areas of information system design. The most familiar of these is the object-oriented user interfaces - such as GEM and MacDraw - which represent the tasks a user has to perform as icons on the screen. These are object-

oriented in the sense that the user deals directly with the objects to be manipulated rather than with the program which does the manipulation. Object orientation is also to be found in design.

Ada

It was Grady Booch who pioneered work with real-time systems in the late 1970s, developing Ada as a "package" construct. Ada is one of several design methods are founded on the idea that problems can be solved by creating a model of the "real" world in software. Despite the fact that Ada follows the general design premises outlined above, Daniels feels that it is more of a teaching aid than a workable design concept for programmers. One of the problems is its failure to consider the life histories or the "inheritance" of real life entities. After all if a programmer knows why, how and for what a component was designed he or she is more capable of re-using that component in future designs. Unfortunately Ada does not incorporate the formal specification techniques already embedded as standard industry practice. Nevertheless, within the Ada community some major systems are now being designed with the Hierarchic Object Oriented Design, HOOD, developed by the European Space Agency with Ada as its target programming language.

Despite the fact that HOOD has only a weak link to object orientated design - it incorporates virtually no inheritance - longer term benefits for object orientated design are likely to accrue from here, simply due to the amount of research time and money that a project of this nature attracts. Further to the task of creating some universal models and methods work on clarifying data abstraction is required. Daniels suggested that research on semantic data modelling - as found in the development of relational databases - would prove useful in the OOPS sphere. Existing notations can identify whole-part and inheritance hierarchies, and are therefore invaluable to entity-relationship modellers. Building on these notations finds a third area where object-oriented models are in use. Object-oriented databases should soon be developed that are able to connect behaviour directly to database entities.

Computer-aided software engineering tools are a particularly important within the context of object oriented design at present, particularly in conjunction with C++, Ada and Modula-2 languages. However companies like Oracle Corp will be pleased to know that among programmers represented at the event, CASE tools appear to be suffering something of a backlash. Apparently software engineering abuse amongst the unqualified is assuming unprecedented levels, because all too frequently "they have a effect similar to a machine gun in the hands of an idiot."

Smalltalk

Finally, object-oriented methods are of course found in systems that have Smalltalk as their basis. Developed by Xerox specifically for object orientated design, the Smalltalk language has defined much of the enterprise's nomenclature. Ironically it has been badly promoted and has the reputation of being far too slow for practical purposes. As a result it lacks industry acceptance. However the rise of C++ as a hybrid object orientated language with Interactive Software Engineering Inc's Eiffel, ParcPlace Inc's Synergy and Stepstone Inc's Objective C languages - the latter being chosen by Steve Jobs for the NeXT machine - look set to redress this imbalance.

Object orientated design's real watershed then is not merely to establish acceptance or respectability, but to construct a uniform object-oriented view of software development. After all, many a real-world panacea has suffered from having too many interpretive possibilities.

/USR/GROUP NAME CHANGE REFLECTS WIDER SCOPE

/usr/group, the US-based commercial Unix user group, is changing its name to UniForum in a move to appear less esoteric to non-technical users. "When we formed in 1980, our members were primarily Unix programmers", said */usr/group* executive director Ed Palmer, "but now new members and potential members familiar with other programming languages do not understand the significance of the name". The group's board has now voted for the change, which will be put to the members in June. UniForum is the name of the major US Unix exhibition, sponsored by *usr/group*, which in February attracted a reported 24,444 visitors to San Francisco's Moscone Centre. */usr/group* has more than 4,500 members. Its affiliate association, */usr/group/UK*, is also moving through the name change process, and its members are due to vote on the new name - Uniform UK - at the annual general meeting to be held on the first day of the European Unix User Show at London's Alexandra Palace from June 6th.

ANVIL HAS INTELLIGENT I/O CONTROLLER FOR THE PS/2

Brisbane, Australia-based Anvil Designs Pty Ltd, first demonstrated its intelligent I/O subsystem for PS/2-based systems on the IBM at UniForum in February, and has now announced its availability in the UK, via PC Distribution Ltd of Birmingham, which already sells I/O subsystems for the RT. The Anvil OnBoard2 is claimed to consume less than 1% of cpu power with 16 users hooked up, compared to up to 30% per terminal on typical dumb controllers. The improvement is attributed to the board's Advanced Terminal Architecture, which copies data from a user application directly to the input/output controller, bypassing the cpu-intensive Unix terminal system. A standard OnBoard2 has four ports on a single expansion card, with an increase of up to 16 users with add-on units supporting four users each. 16-user versions have a 256Kb dual port RAM, which reduces the need for system buffers. Up to four boards can be added for a theoretical maximum of 64 users, although AIX licenses specify a maximum of 16. Prices in the UK start at £495 for a four serial port system, with "snap-on" modules priced at £250. Device drivers for SCO Xenix, Interactive 386/ix, Microport Unix and MS-DOS are also available. Anvil has a US subsidiary operation in Santa Clara, California.

AMDAHL FILLS OUT 5990 MAINFRAME LINE

Amdahl Corp last week plugged the gaps in its 5990 mainframe processor line, with the introduction of a 5990-350 uniprocessor model and a 5990-1100 three-way multi-processor. The company has also added a second, entry-level 5990-500 dual processor model. Amdahl says that the 5990-350 provides 54% of the performance currently offered by the 700 model, rates the 5990-500 at 70% of the performance of the 5990-700, and puts a 45% performance increase over the 5990-700, on the new 5990-1100. In the US, the 350 starts at \$3.81m, the 500 at \$4.62m and the 1100 at £9.87m; UK prices are £2.3m, £3.1m, and £6.6m respectively. The uniprocessor will be available on a worldwide basis this month; the two other models are set for delivery in May. In the short-term, Amdahl denied that the new additions would lead to a decision to phase out its 5890 series. It also said it would honour its commitment to fit the 5890 family with Extended Systems Architecture, ESA, support, and says that as much as possible of it will be implemented in hardware rather than firmware to make it faster; it indicates that MVS/ESA capabilities will be available across its mainframes by the third quarter of 1989. The company has also increased the number of domains available within its MDF Multiple Domain Facility. The maximum number of domains on single and dual processor models has now risen to seven from four, with an increase to 14 from eight on multiprocessors.

NEWS ROUND-UP

Apple Computer Inc will stick to its last and go on making personal computers for the mass market rather than moving upmarket to compete with the likes of Sun Microsystems Inc in workstations, chairman John Sculley said in New York on Monday: some hot new technologies are too expensive and untried to be offered by Apple itself, he said, although other companies may offer them as add-ons to the Apple Macintosh, although Apple will offer things like artificial intelligence and signal co-processors once they become cheaper and better accepted.

Robert Allen, chairman of AT&T Co said the company expects its money-losing computer business to turn profitable next year, and said he didn't think figures, due today, would disappoint analysts: it did \$492m net on \$8,349m a year ago.

Only 800 of the 3,100 job losses at Control Data Corp come from ETA Systems Inc, but the company hasn't given details on where else the axe will fall; in its short life, ETA sold a total of 34 supercomputers.

NEC Corp has been spelling out its semiconductor plans for the financial year just started, saying that was well as the MIPS Computer Systems Inc RISC - at a rate of 10,000 a month from September, it will also increase output of V-series and other complex instruction set microprocessors, and output of 1M memory chips, currently running at 5m a month, will rise to 7m a month by September, and volume fabrication of 4Ms will start in the autumn, initially at 200,000 a month at the plant in Yamaguchi prefecture due to be completed in October; a 4M plant is also under construction in Hiroshima prefecture to go into production next spring with a capacity of between 4m and 5m chips a month; NEC also said that production of microcontrollers will rise by about 40% by March 1991 to reach 30m a month from the present 22m.

Motorola's Microcontroller products group has unveiled its new 32-bit 68332: based on the 68020 processor, it is the first of a planned family of 68300 32-bit embedded control devices, and the company looks for it to find applications in toys, white goods, medical equipment and robots, as well as cars.

However, Motorola Inc's claim that its 68332 is the first 32-bit microcontroller ever is a bit risky, and Intel Corp is very cross, reminding everyone that it announced its 80960 and 80376 32-bit parts all of a year ago, although there are likely to be new arguments over the fact that the 80376 has a 16-bit bus, and it also doesn't include any on-board memory, and while the 80960 has a 32-bit bus, it doesn't have any general memory on board, just a cache.

The UK company Procyon Research Ltd of Cambridge has a microcomputer implementation of the Common Lisp Object System (CLOS) which it claims will help object-oriented programming fulfil its promise of modularity and reusability: the System was developed by the American National Standards Institute to enable Lisp programmers to use a standardised object-oriented design, yet maintain the portability of their applications; available now, Procyon CLOS implements this System in the Apple Computer Inc Macintosh Plus, SE and Macintosh II environment and is designed for both development and training.

unigram·x

The weekly information newsletter for the UNIX™ community worldwide

One indication of the increasingly high profile of Unix is the new interest shown in such publications as Time Magazine, which not only published a review of UniForum back in March, but this week devoted space to the launch of the Sparcstation 1 from Sun Microsystems (UX No 227), dubbing it "a powerstation in a pizza-box", and referring to Unix as "an industrial strength operating system".

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The Open Software Foundation's next member's meeting, scheduled for May 21st in glamorous Monte Carlo, should provide more details on the organisation's future release schedule and request for technologies.

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Anyone wishing to submit papers to UniForum 1990 - to be held between January 22-25 in Washington DC next year (other show organisers please note!) - has until May 15th: the show's theme is to be "Unix in the 90s, Decade of the User", and submissions should be sent in the form of 400 word abstracts to the UniForum committee at /usr/group's Santa Clara-based offices.

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And Unix originator Dennis Ritchie will be amongst the speakers at the Australian Unix User Group's conference and exhibition at Sydney's Hilton Hotel between August 8th and 11th.

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Network Computing Devices says it has now shipped NCD16 units to more than 25 initial customers since November 1988, although volume shipments begin only this month: OEM customers re-badging the X terminals include Ardent Computer, Pyramid Technology Inc and Stellar Computer Inc.

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88Open, the consortium promoting Motorola's 88000 processor, is holding its Spring general meeting in Stockholm on May 9- 10th: European members of the consortium include Edinburgh Portable Compilers, Ericsson, Integrated Micro Products, Tadpole Technology, and the recently formed Dolphin Computers subsidiary of Norsk Data (UX No 216).

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Mips Computer Systems Inc has recruited three Unix veterans: Joe DiNucci and James Billmaier from DEC, and John Hime from Sun Microsystems will join the new marketing organisation formed earlier this year under the control of Charles Boesenberg from Apple Computer Inc (UX No 218).

Sybase Inc is to port its relational database management system to AT&T computer platforms running Unix V.3.2, and will jointly market the Sybase system on high-end 3B2 minicomputers and 6386 WGS workstations: it will run on AT&T 1 and 10 megabit StarLAN networks and TCP/IP Ethernet LANS, and will be available in the second half of the year.

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UK software developer Migration Technology of Bourne End in Buckinghamshire, recently the subject of a management buyout (UX No 229), has slashed the price of its CGen Basic to C translator for smaller users: CGen for a 16-user DEC system will now cost £5,000 - a saving of £2,500 - while Xenix versions now cost £1,500.

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Progress Software Corp's Progress 4GL and RDBMS now run on Apple's Macintosh II running A/UX, prices start at \$3,200 - lower cost run-time and query-report versions are available for \$800 and \$2,100 respectively.

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The European Unix systems User Group, EUUG, has published a European research and development E-Mail directory listing R&D institutes which are connected to EUnet and EARN, together with their electronic addresses - it costs £18, from the EUUG.

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Nixdorf Computer AG is to market Toronto, Canada based HCR Corp's UX-Basic and HCR/Pascal on its PWS-X, PWS-M and 8810-M systems - HCR's Unix offerings have already been taken up by the like of Siemens, AT&T and Olivetti.

- 0 -

Cray Research Inc, Minneapolis, Minnesota, and the Massachusetts Institute of Technology have announced a five year joint effort in supercomputer research that will include the installation of a Cray system on the MIT campus - Cray is to provide MIT with research grants over this period.

- 0 -

Computer Innovations of Tinton Falls, New Jersey, has released its C86 C compiler, version 3.0 for Quantum Software's QNX Unix operating system.

- 0 -

Just before going to press we heard that Dynatech Corp, Burlington, Massachusetts, has acquired Santa Clara, California based arallax Graphics - this comes hard on the heels of its acquisition of small systems manufacturer Romemco Inc at the end of last year, (UX No 206).

AGS Information Services, Mountainside, New Jersey, has now delivered beta test versions of its System V Application Verifier to AT&T - the software, which functions at source code level, tests applications to check their conformance to SVID and will be available from AT&T in August: AGS, which was bought by Nynex Information Solutions last year, says it is also working on similar software that will check for X-Open and Posix conformance.

- 0 -

Industrial Programming Inc has developed a real time, multi processing operating system for Motorola's MVME181 88000 board, which will run on up to 16CPUs - the file system of MTOS-UX/88K is MS-DOS compatible and will be available in August, source code costs \$18,750, or \$6,250 without commenting features.

- 0 -

Erasable optical disk drives are now flooding on to the market - the latest additions come from Herstal Automation Ltd, Berkeley, Michigan, which has a rewritable optical disk drive for H-P systems with a SCSI interface and 652Mb erasable cartridge, and Meridian Data Inc, which has a recordable compact disk system for office environments called CD Professional.

- 0 -

Silicon Graphics is to sell Frame Technology's Frame Maker publishing software on its Idris workstations in an OEM deal signed last week - the Mountain View, California based company says it has also won a contract to supply the swiss Federal Institute of technology with \$1.5m worth of systems including 44 Personal Iris machines.

CONTACTS

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STELLAR UNVEILS SECOND GENERATION GRAPHICS SUPERCOMPUTERS

Stellar Computer Inc has enhanced its basic processor to create the 2000 Series Graphics and Departmental Supercomputers, doubling the performance of its previous systems. It also claims that the GS2000 Graphics and DS2000 Departmental Supercomputers set new price and performance benchmarks for users into interactive visualisation and distributed computation. Each is claimed to sustain up to 35 MIPS, with peak vector floating point performance of up to 100 MFLOPS. The GS2000 Series also offers twice the graphics animation rate of the GS1000, and an "industry-unique" dual-user capability - but come in at from \$113,000, about the price at which the GS1000 line was launched in March last year. A GS2000 with 16Mb memory, 1Mb cache and 380Mb disk is \$125,000. A corresponding DS2000 is \$113,000. DS2500 pricing begins at \$128,000. GS2500 systems begin at \$140,000. All GS2000 single-and dual-user systems and DS2000 systems are available now, GS2500 and DS2500 systems are available in the fourth quarter and upgrades to the 2500 models from the 2000s are \$15,000.

CONTROL DATA MAY NOW SELL ETA SYSTEMS AFTER ALL

Having suspended operations at the St Paul, Minnesota firm and written it down to zero in its books (UX No 227), Control Data Corp has now thought better of its decision simply to abandon the supercomputer business, and on Wednesday, president Larry Perlman told the annual meeting that the company is in "very preliminary discussion with several parties" to attempt to sell the assets and the technologies of its ETA Systems Corp, but didn't elaborate. It also said it was "cautiously optimistic" that it will be able to secure an adequate refinancing package in the near term. "The company has a good cash balance today and positive cash flow from its ongoing businesses," chairman Robert Price told the CDC shareholders - but the incremental cash requirements for the restructuring will be "somewhat over \$100m" and to offset this, CDC is in the process of selling assets or businesses that would bring in close to that amount - no doubt including Systime Ltd over here, although nothing specific was identified at the meet.

LYNWOOD'S UK CHALLENGE TO WORKSTATION MARKET

After revealing plans for a series of new systems back in June last year, (UX No 184), UK display terminal specialists Lynwood Scientific Developments Ltd, of Alton, Hampshire has launched the Open 30 family of Unix workstations with two models, the 100 and 200. The new systems upgrade Lynwood's existing visual display terminal hardware to full Unix workstation status, and are aimed at the office administration market. The entry level Model 100 runs a 16MHz 68030 processor providing 3 MIPS of performance, and comes with 4Mb RAM, a SCSI controller, thick and thin Ethernet, two serial lines and a 14" mono screen. An optional floating point unit, 160Mb Winchester disk and cartridge tape units are also available. It runs the Lynx operating system, which is based on Unix V.3 with Berkeley extensions. An X-Window manager comes with Sun's NFS, and MS-DOS software is available using the X DOS Unix to DOS converter. The Model 200 has the same configuration, except RAM is expandable to 8Mb and it comes with a 20" mono screen. Prices start at £2,955 for a minimum quantity of ten, and further additions to the range are planned for the future. Lynwood was acquired last year by Hunting Associates plc, which has strong interests in the defence marketplace, and has been selling tempested versions for the last six months - claiming to have sold over one thousand so far.

DEC CHANGES BYTE ORDER IN MIPS DECSTATIONS

Incompatibilities between DEC's new range of DECstations and servers using RISC processors from MIPS Computer Systems and other hardware based on the chip have now come to light. DEC has changed the byte ordering of the chip to Little-Endian byte ordering, which numbers the bytes of a word from 3 to 0 and places the sign and most significant bits in Byte 3. The change brings the DECstation in line with VAX and PDP-11 hardware and allows for easier data transfer across DECnet. In contrast, machines from other vendors using the MIPS chip, including MIPS Computer Systems itself, use Big-Endian byte ordering, with bytes numbered from 0 to 3. Consequently, software built up by third parties for the MIPS processor is only source, not binary compatible with the DEC system. Sources from DEC minimised the problem, and MIPS said that the forthcoming Applications Binary Interface currently under development between MIPS and AT&T should take byte ordering into account. But Motorola semiconductor spokesman Steve Heath said he doubted that this was possible, and suggested that DEC had changed the byte ordering to maintain proprietary differences. Big-Endian byte ordering is used in the Motorola 68000 and IBM s/370 chips, while little-endian is used for the VAX 11/780, Intel 80X86 and National Semiconductor 32000 ranges. The MIPS R2000 and Motorola 88000 can be configured both ways, although Motorola specifies big-endian ordering for ABI conformant systems.

UK BUYER FOR SCIENTIFIC COMPUTER SYSTEMS?

Gossip in the market has it that a "blue-chip British company manufacturing in Scotland" is to buy the assets of Scientific Computer Systems Inc, San Diego, which is in a state of limbo, having run out of cash to continue with operations.

TETRA'S 1988 SALES SOAR 100% to £15m

Privately-held Tetra Ltd of Maidenhead, Berkshire, UK is celebrating what looks to have been a very successful 1988 - except that it doesn't give any indication of profits apart from saying that it was profitable. The Unix and mid-range systems software house records that turnover doubled to £15.3m last year, and that its international business was up 50% at £1.5m - before the order from Siemens AG, which was worth another £1.5m up-front after the books were closed on 1988. Tetra Business Systems Ltd, distributing Tetraplan and Chameleon accounting packages, saw sales up over 55%. Tamarisk - third party Unix and Xenix software "continued to gain market share and increase profits in a highly competitive market". Powerscourt Ltd, the corporate sales arm of Tetra, added The Body Shop, Yellow Pages, Bull HN and Harris 3M to its roster of customers for systems founded on Chameleon, and value-added services such as consultancy, programming and project management. The group remains self-financing and had cash at the bank of £700,000 as of November 30. It spent £1.5m on new product development during the year, the fruits of which will appear over the next two years. The 450-strong group will invest £3.2m in development this year. No word on whether Tetra has any plans to go public.

SYSTECH LAUNCHES UNPLUG, OPENS UK HEADQUARTERS

Systech Corp, which supplies many of the major Unix hardware manufacturers with terminal control equipment, has launched the Unplug, a communications control system that can support from 16 to 255 serial peripheral devices on a single coax link, taking up a single slot in the host computer. Unplug includes terminal control software residing in the Unix operating system kernel which provides the software interface to the single 68000-based Systech I/O board. The system can boost the performance of VMEbus and Multibus systems by up to 20%, according to Systech. The single coax cable connects to a BNC connector on the host, and from there links to up to 15 remote cluster controllers handling eight or 16 serial devices each. Users can be up to 1,000 feet away from the host, or up to three miles using Systech's SPUR pluriaxial Unplug repeater, incorporating fibre optic technology. Formed in 1981, San Diego, California-based Systech is now a \$25 million corporation: customers include Unisys Corp, Eastman Kodak, Computervision, the ADDS division of NCR Corp, Nokia Data, Data General and NEC Corp. Currently, manufacturing is carried out just across the border in Mexico, but with an increasing proportion of European business, the company has recently opened its European headquarters in Winchester, and plans to have UK-based manufacturing facilities in place by the end of 1990.

MOTOROLA SIGNS \$25M OEM DEAL WITH ORION

Motorola's Computer Systems Division has signed a three year OEM agreement with Orion Associates Ltd, said to be potentially worth \$25m. Orion will take Motorola's Delta range of VME-based Unix systems as the hardware base for its new product range, called the Formula 6330, 6360, and 6365. Although current products are 68030 based, Orion said that one of the reasons it chose Motorola systems was the company's 88000 RISC technology, to which it has access under the agreement. Orion sells customised systems to the European technical and commercial markets through a network of distributors.

NEW POPLOG COMPANY BORN IN BUYOUT FROM SD-SCICON

A management buy-out at the artificial intelligence products division of SD-Scicon Plc has resulted in the formation of a new company, Integral Solutions Ltd, due to be launched today. Based in Basingstoke, Hampshire, the company takes over the rights and support for SD-Scicon's widely used Poplog artificial intelligence development environment, and says it aims to cash in on the boom in sales of powerful desktop workstations. Poplog, originally developed at Sussex University and exclusively licensed to SD-Scicon, has around 350 commercial, government and academic users and has an existing portfolio of software products, according to Integral's managing director, Dr Alan Montgomery: "we are offering a toolset that enables users to integrate advanced software into real applications on conventional, widely available hardware", he said. Poplog allows software development to be carried out in any mixture of Prolog, Common Lisp and Pop-11, and runs on Sun Microsystems workstations and DEC VAXstations, with more announcements to come. Integral will also be distributing a Poplog version of Keris, an object-oriented knowledge engineering toolkit developed by GEC Marconi Research Ltd, and says it plans a "steady roll-out of new applications" over the next two years. The company hopes to sell to the aerospace and defence, engineering and process industries, as well as to public utilities and the educational sector. The deal also includes Rules, another product from Sussex University, which will continue to direct the further development of the technology. The company has two distributors for its products in France, one in Japan, one in Finland, and a US one, Computable Functions Inc at the University of Massachusetts in Amherst, run by the creator of the Common Lisp-like Pop language that adds Pascal-like syntax, Robin Popplestone. Poplog competes directly with Inference Corp's ART Automated Reasoning Tool and IntelliCorp's KEE Knowledge Engineering Environment, but costs about 35% less and also eats up less computer capacity, according to Integrated Solutions. Versions are available for workstations from Sun Microsystems, Hewlett-Packard Co and Apollo Computer Inc, and an 80386-based version is in beta test on the Sequent Computer Systems and Sun 386i machines. The company says that there are about 800 paid-up Poplog licences out and translates that to about 2,000 users - excluding university students using it in education - colleges get an 85% discount. The buyout actually took place on April 11, and Integral Solutions says that it has taken £45,000 in orders since then. SD-Scicon says that while it has spun off its artificial intelligence products business, it will continue to offer consultancy in it.

CAMBRIDGE MICRO PLANS MULTI-PROCESSOR, IMAGE DATABASE

Cambridge Micro Computers Ltd says it plans to unveil a new addition to its Vitesse V683 range of 68030-based systems at the forthcoming European Unix Users Show in London this June. The new system will use multiple 68030s and a VME bus architecture to achieve a 15 MIPS performance in a four processor configuration, according to the Cambridge, UK-based company, which first showed a prototype multi-processor at the recent launch of Zebra Parallel Ltd's Equus parallel processing environment. Cambridge Micro also plans to show a new imaging database system, aimed at users needing to store, retrieve and merge information in graphical, photographic and/or text format, from a variety of sources. The imaging database uses X-Window technology to display images, which can be captured, displayed and manipulated by a library of C subroutines and accessed by any Unix-based relational database management system.

SPEC REVEALS FIRST RESULTS AS IBM JOINS

IBM has joined the Systems Performance Evaluation Cooperative, (SPEC for short), founded in November of last year, (UX No 206), which aims to establish a series of performance benchmarks for realistically measuring the performance of advanced computer systems, in particular those built upon reduced instruction set architecture. IBM brings SPEC's membership up to ten, the others are Apollo/Hewlett Packard, Mips, Sun, Data General, DEC, Motorola, Multiflow and Stellar Computer. At the same time the cooperative unveiled the first results of its venture, with Release 1.0 of the SPEC Benchmark Suite, based on Unix, and containing around 20 benchmarks which will be issued in the Autumn. They measure computer performance in the engineering and scientific fields using a host of programs from all application areas. The need for fresh performance evaluation standards has arisen because of the inability of traditional benchmarks such as Dhrystones and Whetstones to reliably gauge the performance of systems such as workstations and servers which now take advantage of mainframe and supercomputer design concepts. Putting it a touch more succinctly, John Masey of Mips, also a director of SPEC's committee responsible for technical development of the suite, said "its like trying to measure the speed of a bullet with a stopwatch." SPEC says it is also adopting a new open membership policy - which basically means that any company subscribing to SPEC's goals can join, the ultimate being to answer the question, 'how fast?'

RACAL'S \$57m LANDS INTERLAN

Racal Electronics Plc is moving its US data communications business into local area networking equipment with the acquisition of Interlan Inc for \$57m in cash, 90% up-front. The Boxborough, Massachusetts firm was acquired early in 1985 for \$47m in shares, and now employs 260 people, achieving \$5.2m pre-tax on turnover of some \$50m in the year to March, with net assets of \$14.5m. Micom, of Chatsworth, California, was taken out by an investment group for \$301m last August, and the buyers have since been selling off divisions of the company. Interlan's Ethernet boards will continue to go through its existing US outlets, but Racal, already marketing its products, plans a major push into international markets.

...AND RELEASES MULTI-PROTOCOL LAN DETECTOR

As the news of the Racal acquisition broke, Interlan took the opportunity of releasing a new product, version 2 of its LAN detector, an Ethernet protocol analyser for PCs and compatibles. The menu driven system provides real time screen information and analysis on the state of a network, both its hardware components and the software it is carrying. As well as testing cable connectivity and routing, LAN detector generates statistical reports on the performance of applications running on the network. In addition the system can be used to debug networking software and is able to simulate the operation of various network configurations to test workloads and suitability for tasks. At present LAN detector can be used to analyse multiple protocols on range of networks, including Novell, XNX, TCP/IP, Sun PC-NFS, OSI, Banyan Vines, AppleTalk and DECnet. LAN detector costs \$12,000.

COGNOS SUPPORTS HP AND DG - PLANS FOR IBM

In keeping with its plan for developing Unix versions of the PowerHouse 4GL as revealed at the end of last year, (UX No 211), Cognos Software Inc, Ottawa, Ontario, Canada, has announced that the first of these is now available on Hewlett Packard's HP-UX operating system. The next port will be to Data General's recently launched 88000 based AViiON architecture, and fulfilling an intention to move into the IBM market, Cognos says it has now started work on a version for the AS/400. In addition, a new version of its SQL relational database management system - PowerHouse StarBase - will be testing on HP Precision Architecture by the end of this year. For HP users in a non Unix environment, Cognos is to offer HP SQL through the StarGate component of StarBase, which provides gateways to allow databases of different structures to exchange data.

X-DESKTOP WINS JAPANESE SUPPORT

X.desktop, the graphical user interface for Unix developed by UK X-Windows specialists IXI Ltd, Cambridge, is breaking new ground with a deal in Japan. Tomen Electronics Corp, owned by the giant ToyoMenka Kaisya trading house, has signed up for the application, which will appear as the graphical front end to Unix users throughout its organisation. As well as distributing shrink wrap X.desktop in Japan via licensing agreements - the first order has come from Sun workstation supplier Nippon Steel Corporation - Tomen is translating X.desktop into Japanese. Tomen believes IXI's software will be particularly popular with Sony's NEWS workstations, which run X-Windows - it has forecast that Sony will take 24% of the Japanese workstation market in 1989, followed by Sun with a 21% share, Apollo and Hewlett Packard with a combined total of 20%, and DEC with 3%.

NAT-SEMI RE-STRUCTURES CHIP BUSINESS

National Semiconductor Corp, now shot of National Advanced Systems, has created three independent business groups within its new VLSI Division: the Integrated Systems Group is made up of six independent business centres, each with full responsibility for defining, designing, producing and marketing chips for a key vertical market, the initial six being Local Area Networks, Advanced Communications, Mass Storage, Telecommunications, PC Peripherals, and Imaging & Graphics, and others will be added; the Embedded Control Group combines the company's standard microprocessors, including the 32-bit Series 32000, and the 16-bit HPC and the 4- and 8-bit COP families of microcomptrollers - NatSemi has pretty much given up looking for CPU design wins for the NS32000s; and the Interface & Peripherals Group takes in standard chips including real-time clocks and memory controllers.

INTERGRAPH ADOPTS OSF/MOTIF

Intergraph Corp is the latest hardware manufacturer to endorse the Open Software Foundation's Motif user interface, which along with X-Windows it will use as the basic applications programming interface for its range of Unix-based graphics workstations and servers. Intergraph currently supports X-Windows, on which OSF/Motif is based, in a co-operable environment with its proprietary Environ V windowing system: it said that a migration period from Environ V to OSF/Motif should be completed by the third quarter of the year, although the performance benefits of Environ V, designed for intensive graphics applications, would be retained where necessary. These performance enhancements will remain compatible with OSF/Motif, according to the company.

PAYING BY PLASTIC

A national membership scheme for football fans - outlined in the Football Supporters Bill - is intended to eliminate identity card wielding fans. The Football Membership Authority - representing the Football League and Football Association - has to implement a system in 1990, and is working with consultants Arthur Young and prospective suppliers to that end. Costing anything between £6m and £72m, depending on equipment and configuration, the system will have to deal with an estimated three million members in the first year. The wider issues of the scheme are being hotly debated at the moment, especially in the light of what happened at Hillsborough on Saturday April 15, but here some technological implications are examined, with over 100 interested companies waiting on the bench, hoping to be given a game.

The Membership Authority is to have control over what information is held on members, the idea being to create offences and ban them from attending games by checking each card against it.

The Match

The list will number around 6,000, based on the number of arrests last year - in which 2,000 games were watched by a total of 18 million fans. There are 4,600 turnstiles in operation around the country - Arthur Young reckons that computerised identity cards will mean an increased minimum admission time of five seconds per spectator - significant, considering an estimated 600 people a second pass into grounds at the peak time, around 2.45pm on a Saturday afternoon. Indeed 15,000 people tried to get in through a handful of turnstiles at this time at Hillsborough.

As far as clubs are concerned, the system will be a tailored database of some sort where input is linked to identity. It will have to ensure that a particular card is not used more than once for the same game, be robust enough to cope with the transaction rates anticipated, and function in a range of adverse operating conditions - including bad weather - without breaking down! The payoff? A mailing list of three million or more potential customers represents an enormous marketing opportunity. Either the League clubs will pay for the system - and accrue the resulting commercial benefits - or a company will install the system free of charge in return for control over the commercial spin-offs.

The Players

Who are the players? Aquix Holdings, now owned by Systems Reliability, have proposed a system costing around £10m. Aquix is to supply the access control devices using bank-type ATM cards, complete with member's mugshots. Each card reader and control unit would be on line to a local database containing the hotlist, and membership details of home and visiting fans. Overnight batch processing via Telecom Gold would update a central Unix processor with data from local sites, and newly compiled hotlists returned. A charge of five pounds per card would be re-imbursed through national discount schemes on travel and other goods. Advertising space would be sold on the card and a mailing list compiled from membership details on the central database sold to industry.

On paper the system seems feasible - but there are drawbacks. It is based on experience primarily from one club, Luton Town. Its much publicised computerised identity card scheme was developed by Aquix, but has undergone three complete system changes in as many years. Even now the magnetic 'swipe' readers at Luton often break down, and fans are admitted on a visual inspection of cards: no readers means no method for checking validity. Luton, with an average attendance of 9,000, a total membership of 18,000 - more than Kenilworth Road's capacity - has seen a 30% fall in gates and revenue since installation, a figure likely to be reflected around the country. And a system recently installed at Plymouth Argyle's Home Park stadium by Aquix - similar to the one described above - has been described as "faulty and impractical."

Bull HN Information Systems is contesting for a place in the team with a system based on the use of its Smart card - which has an on-board processor. Cards would be checked by portable, telephone sized Smart readers at turnstiles, with hotlist details ported onboard from club PCs. The central processor and database would be Unix based.

Advantages of this system include its portability - more readers could be brought in for big games - and updating is done on the card itself. The main drawback is cost, Smart readers are relatively inexpensive, but the price of the card itself is high - Honeywell gives no indication of how or who would pay for these. GEC has also proposed using its own Smart cards, which use radio transmitters and receivers inside the card and reader - but again technology costs are high: Aquix says it could produce the magnetic cards for around fifty pence each - readers for £35 - whilst GEC Smart cards would cost five pounds, readers would at least fifty.

An intriguing last minute addition to the team list is Check Technology, manufacturing 40% of the cheque books used in this country. 'Check-In' is based on a watermarked 'check-book' of coupons, one for each game - two pounds for the lot - issued to every member of the scheme. Each coupon would bear a digitised photograph, the relevant one would be torn out of the book on entry to the ground. The main disadvantage is that check-books invalidated by the hotlist would somehow have to be removed from the offender to ensure that persons' non attendance at the next game. However, drawbacks seem to be more than outweighed by advantages in this case. It is cheapest system on offer, at £6m, there would be no electronic card readers, no links to any computer, therefore nothing - theoretically - to go wrong!

The Result?

The government wants football clubs to pull themselves together and act like businesses - certainly there is a need for improved economic and administrative structures in the game - but any business treating its customers the way football fans are treated would surely go bust: yet fans are still prepared to turn out to watch their teams.

What happened on the terraces at Hillsborough must now surely prompt a reappraisal of the way crowd control measures as a whole are devised and implemented in and around England's football stadia. The bars and fences which went up during the seventies and eighties as a response - but not an answer - to a range of problems, are suddenly not so popular. But what of the card scheme? The House of Lords, MPs, the Police Federation, the Centre for Football Research at Leicester University and football supporters groups have all raised objections. Indeed former sports minister Dennis Howell has even said that Hillsborough "makes current legislation to provide ID cards irrelevant." Certainly cards would have altered little the course of events on that Saturday afternoon, and real lessons must be learnt to prevent a similar thing ever happening again. Just as information systems stand or fall upon the willingness and ability of people to use them, so crowd control measures must be judged upon their ability to achieve what they are intended to do - ensuring crowd safety and preventing trouble.

Nevertheless, the government is prepared to push on, regardless of genuine and widespread concern about what the scheme will achieve - or mean - for English football as a whole. Although the Bill has been delayed until November to allow time for Judge Taylor's report on Hillsborough to be examined with regard to proposed measures, it is clear that the fundamental principles will remain unchanged. Whatever the outcome, indeed if the scheme is to go ahead at all, it seems that the much maligned football fan will again have the privilege of paying more to watch the same. Here we go, here we go, here we go

PROGRESS ADDS VANGUARD SOFTWARE ENGINEERING TOOLS

Progress Software Corp has signed a deal to distribute a set of 'pop up' software engineering tools, designed for its own application development environment by Vanguard Computer Services Ltd, Narberth, Pennsylvania. The Workbench is written entirely in the Progress 4GL, has a variety of display features and allows developers to test applications and terminal benchmarks without leaving Progress. It can be accessed from any location in the Progress environment and is available as a separate module to the Progress 4GL/RDBMS. Prices range from \$350 to \$4,250 for the Workbench, on PCs running MS-DOS, Xenix 286 and 386 systems, NCR Tower 32 Series and Sun-3s. Privately held Progress Software Corporation had sales of \$15.3m in 1988.

USENIX TECHNICAL CONFERENCE SET FOR JUNE

Usenix Association, the non profit technical association of Unix users and developers, is holding its Summer 1989 Technical Conference and Exhibition between June 12th and 16th in Baltimore, Maryland. It includes tutorials, technical sessions and conferences, as well as an exhibition of products. Usenix, which began life in 1974 as a series of meetings to exchange information on Unix technology and applications, now boasts around 3,000 members. Its 1990 winter conference takes place in Washington, DC on January 22 - 26. Call US 703 764 9342 for further information.

SOFTOOL CONTROL PACKAGE NOW ON HP

Softool Corp, Santa Barbara, California, is now offering its Change and Configuration Control package, CCC, for software development on H-P's 9000 Series 300 and 800 systems under HP-UX. The change management element of CCC is an automated environment for controlling changes to individual components within each version of information represented by the system. Configuration management provides corresponding control over complete versions and the relationships between changes, as well as the methodology to move a software product through the various phases of the software lifecycle. The control of a software development project, like any other, requires employment of a process by which the whole entity retains its identity and performance under changing circumstances. The techniques employed by Softool's Control package in pursuit of this include the tracking of any changes to machine readable information - code in any language, objects, executable commands and procedures - maintaining an audit trail of changes, the re-creation of prior versions, the management of changes taking place on different versions of the same information, allowing changes to be applied from one evolving version to another and reports on dependencies between components to ensure that all parts of the development are kept up to date. However, to discover exactly what methodology is used to move through the phases of development, and to answer Softool's claim that these features mean its system provides "total control" - questions will have to be directed towards the aerospace and defence industries. HP already has a strong presence in these markets, and its hardware, running CCC, will be used for software design.

PROTEUS SHIPS 386-BASED WORKSTATION

Proteus Technology, Clifton, New Jersey, has begun shipping the 5400vi, its engineering workstation based on a 25MHz 80386 chip. The tower configuration comes with 4Mb RAM, 110Mb EDSI hard disk with a 1/2ms access time and 15Mb per second disk transfer rate, floppy drive and ethernet adaptor. It runs an MS-DOS shell as well as SCO Xenix with Multiview, X-Windows, and costs from \$13,995. Options include the 33MHz version of the 80386, once Intel begins shipping them, a 16Mb cache memory upgrade, 760Mb EDSI or 1.2Gb SCSI hard disks and an intelligent X-Windows terminal.

NBI ADDS UNIX FILE SERVERS

Only a couple of weeks after selling its real time Unix house, Integrated Solutions Inc, to Topologix Inc (UX No 227), NBI Inc has announced three new network file and application servers to its range of systems. The 505, 580 and 580XD run Unix V.3 and include the Boulder, Colorado based firm's OfficeWorks networking and information management software as a standard feature. The entry level 505 server can support up to 32 networked AT compatible, Macintosh or Unix workstations. It uses a 68020 processor and has a 5.25" SCSI hard disk drive and two VME expansion slots. The 505 is upgradable to the 580, which runs either a 2 MIPS version of the 68020 to accommodate up to 64 users, or a 6 MIPS 68030, capable of supporting 128 users. It takes up to four 5.25" SCSI hard disk drives and has nine VME expansion slots. At the top of the range, the 580XD takes two internally mounted SMD disk drives, and has an external disk expansion cabinet, allowing a total disk capacity of 3472Mb. Basically a souped up 580, the XD configures with either 68020 or 68030 processors and has eight VME expansion slots. All three come with Ethernet connectivity and have optional token ring support. Available now, prices start at \$18,800 for the 505, \$32,700 for the 580 and \$46,500 for the 580XD.

/USR/GROUP STUDIES

"STRATEGIES FOR OPEN BUSINESS"

/usr/group, the US based commercial Unix group which is changing its name to UniForum, (UX No 228), and management consultants DMR Group Inc, are to sponsor an in depth study of the US Unix market. Sixty US companies are being recruited to fund what will be a year long programme called Strategies for Open Systems. DMR is to conduct the study out of its Boston office. It will include a survey of 750 users and non-users of open systems technologies to discover information management strategies, knowledge, attitudes and purchasing activities. In particular the study will focus on network computing, on-line transaction processing, multivendor systems integration and secure computing. Emphasis is to be placed on input from participants and the research is to begin this month, based on the methods devised for a similar study of the Canadian Unix market conducted by DMR last year.

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The weekly information newsletter for the UNIX™ community worldwide

A deal between Pyramid Technology and MIPS Computer Systems Inc is currently under negotiation, according to a number of industry sources: neither company would comment on the deal, but Pyramid spokesman Doug Free said the company had been looking at other technologies, but had no plans at the current time to replace its proprietary RISC processor, now in its fourth generation.

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Alliant Computer Systems Corp, Littleton, Massachusetts has signed Informix Software Inc to do a version of the Informix relational database for Alliant's FX/Series parallel processing minisupercomputers: the new versions of Informix-4GL, Informix-4GL Rapid Development System and Interactive Debugger, Informix-SQL, Informix-Turbo and Informix-ESQL/C are expected to be ready by the end of this quarter.

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The key to IBM's office automation announcement for the PS/2 expected next week is likely to be a version of Metaphor Computer Systems' Metaphor technology with the ability to generate SQL code from screen drawings and icons, plus a new word processor and spreadsheet, running under Presentation Manager to preserve the necessary compliance with Systems Application Architecture: the announcement is also expected to highlight closer integration between the PS/2 under OS/2 and the AS/400.

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DEC has introduced version 4.0 of its VAXe in real-time operating software in the UK, saying that the new release adds DECwindows support, so that it can now access other VAX computers in a network without affecting its monitoring or control functions; the new release also adds a new Set Host facility that enables networked real-time VAX system to connect users via the X Window System-based product to other VAXes on the network, and windows on a workstation can display VMS, MS-DOS and Ultrix applications concurrently with VAXe in; it will be available sometime this summer, with prices starting at £2,900 for the host and \$290 for the target system on MicroVAX II.

For the enlarged Daisy Systems read Daisy/Cadnetix Inc: the company has changed its name, but will keep the HHB Systems name for that subsidiary - and Daisy/Cadnetix will be the operating name of the Mountain-View based firm.

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The Singapore Unix Association, known as Sinix, has organised a Unix pavillion and the two day Unix Asia Conference as part of the Informatics 89 trade show at the Singapore World Trade Centre between 6th and 10th of December 1989: telephone Singapore 734 3256.

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Meridian Software Systems, Laguna Hills, California, is to port its Ada compiler to the Ardent Computer Corp Titan line of graphics computers, said to be the first move to provide Ada on this class of computer: due in the fourth quarter of this year, the compiler will cost \$9,000.

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And Meridian say it has plans for a version of Ada for Sun Microsystems workstations later this year: it already supplies PC and Apple Macintosh versions of the language.

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Bull HN Information Systems has a co-operative marketing agreement with Oracle Corp to allow joint marketing of the Oracle RDBMS on Bull's XPS-100 range of Unix-based systems: implementations on the GCOS6, 7 and 8 ranges are planned for later this year.

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And Oracle Corp has entered into a joint agreement with office automation developers Quadratron to exchange technology, allowing the integration of products: Q-Office and Oracle users will be able to extract data from Oracle databases for use as editable text in certain Q-Office applications as a result of the deal.

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The Unix-based Ryan McFarland Cobol compiler, now owned by LPI Inc after its take-over of Austec back in March, is available in Europe through the International Consortium for Open Software network of distributors set up by Sphinx Ltd, Maidenhead, UK.

And Sphinx Ltd is now the supplier of Q-Calc from Quality Software Products, said to be 98% compatible with Lotus 1-2-3, and available on a range of Unix hardware.

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Accounting systems software house Systems Union, which opened an Australian subsidiary operation in Sydney at the beginning of January to sell its Sun-Systems package, says it has received five orders in the first three months.

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Synthesis Software Inc, the company formed by MIPS Computer Systems Inc to promote software for hardware using the MIPS RISC processor range, is thinking about porting the Pick operating system and MUMPS, in order to open up new markets, particularly the Health Service and local government in the UK.

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Meanwhile, Advanced Pick from Pick Systems Inc, which is based on the existing "open architecture" 2.0 release of the Pick operating system, is due out early in the second half of the year for 286, 386, and IBM 6150 hardware: enhancements include extended memory, a radical change in the way new applications are developed, and the Update dictionary-driven editor, described as a major innovation in database technology, according to Access Magazine.

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UI AND OSF "TO JOIN X/OPEN" IN JAPANESE SUMMIT

The focus of the Open Systems market moves to Japan this week where Japan's Sigma Project is sponsoring an "International Symposium on a Software Platform", and industry sources suggest that both the Open Software Foundation and Unix International will be applying for X/Open membership at the X/Open board meeting, also scheduled for Tokyo during the week. Reliable sources say that the Open Software Foundation has already applied to join X/Open, while Unix International has not yet made an approach, but is expected to attend the meeting. Unix International recently announced the establishment of its Asia Pacific headquarters in Tokyo under the control of Yumio Imamura, and chose a building adjacent to X/Open's own Japanese headquarters, and re-affirmed its plans to work closely with the Group. But both organisations are currently thought to be ineligible for X/Open membership as they are not manufacturers: Unix International is less qualified in that it is not a development group, and also has representation through AT&T's Unix Software Operation. But X/Open's board is likely to waive objections of this nature, assuming existing board members reach an agreement on the two groups joining.

IBM SETS NEW MICRO CHANNEL, FUNCTION CPUs FOR RT...

Core of the new version of the RT Unix box from IBM will be an enhanced version of the Micro Channel so that the machine can be built up of a federation of concurrent processors according to sources in Austin, Texas where the machine is being designed. In the new approach, there is expected to be an arithmetic processor, an input-output processor, and a graphics processor - the last possibly using the new Intel 80160 - on the bus, but anyone looking for the box anytime soon will be disappointed: word out of Austin is that it won't arrive until the fourth quarter. The new Micro Channel will be upwards-compatible with the current one so that it will support PS/2 boards, but boards for the new one will not go into a PS/2. Those who are looking for dramatic improvements in performance will be disappointed too - word out of Austin is that the new version will deliver only about twice the performance of the present one, which suggests that it will be using the same RISC processor. IBM is hinting at models delivering up to 100 MIPS, but not before next year. The new model will come with a new release of AIX, AIX-3, in which most of the function of the VRM Virtual Resource Manager will be incorporated into the kernel, and the thing will use Next Inc's NextStep user interface. AIX-3 will also be designed to guest other operating systems such as Pick, MS-DOS and OS/2 in such a way that applications written for them will be able to be migrated from the PS/2 through the RT right up the 370 line under AIX. And for would-be large users of AIX, IBM hints it is close to a new licence agreement with AT&T which will make charges for systems supporting large numbers of users considerably cheaper.

INTEL OFFERS 80486 BOARD

For those who want to try out the new 80486 - which is still less than solid - Intel Systems has come out with the iSBC- 486/125, a 25MHz board with 8Mb memory, at \$14,000 as a development unit, next month.

MYSIS ACQUIRES TIS AND MENTOR IN £38m ACQUISITION DRIVE

Mysis Plc, the Stratford-upon-Avon, UK based software house recently on the prowl for Unix acquisitions (UX No 200) has acted in a big way, and snapped up two major Unix acquisitions, including Convergent, Mips and Apple systems house TIS Ltd from Bourne-End in Buckinghamshire, and fellow software house Mentor Systems Ltd, Blackburn, Lancashire, which concentrates on software for the construction industry running on HP, NCR, ICL, and Convergent hardware. The deal, announced just as we went to press, is valued at around £38 million, including £26m for TIS Ltd and TIS Computer Maintenance, and £12m for Mentor Systems. TIS and its subsidiaries are expected to continue to operate as normal according to TIS Network Systems director Niels Jaeckel, who said that the deal "puts Misys in the position of being the most profitable Unix group in the UK." Misys acquired BOS Group Plc in June of last year, which has since been working on Unix projects (UX No 222).

NCUBE TO UPGRADE HYPERCUBE

NCube Corp, the Beaverton, Oregon based hypercube system manufacturer, is set to introduce a new massively parallel supercomputer at the top end of its range. Although firmly under wraps at present, the machine is reported to utilise up to 8,192 specially designed processors operating independently in parallel. Known as the NCube 6480, it is claimed to deliver an incredible 100 BIPS, that's 100 billion instruction executions per second. There will be an upgrade path from existing NCube systems - the existing top of the range being the NCube 10 with up to 1,024 nodes which costs up to \$2m - and it will run the same Unix like operating system, Axis. The 6480 will be available from NCube's UK distributor Arrow Computer Systems of Epsom, Surrey, after its June launch in the US. Arrow says it has now installed the first large NCube in the UK, and has orders for several more in the pipeline.

CANADA HOSTS MAJOR UNIX EVENT IN TORONTO

The Canadian city of Toronto plays host to the second Multi-User Computer Show on May 17, 18 and 19, combining both the Unix and Comgraph events that were held separately before last year. Over 14,000 delegates are expected at the Metro Toronto Convention Centre where 250 companies will be represented. The Comgraph side of the show is sponsored by the Electronic Desktop Publishing Association, the Unix part by /usr/group/cdn, the Canadian Unix users group. The latter has organised a series of lectures, discussions and technical tutorials running parallel to the show, keynote speeches are being given by Gilbert Williamson, president of NCR Corporation, and Nicholas Donofrio, president of IBM's Advanced Workstations Division. Waterloo, Ontario based Wollongong Group is to set up a network for the duration of the show, during which AT&T will be demonstrating a new release of Topaz, its 3D imaging system for PCs, and Nu-Vista, a new graphics card for Macintoshes. Apple will be demonstrating Visionary, a new front end film producer on the Mac II, Hewlett Packard is set to make some announcements in the graphics environment, and Xerox will be showing off its new 4650 printer and Professional Illustrator for workstation design artists. The Comgraph conference will be addressed by Adobe Systems president John Warnock and Steve Roth, editor of US desktop publishing magazine Personal Publisher.

SANDERSON ELECTRONICS TO PAY £200,000 FOR SYSTEM 800

Sheffield Pick systems house Sanderson Electronics Plc has agreed to invest up to £200,000 for a 75% stake in System 800 Computers Ltd of Newcastle-upon-Tyne. The target is another Pick company, concentrating on the north east and Cumbria, and had sales of £520,000 in the year to December, and is now deriving near £200,000 a year from maintenance and other recurring revenue. The company bought XSoft Systems Ltd two months ago, and has agreements that will in due course give it 51% and control of General Automation Inc, Irvine, California if everything pans out as planned on that front. Sanderson turnover for the year to March 31 rose 50% to £6.2m.

POINT 4 CHOOSES MIPS FOR UNIX LINE

Point 4 Data Corporation, Tustin, California, last reported to be deciding on a Risc processor as the basis of its top-end Unix line (UX No 181) has chosen the MIPS Computer Systems R2000, and released a new Mark 2000 Model based on the chip. The base configuration has 8 Mb RAM, expandable to 48 Mb, and supports from 32 users up to a maximum of 128. Prices start from \$54,000. Point 4 says it will continue to market and develop its proprietary Data General Nova-like systems running the IRIS operating system, but has been working with Californian software companies Dynamic Concepts Inc and IMS Inc on software links between the two ranges. Point 4 introduced a low-end Unix micro last November, sourced from SCI Systems Inc, Huntsville, Alabama, which supports up to 32 users for a base price of \$9,000.

ASTRONAUTICS A LATE ENTRY INTO MINISUPER MARKET

The Astronautics Corporation of America, better known as a manufacturer of aircraft instruments, military and space technology, has recently launched itself as a computer manufacturer. The Milwaukee, Wisconsin based firm's entrance is interesting because it has chosen the troubled waters of the minisupercomputer environment in which to make its debut. Minisuper manufacturers have been squeezed from both sides by the encroachment of high and low end systems, as well as by architecture and software problems. However, Astronautics president Dr. Ronald Zelazo shrugs off these problems that have beset manufacturers such as the likes of Alliant, Scientific Computer Systems - which has closed down its minisuper division, (UX No 221), and the now defunct Cydrome, (UX No 220) - "Unlike many other entries into the minisupercomputer marketplace, Astronautics has a history of financial strength and staying power to continue state of the art development." The ZS-Series is the result of a four year development project, and the two models - the ZS-1 and ZS-2 - are aimed primarily at the general scientific and engineering applications marketplace. The 64 bit systems are based on a tightly coupled, multiprocessor design. The ZS-1 is claimed to have a performance of 45 MIPS and 22.5 MFLOPS, with from 32Mb to 1,024Mb memory. The ZS-2 is a dual CPU version, and both can be expanded to take up to four CPUs. They run BSD Unix 4.3 and Sun's Network File System, have serial, parallel, Ethernet and HYPERchannel interfaces, and support C, ANSI FORTRAN, Pascal, LISP and Ada. IBM MVS and VM, and DEC VAX/VMS connectivity is also provided. Prices for the ZS Series range from \$400,000 to \$700,000.

...AS ALLIANT RETURNS TO PROFITABILITY

Meanwhile Alliant Computer Systems, Littleton, Massachusetts, says it has returned to profitability after poor financial results last year which led to its laying off 17% of the workforce, (UX No 213). Results from the first quarter showed a profit of \$102,000 on turnover of \$18.5m. In the UK, the Institute of Cancer Research, Sutton, Surrey has installed an FX/40 parallel system to investigate the design of new anti-cancer drugs, and the Glaxo Group, Greenford, Middlesex, has also bought a similar machine to examine protein structure for understanding how diseases and drugs work.

NAT-SEMI'S MACCELERATE BOARD DOUBLES MAC PERFORMANCE

National Semiconductor has introduced a microcontroller based SCSI bus controller board for Apple Macintosh II and IIx computers called Maccelerate. The board, which stores and retrieves data through a direct memory access technique, is claimed to double overall system performance. Its design has allowed direct memory techniques to be applied to low end technology such as Apples, previously it was the preserve of minicomputers and mainframes. Normally the system's CPU controls the input and output via a SCSI bus, and cannot be used for program execution whilst it is performing these data transfers. Maccelerate frees the CPU by using Nat Semi's HPC16083 microcontroller to handle all the the control and data transfer functions of the SCSI bus. Used in conjunction with Nat Semi's NS8/16 NuBus expansion board Maccelerate performs these functions without accessing main system memory, reducing input/output interruption and improving execution time. Maccelerate has software drivers for both A/UX and the standard MacOS operating system.

WEITEK CO-PROCESSOR BOOSTS 486 PERFORMANCE

A new floating point co-processor from Sunnyvale, California-based Weitek Corporation promises to boost the performance of Intel's new generation 486 processor close to that achieved by its high performance RISC chip, the i860. Although the 486 includes an extended version of the 80387 floating point chip on board, Weitek claims its latest Abacas processor, the 4167, will complete math operations five to six times faster than the on-chip unit, delivering 17 MWhetstones of single precision numerics performance on a 486-based PC running at 25 MHz, compared to 7 MWhetstones delivered by the 486 alone. Using the same benchmarks, the i860 delivers 18.5 MWhetstones, and the R3000 Risc chip from Mips Computer Systems Inc a comparable 17 MWhetstones. Support for the processor is via a 142-pin grid array socket that needs to be designed on to the system board, which according to Weitek will provide all the signals necessary to interface the two chips. Previously, Weitek was able to use the 387 socket normally included with 80386-based systems. The 4167, however, is fully compatible with the existing Weitek 3167 co-processor, allowing previously supported software to run unaltered. The 1.0 micron CMOS, 25 MHz part has 16 64-bit data registers (twice the number on the 486 unit) and a memory mapped protocol that allows it to gather instructions and data from both the address and data buses of the 486. It also includes a 64-bit floating point data path said to be 500% faster than the 486, and 50% faster than that of the i860. Samples will be ready in September, with limited production by the end of the year: prices are \$565 for 1,000-unit quantities.

NOKIA'S UNICON LINK HERALDS UNIX PUSH

Swedish Sleeping giant Nokia Data Systems is preparing to awaken the Unix interests it inherited from Ericsson two years ago, and is preparing for the introduction of a range of 386 and 486-compatible systems to begin later this year. Heralding the move, the company has developed Unicon, an Ethernet-based protocol conversion board for its proprietary Nokia 2500 minicomputer range, allowing its systems to co-exist with Unix-based hardware. System 2500s are mostly used in the manufacturing, distribution and travel industries, and feature a Cobol-based operating system that allows around 80 users to be supported on a system with only 2Mb of main memory. But Nokia has been under increasing pressure from users requiring new applications. The Unicon link, using TCP/IP communication protocols, allows file-to-file transfer and program-to-program communications between System 2500 and Unix-based systems. Nokia currently supplies the Motorola-based S20 system it OEMs from Sun Microsystems to Unix customers, but is expected to base future hardware on Intel's 80X86 processor range: in Sweden it has already introduced an 80386-based S10 system, which is currently in the process of being introduced into the UK. Further announcements are expected in August. Nokia Data, part of the \$5 billion Nokia Group, employs 8,000 people in Europe and has a turnover of over \$1 billion.

DEFINICON USES CYPRESS SPARC FOR PC CO-PROCESSOR

A new Sparc-based co-processor system for PC compatibles has been introduced by Definicon Systems (UK) Ltd of Battersea in South London. Using the 33 MHz of the Sun Microsystems Sparc RISC processor fabricated by Cypress Semiconductor, Definicon's SP-ARC1 system combines the CPU with a floating point unit from Texas Instruments - the TI 8847 - and includes up to eight megabytes of high speed RAM. It can be added to any 80286 or 80386-based PC, according to Definicon, allowing peripherals such as graphics cards, serial and parallel ports and optical disks to be accessed by the SP-ARC1 via the PC system bus, using the host CPU as an I/O controller. An optional SCSI port for direct data transfer is also available to avoid contention for host system resources. Definicon also produces Motorola 68030 and Transputer-based co-processor boards for PC compatibles. No prices were given.

OSF SET TO RELEASE FULL OSF/1 CODE BY MARCH 1990

As expected (UX No 229), the Open Software Foundation has now released a full set of specifications and plans for OSF/1 to its membership for review, and revealed that full OSF/1 code will not be available by the end of the year, as originally anticipated. The specifications, which describe in detail the architecture, functionality, and development strategy for OSF/1 will be made fully public following OSF's forthcoming membership meeting between May 21-24 in Europe, where members will provide feedback that will be used to produce the final version. The first release of OSF/1 includes the IBM AIX-3 derived operating system and OSF/Motif interface technology. It will be release in four stages, starting with a Vendor Kit to allow members to begin the process of porting the OSF kernel to their hardware, available in October this year. Then comes the Application Kit, available in March 1990, which will provide software vendors with the complete OSF application environment, adhering to both the IEEE POSIX and X/Open XPG3 standards: this will allow software applications porting to begin. The third stage, scheduled for May 1990, is the University Platform, which will be used for field testing OSF/1 functionality in university and other sites. Finally, the Commercial Platform will represent the general availability of OSF/1 to the industry beyond OSF membership. This should be achieved by July, 1990, according to OSF, which now boasts over 120 members.

...AS IBM RECONSIDERS OSF LICENSING POLICY

Although IBM UK was still sticking to its official line at the launch of the new PS/2 models last week that it would not be licensing OSF/1 from the Open Software Foundation, senior AIX staff have reportedly changed their position according to US press reports. William Filip, assistant general manager of IBM's Advanced Workstation Division was quoted in Computer Systems News as saying that IBM had now agreed to license OSF/1, despite the fact that it licenses AIX-3 to OSF as the basis of the product. The shift is said to be due to the added functionality supplied by OSF, especially in areas such as memory management. OSF/1 also includes the Motif user interface, which IBM has already displayed at trade shows, including Uniforum. DEC has already committed to licence OSF/1 and to migrate its Ultrix implementation over to it.

NEWS ROUNDUP

Pyramid Technology is to announce an OEM deal to boost the low end of its product range this week, and although no one was willing to confirm the details, it looks as if the announcement could concern the negotiations rumoured to be underway with **Mips Computer Systems Inc**, reported last issue (UX No 230): Pyramid's last attempt to crack the low-end systems market with its own **WorkCentre** back in February 1986 (UX No 63) failed to make any significant impact on the market.

UK computer manufacturer Apricot Computers is set to introduce a series of integrated network and Unix servers at the end of May in a launch to be held at the company's home town of Birmingham: code named **Titan** and using "industry standard PC technology", the machine will be capable of acting as a network server or multi-user host, designed to work with the company's existing **Qi** and **XEN-S** workstation families, and will incorporate support for value-added networking, communications and security as standard.

Silicon Graphics UK, Abingdon, Oxfordshire, has formed a new subsidiary to market software products for its range of 3D workstations based around the **Mips Risc** processor: **Silicon Graphics Applications Systems Ltd** will establish sales distribution channels for foreign software and market UK software abroad under the direction of **Tim Marlon**, while **Nigel Seed** from **Sun Microsystems** takes over as **Silicon Graphics Ltd** managing director.

Apollo Computer Inc is expanding its international operations into Latin America and has signed a workstation distribution agreement with **Rimpexchile**, a Chilean computer systems supplier: distribution agreements are also being negotiated in Colombia, Argentina, Brazil and Mexico, and here in the UK, the company, on its way to **Hewlett-Packard Co**, has added a small research and development centre to do graphics and communications software at its **Livingston, UK** base.

Early editions of **Unigram.X** last week did not include prices for the new range of 68030-based workstations from **Lynwood Scientific**: they start at a rock bottom of under £3,000 for minimum quantities of ten.

And **Lynwood**, part of the major defence and electronics company **Hunting Associated Industries Plc**, has been shipping **Tempest** versions of the workstations for the last six months, and says it has now sold over 1,000 to defence customers.

Orion Associates Ltd, mentioned last week in connection with a \$25m OEM deal from **Motorola Computer Systems Inc**, (UX No 230), is the holding company for the old **Fortune Systems International**, based in **Monaco** (UX No 183).

Q-Office from **Quadratron Inc** is now available to Sun workstation users, and runs on **Sun-3**, **Sun 386i**, and **Sun-4** systems: the eight module system includes word processing, e-mail, diary, calculator, notepad and telephone directory, and the **Q-Typeset** typesetting and **Q-CBT** training modules are also available.

IBM held briefing sessions for analysts and journalists on the **PS/2** at its management and training centre near **Brussels** last week, where **Entry Systems Chief** introduced the **Easel** program from **Interactive Images Inc** of **Woburn, Massachusetts**, which converts the user interface of existing applications into a bit map that can be designed to conform to the **Systems Application Architecture Common User Access**, making it far easier for third party software developers to convert their applications: **IBM** has a 10% stake in **Interactive Images**.

Other topics touched on by **Cannavino** included his considerable excitement over the latest chips from **Intel Corp**: of the **80160**, he says that when used as a **PS/2** co-processor, it does compute-intensive work 30 times faster than "the **RISC-based** workstation of a competitor" - did he mean the **Sun Microsystems Sparc** or **DECs MIPStations**? He wasn't giving that away.

He is also extremely excited about the prospects for multimedia technology in the **PS/2** world, citing in particular the **Compact Disk** standard **IBM** is working on with **Microsoft**, and the **Intel-led** effort on **Digital Video Interactive**, and rather unexpectedly suggested that expert systems would be the main application in this area, saying that we could "for instance turn me off in the middle of an electronic press briefing" if we got bored; the problem is that **Apple Computer Inc** is already where **IBM** aims to be on many of those kinds of things.

IBM is beginning to believe that **OS/2** and the **Micro Channel** really are beginning to happen: according to **Cannavino**, there has been a quantum leap in **OS/2** and **Micro Channel** applications and add-ons in the past few months, and that the biggest problem **IBM** had had was in meeting **PS/2** demand; on the subject of **OS/2-386**, he said that a first pass, which would use the full **80386** addressing and paging, would appear within six to nine months.

Why can't you have existing **AIX** on the new **PS/2** models? It appears that it is a marketing rather than a technical reason, **IBM** not wanting lots of people running on the old release when the new one comes out - but it could be that there is some incompatibility between the **BIOSes** of the old and new models.

Cullinet Software Inc forecasts a profitable fourth quarter to May 1.

AutoCAD Release 10 running under **SCO Xenix** (UX No 222) should be available some time this quarter: price in the UK will be £2,500, from **Autodesk Ltd** of **South London**.

Ardent Computer Ltd, **Milton-Keynes**, has sold two **Titan** graphics supercomputers to the **University of Manchester Institute of Science and Technology** - the first in the Department of **Mechanical Engineering** for computational fluid dynamics, and the second in the Department of **Chemical Engineering**, where it will also be used for molecular modelling, dynamic simulation and image processing: in the future, the systems will be connected via **Ethernet** to the **Manchester Computer Centre**.

WANG SHARES JUMP ON XEROX GOSSIP

Trading in the Wang Laboratories Inc Class B shares was hectic at the end of last week as traders got wind of gossip that Xerox Corp had approached the company proposing a friendly merger as a means of taking itself out of the firing line. The shares put on 87.5 cents up at \$8.625: that doesn't sound much, but is an 11% increase. A merger between the two would have some logic, for although both major on the office, Xerox's strengths are in desktop publishing, copiers and typewriters but is weak in Wang's stronghold of word processing, while Wang has not made a mark in desktop publishing. There would be big scope for rationalisation of the marketing networks, a big new customer base for each company's complementary products, and if the Xerox financial services business were to be sold off, the emerging company would be cash rich. And while Dr An Wang and his family control of the Lowell, Massachusetts company he created, he might be persuaded that a merger into a larger new company that included the family name might have better prospects for survival than Wang does in its present form.

MICROSOFT PLANS SMALLER, FASTER MS-DOS; OS/2-386 NOT TILL 1990

Microsoft Corp will come out with a new version of MS-DOS that will be faster and will require less memory than 4.0, according to Bill Gates, who didn't know "exactly when". Speaking to the Boston Computer Society IBM Special Interest Group, Gates said a high percentage of MS-DOS machines, "80% to 90%," will become Windows boxes. On OS/2, which he claims solves every limitation of MS-DOS, Gates said Microsoft will have OS/2 1.2 out later this year with a more powerful file manager, we'll have to wait for 1990, for the 80386-specific version, although the one for the 80486 - a "significant" chip - won't need many software changes.

NOW NIXDORF TURNS TO SILICON GRAPHICS FOR HIGH-END WORKSTATIONS

Nixdorf Computer AG has always bought substantial, if less vital, parts of its product line OEM, but it has been preparing the market and its users to come to terms with a new Nixdorf, the systems integrator that will buy in major parts of its product family. The majority of Nixdorf's core Unix product line comes from third parties, and it has now extended its reach in the workstation world by signing to take Silicon Graphics Inc's three-dimensional computer-aided design workstations to come in above the ones it is buying OEM from Apollo Computer Inc. The agreement also explains the decision of Silicon Graphics to do its European manufacturing just across the border in Neuchatel, Switzerland - the Mountain View company says the Nixdorf deal is one of its biggest ever OEM contracts. Silicon Graphics is also planning a Japanese plant.

PRIME PACT WITH CHEYENNE

Prime Computer Inc has gone to Roslyn, New York-based Cheyenne Software Inc for ARCserve and Monitrix local net products to be used in configuration with Prime's EXL NetWare servers, expected to ship in the third quarter of 1989. Terms of the three-year pact were not given; Prime gets exclusive rights to sell the products to manufacturers with whom it signs to implement Novell's Portable NetWare on their Unix kit.

COGNOS TAKES SYSTEMATICA SOFTWARE FOR POWERHOUSE CASE EXTENSIONS

Cognos Inc, the Canadian software house based in Ottawa, Ontario, and developer of the PowerHouse fourth generation language has signed up Bournemouth, Hampshire based Systematica Ltd as its computer-aided software engineering partner in a technology and marketing agreement signed this week. Cognos is to take Systematica's Virtual Software Factory product, a knowledge-based software development design tool that uses object-oriented techniques to improve programmer productivity and system quality: code can be generated from the VSF design model once it is complete and consistent, and subsequent changes to the code are reflected in the design model. The product runs on VAX/VMS and Sun workstations, and Systematica has a technology agreement with DEC to develop VSF-based software tools addressing the various European design standards. An IBM PS/2 version is also under development. Cognos will launch its own version of the product by the end of 1989, and will eventually fully integrate it with PowerHouse, now installed at 12,000 minicomputer sites worldwide, mostly on DEC and Hewlett-Packard hardware. Cognos says the move is part of its general strategy to expand the PowerHouse environment to cover all aspects of software development - it recently added StarBase, an SQL compliant relational database (UX No 211), and now runs on Hewlett-Packard minis running the HP/UX Unix implementation. Future plans include ports to Data General's new Aviiion range and IBM's AS/400 (UX No 230).

OLIVETTI AGREES TERMS FOR FULL ACQUISITION OF SCANVEST RING

Ing C Olivetti & Co SpA is seeking to resolve the bad feeling over its unhappy Scanvest Ring A/S investment in Oslo, Norway (UX No 211) by buying out the 49% minority for the equivalent of \$23m. Olivetti agreed to buy out the founder and chairman Sjur Svaboe at a lowly \$1.10 a share - against the \$9.85 a share it paid for its 51% - but agrees to drop all claims against Mr Svaboe over the fact that it feels it was misled about the state of the company. It is offering outside shareholders \$3.90 a share, a 29% premium over the price in the market at which trading in the shares was suspended on Monday - but will require outside holders to agree to drop all claims against Mr Svaboe as well, and has put a condition that it ends up with at least 90% of the votes, although it may complete even if it doesn't end up with 90%. Some holders may seek to continue the legal battle, but most are expected to accept.

BERKELEY PUSHES FORWARD WITH UNIX COMMUNICATIONS ENHANCEMENTS FOR 4.4

The next version of Berkeley Unix, BSD 4.4, due for release at the beginning of next year, will include OSI protocols as part of an OSI-POSIX project instigated by the National Institute of Standards and Technology, (previously the National Bureau of Standards), and backed by DARPA, the US Defense Advanced Research Projects Agency. Both Transmission Control Protocol/Internet Protocol, TCP/IP, and Open Systems Interconnection (OSI) protocols are being integrated into new BSD Unix features being put together at the University of Berkeley in California by a team led by Keith Sklower. These will add certain structures and protocols to TCP/IP "to make it look like X.25," and is being built on top of the OSI protocol development work by Marshall Roades of the Warnock Group.

Contributions

The University College of London is contributing work on X.400, the University of Nottingham's work on X.500 is to be included, and the University of Michigan will add other work on the TCP/IP and OSI sets. Whether these POSIX compliant additions will be included in future versions of AT&T's Unix as well as BSD, which are both POSIX stamped, is unclear, because communications protocols in System V are treated in a slightly different way to those in the BSD variant. However the OSI-POSIX project material will be put "close to the public domain," and is hoped to "foster the commercial application of OSI protocols." Sklower thinks that Hewlett Packard may be interested in picking up these developments for its HP/UX operating system, though DEC already has its own DECnet system, and Sun has already implemented some of the ideas, (see below). What is clear is that the project should provide a springboard for the OSI suite to be more widely adopted. It must be remembered that the inclusion of TCP/IP protocols in BSD Unix helped to make TCP/IP a success, and the inclusion of both TCP/IP and OSI under the same operating system should make the transition from TCP/IP to OSI easier. The Berkeley project itself is part of a more general effort going on at the moment to push forward development and integration of communications protocols.

Jacobsen extensions

In particular Dan Jacobsen, just down the road from Berkeley, has devised a number of additions to the TCP/IP suite, generally known as the Jacobsen extensions, but probably more accurately described as a 'tweaking' of the control and transport layers. They allow 98% of the theoretical bandwidth on Ethernet to be utilised, as well as enabling communication congestion to be noted so that appropriate backing-off action can be taken if needed. By installing one element of cache memory on each network layer, the system can also predict what is going to happen next on the stack and again, take appropriate control action.

Commercial implementation

The first commercial implementation of Jacobsen extensions has been done by Sun Microsystems on its Sun-4 workstation. They allow data to be transferred off a Sun-4 at the rate of eight megabits per second, dramatically improving upon the standard TCP/IP rate of one or one and a half megabits per second, and nearly as good as Sun's own Network File System at 10Mb per second.

The performance was achieved by removing duplication and eliminating redundancy in the Internet Protocol element, and reformulating the design of Lance chips in Ethernet boards. The popular TCP/IP protocol suite was developed in the 1970s by the US Defense Advanced Research Projects Agency, DARPA, as part of the effort to create ARPANET, a wide area network that links DARPA's various research centres. The US government began to require TCP/IP in its networking contracts and the development of more powerful PCs that could handle the processing required by complex protocols gave TCP/IP a boost. TCP is the transport layer protocol and IP is the network layer protocol, operating at the OSI levels of 4 and 3 respectively. TCP/IP was originally developed for wide area networks, which tend to be less reliable than LANs, so its transport layer does more error checking, slowing down performance, but it has nevertheless become a de facto standard in networking technology. According to a study of network architectures by LAN specialists Interlan, Boxborough, Massachusetts, recently acquired by Racal Electronics plc, (UX No 230), TCP/IP's major competition will come from this OSI de jure standard for interoperability, but the Berkeley project seems to suggest that some sort of co-existence is likely, especially in the near future. ISO has been gradually developing protocols for the seven layers of the its OSI model, and now virtually every computer company has expressed support for OSI. The US government has adopted OSI in place of TCP/IP through its implementation of GOSIP, the Government OSI Profile.

TOUCH OFFERS TOOL FOR IMPLEMENTING OSI PROTOCOLS

Touch Communications Inc has developed a software tool, Fastport-OSI, that it claims enables users to implement Open Systems Interconnection, OSI, protocols. Touch Communications claims the software provides a seven-layer OSI protocol stack, as well as network functions such as filing, printing and terminal emulation and, according to Microbytes, the software complies with the US Government OSI Profile, MAP 3.0, and TOP 3.0. The software will work with AT&T Unix System V Release 3, Intel 80386 processors, Motorola 68000 processors and some proprietary operating systems. The software costs between \$50,000 and \$100,000, depending on the configuration and the number of users. Intel has licensed the product and will implement it on its Fastpath product, which connects IBM mainframes to Ethernet local area networks.

4GLS "NEED MORE POWER TO OUST COBOL"

Die-hard Cobol programmers are unlikely to convert to fourth generation languages until they contain commands equivalent in power to more traditional "3GL" languages, according to Mark Rogers of the UK software firm MF Systems Ltd, based in London's Kensington. According to Rogers, talking at the recent PC User Conference at Olympia, many 4GL products have been self-defeating, helping developers with the "easy" 80% of programming tasks, but offering no help to the more complex 20%. "It's almost regarded as acceptable that 4GLs should provide links to languages like C for the complex pieces of the program", said Rogers. "But as soon as you do that, you forfeit most of the benefits you gained from using a 4GL in the first place; you lose development speed, ease of maintenance and portability". Problems of efficiency, a major concern in the early days of fourth generation languages, is in most cases no longer an issue, with efficient coding overcoming performance problems and virtual memory techniques optimising the use of memory. And new database techniques such as variable length fields use far less disk space than traditional systems, and are faster to use. Apart from development speed, Rogers pointed to maintenance of programs as a key benefit of switching to 4GLs. "More than 75% of a programmer's time is spent amending existing software, rather than developing new programs. By using a data dictionary, 4GL techniques make it easier to amend systems, and to manage projects where there are different versions of software". But future products should concentrate on increased sophistication rather than simply aiming to save time and money. "The real worth of using a 4GL is to write better, more sophisticated programs which could not be written before", said Rogers. "I feel this objective has been somewhat neglected".

...IBM PROMISES AIX FOR 20 LBS LUGGABLE, ADDS PS/2 55SX

Having failed to cause a ripple with its first two attempts at a portable computer, IBM has so lost confidence in its ability to read the market that it is loth to tool up to make its third attempt, announced yesterday, itself, and has handed manufacture of the thing over to Matsushita Electric Industrial Co. The PS/2 P70 386 is billed as Model 70 packaged as a portable - weighing in at nearly 21 lbs and featuring a 16-grey scale gas plasma display with VGA, 20MHz 80386 CPU, 4Mb memory, 1.44Mb floppy and 60Mb or 120Mb disk, at \$7,700 or \$8,300 - £5,390 and £5,820 here. It has one full and one half Micro Channel slots, and an external device can be attached via a \$100 cable. No batteries - it is mains powered. The PS/2 55SX is the 16MHz 80386SX-based machine intended to consign Micro Channel 80286 machines to the dustbin of history. It comes with 2Mb to 16Mb memory, with the 30Mb disk model costing \$3,900 in the US, £2,560 here; with 60Mb disk, it's \$4,300, £2,790 in the UK. It also offers the new 80387SX maths chip as an \$800 option. The 60Mb disk version will run the AIX-3 implementation of Unix in the future. At 19 lbs it weighs less than the portable - but that's without a screen. There is a new external 5.25" floppy disk drive available from IBM as well as dealers - sounds like there's been some resistance to the rush to 3.5" - and in the US, a string of inducements to try to persuade more people to adopt OS/2 - rebates on on memory expansion options for 80286- and 80386-based PS/2s and on IBM communications adaptor cards, an internal modem, 60Mb fixed disk drive upgrade, and more than 100 OS/2 applications offered by IBM and other software developers.

APPLE SETS 32-BIT MULTI-TASKING MAC OS

Apple Computer Inc is planning to boost the capabilities of its proprietary Mac OS operating system with A/UX-like features, saying that it planned to add virtual memory support, 32-bit addressing, and a new Interapplication Communications Architecture for multi-tasking. ICA is described as an integrated communications framework that enables applications to exchange data and instructions either on a single Mac or over a network, and includes both the foundation software to facilitate communications and common protocols that enable applications to interact in a consistent manner. New imaging system software is being designed to maximise Mac capabilities in the areas of colour, text and printing, and includes outline fonts, a new Layout Manager architecture for printing and the previously introduced 32-Bit QuickDraw software. The Outline fonts are mathematical descriptions of text that can be scaled to any point size at any resolution, providing sharp text on displays, printers, fax modems and other output devices. All will be in System 7.0 of the Mac software, planned for availability later in the year.

NOVELL UNVEILS TRUE 32-BIT NETWARE 386, WORKBENCH

Novell Inc last week made a string of announcements headlined by NetWare 386 v3.0, described as the first member of a new family of products based on the NetWare 386 server. The new version is a 32-bit implementation of NetWare optimised for the features of the 80386, and is claimed to provide two to three times the performance of current releases in large networks. The new release has a "simplified and quicker" installation procedure; support for up to 250 users on one server, high-performance file system supporting up to 32Tb, 4Gb main memory and maximum file size; enhanced security, dynamic resource configuration and enhanced printer services, and anticipates the 80486 in its design by including features specific to that chip. Single files and volumes can span multiple physical drives, allowing for parallel file access to speed file retrieval. Dynamic resource configuration handles allocation and memory management automatically. NetWare 386 and NetWare 286 servers can co-exist on the same network. It supports MS-DOS, OS/2 and Macintosh workstations, the last via a bridge running NetWare for Macintosh. The second announcement is the NetWare Programmers Workbench collection of software development tools, including the first C compilers for developing network applications and a library ANSI C- and IEEE Posix-compliant functions, licensed from Watcom Group Inc, Waterloo, Ontario. As part of the Workbench, Novell also has a pre-release NetWare 386 for developers called NetWare 386 v3.1 Software Developers Kit, to be available with the workbench, in the third quarter, as will 386 3.0 for users, to be followed by the 3.1 release in the first quarter of 1990. The C Network Compiler, the C Network Compiler/386 and NetWare Programmers Workbench with NetWare 386 v3.1 SDK are \$700, \$1,000 and \$4,000 respectively. No price on the end user version. And Novell has NE/2-32, claimed to be the first 32-bit Ethernet network server adaptor for NetWare 386, designed to take full advantage of the 32-bit implementations of IBM's Micro Channel Architecture and NetWare 386; and the Enhanced Disk Co-processor Board version of its DCB SCSI disk controller for AT bus NetWare file servers. No prices. Novell is currently working with Prime and others on Portable NetWare (UX No 221).

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X-Windows is pushing ahead into the non Unix environment - Control Data has now implemented Version 11 release 2 under the NOS/VE operating system for its Cyber 900 mainframe series: Unix workstation and other X-Window users will now be able to manage multiple windows when using Cyber mainframe applications.

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Meanwhile, IBM appears to be making very little noise about its X-Windows implementation for PC-DOS 3.3 users, which allows IBM PC or PS/2 users attached to a Token-Ring or Ethernet local area network to access X-Window applications running on an IBM AIX host system: IBM is also supporting the X-Windows client function on IBM System/370 machines running MVS and VM via its TCP/IP implementations for both operating systems.

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Evolving database technology is the subject of a forthcoming London seminar on Entity Relationship databases, to be held on May 22nd: seminar speakers include Peter Chen - "father of the Entity model" - and Peter Page, executive vice president of the UK division of German software house Software AG, which claims to be the first company to develop database software using the model.

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Information Builders Inc, author of the Focus fourth generation language and database, has announced availability of an interface between the Unix version of Focus and the Sybase SQL Server running under Unix: Focus is now available for Pyramid and Sun hardware, and will be available for other Unix processors that Sybase is porting to, including the IBM RT and Hewlett-Packard HP 9000 Series.

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Archie Thomas, vice president of Northern European Operations at Altos until his resignation last February (UX No 219), has re-surfaced as managing director of Altos distributor MBS Microtex following the departure of Peter Clair: MBS financial results for 1988 are expected to reveal a loss for the year, following poor mid-term results last October (UX No 200).

Dunlop Tyres International Ltd is to tread the Unix path following a decision to computerise its international enquiry and order processing systems - the firm has bought a Convergent S/320 from Unix systems supplier TIS Ltd, in an order valued at £120,000: Dunlop is to develop an office automation system using Informix 4GL.

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Nexpert, the expert system from Neuron Data, Palo Alto, California, (UX No 206), is now available right across the DEC range with a new release that supports DECwindows; Nexpert is available in the UK from Software Sciences, Farnborough, Hampshire, the DECwindows version costs £7,500.

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Iris Graphics of Bedford, Massachusetts, has interfaced its Iris 3024 high resolution colour ink jet printer to the Sun-3 and Sun-4 family of workstations: the printer allows "near photographic" quality colour images to be produced in sizes up to 24" x 24" using variable dot size technology, and will be distributed in the UK by Hi-Res Ink Jets of Hove, East Sussex.

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A Masters degree in Parallel Computing Systems has been introduced at Bristol Polytechnic's Transputer Centre: the 25 students on the one year intensive course began work in January, and use 12 PC hosted transputer systems, 17 Sun 3 workstations, and a Sun 4/280 hosting a Meiko Transputer Computing Surface at the Centre's teaching labs.

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MIPS Computer Systems Ltd says that Pick is already available on MIPS systems from VMark Software Inc, and that Mumps-on-Unix comes from Plus Five Computer Systems Inc of St Louis, Missouri (UX No 230): other third party software now available includes Mathematica from Wolfram Research Inc, and Designer C++, Oasys Inc's port of Glocksenspiel C++.

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Informix has begun shipping a French version of its Wingz graphics spreadsheet.

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RealWorld Corp is now shipping version 5 of its accounting package for Unix on Altos Series 500, 1000 and 2000 computers.

The European Unix Show (6-8th June at London's Alexandra Palace), will soon be upon us, and companies are beginning to talk about why they are there: Baydel Ltd, a new company based in Leatherhead, Surrey, intends to launch two new Unix platforms, a 386 25MHz upright micro and a Sun-based supermini, featuring fast Winchester disks up to a total of 2 Gb; Trinitec Plc will introduce version 2.0 of Interactive Systems' 386/ix merged Unix/Xenix product, as well as the new 80386-based Wyse WY-3225 system and enhancements to the Sun River range of fibre optic workstations; IXI Ltd of Cambridge will be showing a version of its X.desktop running OSF/Motif; British Telecom will be showing off its recently launched Motorola 68020 and 68030-based M6000 line; JSB will show the latest (1.6) version of MultiView for dumb terminals, and MultiView Desktop for graphical windowing; Arix will be introducing its long awaited System90 hardware for the first time in the UK; Acorn Computers of Cambridge will be giving its sub £4,000 Unix workstation its show debut.

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And the keynote speeches at the show will be given by David Tory, President and Chief Executive Officer of the Open Software Foundation (1pm on Tuesday), and Peter Cunningham, Chief Executive Officer of Unix International (1pm on Wednesday): the first day of the Uniform Europe conference will be taken up by The Instruction Set's Unix Directions seminar.

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JAPAN SIGMA PROJECT TO COMPLY WITH X/OPEN

X/Open Co Ltd scored something of a coup in Tokyo last week (UX No 231) by winning an agreement from the Information Technology Promotion Agency arm of Japan's Ministry of International Trade & Industry that future specifications from the national Sigma project would conform to the X/Open Common Applications Environment Portability Guide. The mission of Sigma - which stands for Software Industrialised Generator and Maintenance Aids project - is to develop a standard Unix workstation and set of tools and methodologies to achieve a vast improvement in the productivity of software developers (UX No 116). The agreement between X/Open and the agency ensures early exchange of information on the specifications of both parties through the establishment of a Joint Technical Study Work Group, where both parties will discuss possible common areas and their contents; the group will meet twice a year.

...AS OSF, UII ARE APPROVED FOR MEMBERSHIP

Both the Open Software Foundation and Unix International Inc applied for, and were accepted for membership of X/Open at the X/Open board meeting in Japan last week, as anticipated (UX No 231). X/Open President Geoff Morris said that the move "simply reflects market forces - customers are demanding systems from different vendors that work together, and X/Open membership carries with it a commitment to develop such systems". Although both groups had previously expressed their intentions to comply to X/Open guidelines, membership of X/Open will provide a new channel for further negotiations between the two groups. OSF spokesman David Chinn, interviewed at the Multi User Computer Show in Toronto last week, said that it "would foster a greater interaction between the two groups". And as Chinn pointed out, interaction at workgroup level is already going on: the Unix International workgroup on multi-processing, headed by Gerry Popek of Locus (UX No 223) is working with OSF members on the team, according to OSF chief David Tory.

SOLBOURNE KEEPS PACE UP WITH MORE MULTI-PROCESSORS

Only weeks after its last hardware launch (UX No 223), Solbourne Computer Inc, Longmont, Colorado, is hotting up the pace yet again with more Sparc-based servers - the Series 4/530 and Series 4/670 - compatible with Sun Microsystems' recently introduced Sparcserver 300 series. The 4/530 workgroup server is a 5-slot under desk processor for up to two Sparc processors for 17 mips performance, 16-40Mb memory and up to 2.6 Gb storage. Then comes the 4/670 departmental server, housing up to four Sparc processors for 30 mips performance with 16-80Mb memory, up to 2.6 Gb of SCSI disk storage. And Solbourne has extended the SMD disk storage of its top-end Series4/800 desktide model by four times to 13.3 Gb, and lowered the prices of its Series/600 servers by around 17%. The company, which plans faster Sparc-based systems in the third quarter, has also set up an office in Toronto, and is currently setting up its UK operation.

MULTIFLOW NEEDS CASH AS ADAGE MERGE FAILS

The future of Multiflow Computers Inc, making very long instruction word minisupercomputers in Branford, Connecticut, is uncertain following the collapse of its plans to reverse [into publicly-quoted workstation maker Adage Inc, Billerica, Massachusetts. The two companies announced in March that Adage agreed to issue shares for Multiflow that would leave holders in that company with 60% of the enlarged equity (UX No 224) but some of Adage's investors were unhappy at the terms, and according to Electronic News bought up 19.8% of the equity to bring pressure to bear to have the deal annulled. The group wants Adage, which has \$20m in cash but is losing money, to take on a less risky company to secure its own future. Multiflow admits it would find it difficult to raise another round of venture capital, but might conceivably find succour from its Italian distributor, Ing C Olivetti & Co SpA, which has operated a large venture capital fund of its own since 1980.

PYRAMID REVEALS MIPS OEM DEAL

Pyramid Technology has signed an OEM agreement with MIPS Computer Systems Inc for the M/120 and M/2000 server products in a deal said to be worth around \$20m over the next three years (UX No 230). Pyramid will re-badge the machines, which use the MIPS R2000 and R3000 RISC processor, as the MIS-1e and MIS-1 office server. The machines are rated at 13 and 20 mips, and according to Pyramid Vice President of Marketing Edward Scott, are there to round out the low-end of the Pyramid line. UK prices start from £34,000 for the low-end machine (expected to attract the most interest), and £160,000 for the top-end machine. Pyramid claims to be MIPS' largest OEM for system level products.

UII AND USO TO MERGE?

Speculation is mounting about the possible merger of Unix International Inc and AT&T's Unix Software Operation, which it separated off from the Data Systems Division at the beginning of the year (UX No 214) - and sources say that AT&T is currently negotiating to give all of Unix away to Unix International. AT&T is currently thought to be losing around \$50m a year from its Unix operations, and would like to cut the apron strings if it thought Unix International could survive on its own - but Robert Kavner is said to believe that Unix International is not ready to receive all that AT&T could give it. Unix International president Peter Cunningham denied that any active negotiations were going on, he agreed that "one day Unix International and the Unix Software Operation could become one public body". If in a year or so Unix International meets certain criteria on an operational level, said Cunningham, the merge could be on the cards - "that's not a bad strategy, is it?". Meanwhile, Unix International is rather summarily dismissed by OSF chief David Tory as "a user group that directs the Unix Software Operation to the extent that USO accepts it".

FUJITSU HAS 68030 UNIX LAP-TOP

Fujitsu Ltd has plunged into the embryonic market for lap-top computers running Unix in Japan with the launch of the G-150 models 10 and 30, which are 68030-based portable versions of the Facom G-100 series engineering workstations. The box include detachable keyboards and a front-mounted 3.5" floppy drive, a 768 by 576 pixel backlit black and white liquid crystal display and a built-in 60Mb or 135Mb Winchester. Several software packages will be bundled with the laptops, including Fujitsu's Epoword-G Japanese language word processor, the Epocalc-G spreadsheet, and its SX-G version of Unix. It will also include an OCR Entry utility for optical character recognition, and Fairs Partner information retrieval software. Prices for the G-150LT are \$6,590 for the model 10, \$9,925 for the 30 with ships in August. Fujitsu sees 100,000 G-100 sales, with 30,000 of them lap-tops, over three years.

MITEK HELPS CONVEX WITH SNA INTEGRATION

Convex Computer Corp, the one truly high-flying minisupercomputer manufacturer - based in Richardson, Texas, has turned to Mitek Systems Inc in nearby Carrollton, to help it get its machines integrated into IBM sites. It has signed a joint marketing agreement on Mitek's OpenConnect communications products and services, which will provide users with transparent access to Convex minisupers from an IBM Systems Network Architecture net, with support for bi-directional logons and file transfers; emulation of IBM and non-IBM terminals; full screen editing, and other communications functions. Mitek is pleased to add the Convex C-series machines to the ones it supports, while for Convex, the agreement complements the Covue facilities it offers for enabling DEC VAX users to integrate its machines into its networks. Convex was founded - as Parsec - in 1982 by members of the team that created the original 32-bit Eclipse MV for Data General Corp, immortalised in Tracy Kidder's book Soul of a New Machine.

320 JOBS ARE LOST AT THE BIG NEW ENCORE

Encore Computer Corp has now completed the acquisition of Gould Computer Systems (UX No 223), which now changes its name to Encore, adding the Multimax range of parallel microprocessors alongside its NP-1 superminicomputers. And having wrapped this up, Encore has wasted no time in sorting the company, and says that about 320 Gould jobs will be lost worldwide. The NP-1 development operation in San Diego is being closed, with the loss of 105 jobs, although some of the staff may be offered transfers to Fort Lauderdale, Florida. The NP-1 line of Unix superminis will continue, with a variant of the Encore Multimax being adapted to become the NP-3, and sales forces for the NP and Multimax will merge in Fort Lauderdale, to be Encore's corporate headquarters. The Concept line of real-time minicomputers also continues, with a new Seahawk model, aimed at flight simulation, set for the third quarter, according to Computer Systems News. Encore will likely lose many of its admin staff in the move from Marlborough, Massachusetts, although most of the research and development and manufacturing operations will remain there. Jobs will also be lost in Puerto Rico. Gould's UK branch in Sutton, Surrey, becomes Encore Computer (UK) Ltd.

OMRON PICKS MACH UNIX FOR QUAD 88000 WORKSTATION

Omron Tateishi Electronics Co, best known for its electronic cash registers, has set the Unix world in Japan on its ears by announcing that its Motorola 88000-based workstation will be Japan's first multiprocessor to run the new Mach implementation of Unix from Carnegie Mellon University. Mach is a back-to-basics version of Unix that strips the kernel down to a lean core of essential code, and is designed for multiprocessors. The new workstation will use four 88000s, and is rated by Omron at 60 MIPS to 70 MIPS, leading to the claim that it will be the fastest from a Japanese company. The company's first foray into the Unix world was the low-cost Luna workstation, launched last year, which runs Unix System V and the new box will be able to run Luna programs.

INSIGNIA SHOWS SOFTPC FOR 88000

880open held its first Japanese meeting in Tokyo at the end of April, and reports that more than 100 hardware and software companies attended. And in May, the group met again in Stockholm, where Insignia Solutions Inc was amongst those companies making presentations. Insignia, which has offices in London and Sunnyvale, California, revealed a version of its SoftPC MS-DOS emulator for the Motorola 88000 chip, which will be available later this year following 880open compliance testing. Insignia developed the port to conform to 880open's Binary Compatibility Standard for the processor, using a Motorola 88K Delta board, and Insignia vice president Ivor Share said he expected that most 880open software initiative members would use the package. Performance of MS-DOS software running under the emulator depends on the soundness of the overall hardware design, according to Share but "would never be worse than a 386-based AT". Currently, Data General, Sanyo/Icon, and Opus Systems Inc have launched 88000-based hardware systems. Insignia's SoftPC is also available on Macintosh, Sun, Motorola 680X0, Hewlett-Packard 9000, Tektronics, Integraph, DEC VAX and Silicon Graphics hardware.

REUTERS PICKS SONY'S NEWS

Reuters Japan Ltd has picked Sony Corp's News Unix workstation as the basis of an advanced terminal for financial analysis and trading, and has signed Sony to develop a custom version for first quarter 1990. It will be bilingual and offered for use with the Reuter Triarch 2000 digital information network and is also to interface to other systems.

LOGITEK TAKES ON NCD X TERMINALS

Logitek has been appointed the sole UK distributor of the NCD16 network display station from Network Computing Devices Inc of Mountain View, California (UX No 197). The NCD16, recently the subject of OEM deals from Pyramid Technology and Stellar Computer Inc, supports X-Windows with its own 12.5 MHz 68000 processor with up to 4.5 MHz of RAM, and a graphics co-processor. It has a 16" monochrome monitor with 1024" x 1024", 105 dot per inch resolution: "most of our competitors have misjudged the screen requirements of the new market", says the company's director of product development, John Chapman. Price in the UK will be £2,195 for the 1Mb version. The station is the first in a family of similar products, with colour versions expected later this year.

IBM BACKED TRANSARC CORP TO EXPLOIT ANDREW DISTRIBUTED FILE SYSTEM

IBM has a "substantial stake" in a new Pittsburgh company, Transarc Corp, formed to exploit the Andrew File System, one of the fruits of the eight-year IBM-backed development effort into shared computer resources at Carnegie Mellon University that was a key contributor to development of the IBM RT Unix workstation. President of Transarc is Alfred Spector, former director of the Information Technology Center at Carnegie Mellon and associate professor at its School of Computer Science. Transarc will specialise in system software for local and wide-area networks of distributed computers - the Andrew File System is a means of creating distributed databases over wide as well as local area networks, and its Nationwide File System variant is claimed to support access to remote files at local network speeds - up to the 1.544Mbps of T-1 digital lines (UX No 195). The Andrew File System includes an Andrew Toolkit and Andrew Messaging System and promises transparent, secure access to multiple file systems US - or worldwide. It is described as "the embodiment of a large distributed abstract data type, providing distributed services for a powerful, though limited type of database". Why Andrew? It was the Christian name of both Mr Carnegie and of Mr Mellon.

SUN BETTERS PRICE, COMMS ON 386i

Sun Microsystems Inc has been somewhat surprised at the level of success achieved by its 386i workstations, and last week it announced several enhancements - and cut prices - to keep up the momentum. Key to the enhancements is a 20-fold improvement in the AT bus interrupt response time so that the machine can communicate effectively with networks of personal computers, as well as speeding up the interactive MS-DOS performance, with better keyboard, mouse and screen response on the 80386-based Unix station - MS-DOS is supported under Unix via Phoenix Technologies Ltd's VP/ix product on the Sun stations. The 386i will now therefore support Novell NetWare and 3Com 3+ local nets, and support for NetWare 2.1 running over Ethernet or Token Ring networks, and 3+ networks running over Ethernet will be included in SunOS 4.0.2, set for release in July. The price cuts are 10% to 15% on complete configurations, which now start at \$9,000 for a 4Mb 20MHz CPU, 15" 1,024 by 768 mono screen and 91Mb disk: the 386i has as standard Ethernet, SCSI controllers and 80387 floating point chip. A 25MHz 8Mb Sun386i/250, with 16" 1,152 by 900 colour VDU and 155Mb drive is cut 12% to \$18,500. In the UK, price cuts averaging 8% were affected back in April, with an entry level model with 4Mb memory and 91Mb disk costing £7,400: SunOS, SunView windowing, DOS Windows and ONC/NFS networking software come standard.

CRAY SPINS OFF CRAY 3 DEVELOPMENT

Cray Research Inc has announced that it is to spin off the Cray 3 development effort of its founder, Seymour Cray into a separate company, Cray Computer Corp in Colorado Springs, Colorado. About 90% of the shares in the new company will be distributed to Cray shareholders with Cray Research retaining 10%. Cray Research retains the Y-MP, X-MP, their C-90 successor development, and the Cray 2. The new company will take 200 of the 5,400 employees, about \$50m in facilities and other assets - about 5% of the parent's total, and Cray Research promises to fund the GaAs Cray 3 development to the tune of \$100m over two years, and says it expects that to be enough to complete the work. There will be comprehensive cross-licences between the two companies. Cray's explanation for the move is that it can't really afford to support development of two competing lines. Observers reckon either that Cray Research wants to merge with another company, and Seymour Cray wanted no part of it, or that some Cray top brass are sceptical of the GaAs Cray-3 and want to insulate the firm from any failure. Seymour Cray says he hopes the new company will be able to demonstrate "that the computer will work by year-end: in 1990, we'll deliver machines to customers". Meanwhile, the company revealed last week that business in the current quarter will be "significantly below" last year's second quarter net profits of 61 cents a share, and that it "is very concerned about how the year is shaping up".

* Separately, Cray has agreed to support Control Data ETA customers: Cray will market its supercomputers to CDC customers and will explore possible product links between Cyber mainframes and Cray's supercomputers.

NCR, PHILIPS TAKE OSI UNIX PRODUCTS FROM RETIX

Communications specialists Retix Corp of Santa Monica, California, has introduced a new family of Open Systems Interconnection products aimed specifically at the Unix market. The Osix line of products includes X.400 electronic messaging, File Transfer, Access and Management (FTAM) and transport layer products for both local and wide-area networks. Running as processes in the Unix environment, the product uses the common AT&T Transport Layer Interface of Streams. The company has binary versions aimed at 80386-based systems running Interactive Systems' 386/ix, and plans a Motorola 88000 binary version by the end of the year: but it will also provide source code versions for OEMs wishing to integrate it within their own Unix platforms. Osix products will support standards such as MAP, TOP and Posix, and can conform to functional specifications such as the Government OSI Protocol (GOSIP). Osix has already been licensed by NCR, Philips and other unnamed companies, according to Retix, and Lachman Associates in the US will resell the product line. Prices start at \$295 for the binary OSI transport products, and \$395 for the OSI applications software. Formed in 1985, Retix claims to have licensed Retix OSI products to over 100 computer and communications vendors worldwide, and also ships Ethernet bridges. Future plans include the X.500 distributed directory service and virtual terminal remote log-in for Unix systems, both promised for the fourth quarter of this year. Retix Europe, based in West London, plans to show the product at the European Unix User Show in June.

SILICON VALLEY SOFTWARE MERGES WITH TRIO

Software tools start-up Trio Software Systems has announced that it will merge with troubled Silicon Valley Software, a developer of Fortran, C and Pascal compilers for Motorola, Intel and National Semiconductor processors. Silicon Valley will continue to operate as a wholly-owned subsidiary from Trio's San Mateo, California-based headquarters. The move will strengthen the marketing resources of the 10-year old company, which has sold over 250,000 compilers to customers such as IBM, NCR, Texas Instruments, Unisys, Arix, Sequent and Hitachi. The company has been working on a compiler set for RISC CPUs and says it will make specific announcements shortly. Trio, formed last year, says it is working on the development of user programming tools and direct manipulation programming "that will require a strong component of compiler technology", according to chief executive officer Beau Vrolyk. Silicon Valley Software was re-structured in January, and more recently was to be acquired by Microtec Research Inc (UX No 226).

MIPS CUTS PRICES

Mips Computer Systems Inc has cut the prices of its server products in the US by an average of 18%. Base level M/120 servers now start at \$30,000, while the top-end M/2000 server range starts at \$83,000 for a 16 mips machine with 16Mb memory and 328Mb disk. Mips also cut memory prices for the servers by up to 22%, due to reducing DRAM costs. costs, by an average of 18% in the US.

VIEWDATA PORTS WORKVIEW CAE SOFTWARE TO SUN, DEC

Unix is fast becoming the clear standard for technical computing applications, even on the desktop, according to Sal Carcia, founder of the Marlboro, Massachusetts-based computer-aided engineering company Viewlogic Systems Inc. The slow development of PC operating systems capable of taking full advantage of Intel's newest generation 80X86 processors has left a window open for Unix, says Carcia, and accordingly Viewlogic is re-positioning itself to focus on Unix versions of its Workview software, which previously was available mostly for the PC-based desktop CAE market, although DEC VAX versions are also available. Workview Series II will now become the company's flagship product: it is already available on the new range of Sun workstations announced last month, including the Sparcstations, and Viewlogic will be announcing its next hardware platform - the DECStation 3100 - at the major Design Automation Conference and exhibition, to be held in Las Vegas towards the end of June. Beyond that, Carcia says Viewlogic will be ported to AIX for the new IBM RT, due out later this year, and eventually back to desktop PCs running Unix. The main motive for the switch to Unix is to allow the Series II software to take advantage of facilities such as virtual memory, multi-tasking, and networking. But OS/2, which could offer many of the same facilities, is not currently under consideration. "Every day that goes by, OS/2 is losing ground", says Carcia. "We are keeping an eye on OS/2, but going with Unix".

Integration

Formed in 1984, Viewlogic targets the world's top 200 electronic companies as its customers, and now has 4,000 systems installed at organisations such as DEC, IBM, AT&T, Intel, Harris and Unisys, and in Europe British Telecom, British Aerospace, Telefunken and Ericsson. Just as Daisy, Mentor and Valid gained their entry into the CAE market when Computervision and Amplicon, in the words of Carcia "diluted their resources by moving into mechanical design", so Viewlogic sees a similar opportunity as the newer companies follow the same path, extending their product lines to computer-aided design and manufacturing. Viewlogic says it will retain its CAE focus, and hopes to strengthen its position by opening up its software to allow integration into other CAE and CAD environments. The key elements in this strategy include support for X-Windows, the Ada-like VHDL hardware description language developed for the US Department of Defense and now an IEEE standard, and the Electrical Design Interface Format designed for swapping technical data between systems. Workview Series II is for designing analog, digital and mixed analog/digital designs, and at the Design Automation Show new elements are planned, including a new hardware modeller bought in form Milpitas, California-based Logic Modeling Systems Inc, a new schematic logic synthesis module, and fault analysis. OEM agreements for its software from Harris and Intel Corp are also expected to be announced. Viewlogic now employs 140 people and has sales approaching the \$20m mark.

THOMSON COMPUTERS SETS OUT SOFTWARE STRATEGY FOR THE 1990s

Thomson Computers, the York, UK-based software house responsible for the development of the Sea-Change family of 4GL and applications generator tools, says that following its £750,000 re-funding at the end of last year from venture capital backers Renaissance Holdings (UX No 209), it has now received "further substantial investment" from the same source, and so is now in a position to reveal its product strategy for the next three years. The promised OS/2 version of Sea Change will be released "during 1989", said the company, and its multi-database access model (UX No 205) will be extended to add support for Oracle databases, and more efficient read/write implementations of the current C-ISAM, Informix and Ingres interfaces. Early in 1990, Thomson plans to add an SQL module to the Sea Change applications generator, and will un-bundle its multi-database package (including SQL) as a separate package available to third parties. Work is also continuing on a user interface that will support X-Windows, MS Windows2 and Presentation Manager. New modules such as an applications modeller and further accounting templates for purchase order processing and multi-currency will be added. Long-term plans will focus on an object oriented application development environment covering "all aspects of the software development lifecycle", and due for prototyping at the end of 1990. This will be Thomson's "major product platform for the mid 1990s". Currently answering the telephone as "Sea-Change", the company says it is currently considering whether or not to change its name to reflect its product line.

CIMLINC SIGNS WITH SOLBOURNE

Cimlinc, the Elk Grove Village, Illinois based software firm has signed new sales and marketing agreements with Solbourne Computer, Network Computing Devices and Visual Technology. The deals are part of Cimlinc's X-Window strategy, (UX No 209), and the company is now in the process of porting all its CIM and mechanical CAD/CAM software to the X-Window environment, starting with its Intelligent Documentation software which automates the gathering, formatting and distribution of textual and graphics information on a network. ID is now available on the Solbourne Sparc clone series of workstations and X terminals from NCD and Visual Technology, in addition to Sun and Hewlett Packard systems.

PARSYTEC HAS NEW PARALLEL C COMPILER

Farsytec GmbH, Munich, West Germany, which has a parallel super-computer built upon the Inmos transputer, is to release a parallel C compiler, Par.C, developed by the Dutch company Parsec. The intention is to give transputer programmers an alternative to working in Occam, although the parallel features of Occam have been embedded in C extensions. Par.C has a special runtime library, consisting of a mini-kernel running on each transputer in the network, containing message passing utilities, memory management and some error handling. This allows the size and configuration of the network to be changed, whilst programs run the same, without having to be re-compiled or re-linked. Par.C itself is written in standard C, the firm says it will be upgraded to recognise all additions to the ANSI C standard, and it can be compiled to run on any host machine, including the transputer. Par.C also translates a number of added keywords, enabling the programmer to use parallelism without having to learn a new language. This method was chosen because Par.C generates optimal code without too many function calls, and putting parallelism directly into the C source code makes things a lot clearer to those writing, re-writing and debugging programs. Parsytec is distributing Par.C as a package running under the Helios Unix like operating system from Perihellion Ltd, and Megatool and other versions are also available.

TIS, MENTOR BUYS "JUST THE BEGINNING" AS MISYS SEEKS NICHE PLAYERS

The UK software group Misys Plc of Stratford-upon-Avon last week announced the acquisition of TIS Ltd and Mentor Systems Plc (UX No 231) which are valued together at just over £39m, or 9,636,860 Misys shares. Misys is paying up to £26.5m in shares for TIS Ltd and TIS Computer Maintenance, on terms that value the Convergent distribution business at nine times and the maintenance business at 15 times historic earnings. It is paying up to £12.5m for Mentor Systems Plc, which is forecasting profits of £1.7m for the year to September, for a prospective price-earnings multiple of about 11. The move probably makes Misys the largest and most profitable Unix computing services groups in the UK, since it more than doubles its £17m turnover - a figure based on the annualisation of its last reported turnover for the half to November.

The TIS companies, with a current total turnover of approximately £15m, operate in the Thames Valley area. TIS Ltd distributes Unix boxes by MIPS Computer Systems Inc and the Convergent arm of Unisys Corp, mainly through a network of 80 value added resellers who sell into niche markets in areas such as the Health Service and the construction industry. The fact that it has this niche market basis is important to Misys chief Kevin Lomax as it spells security of income. Another attractive proposition that TIS Ltd offered to Misys is its exclusive distribution deal with MIPS, under an agreement that it hopes will be extended beyond this September. Indeed, it would be fair to say that Lomax is delighted with the access TIS gives the group to the MIPS RISC architecture. One of the first things to be done through the TIS/MIPS connection will be to put a Wang-compatible office automation package up under Unix and thus be in a position to get a hold on the Wang Laboratories user base. The other side to TIS is TIS Computing Ltd, which provides a maintenance service for TIS Group customers, and has recently expanded to cover various Altos Computer Inc dealers and end users, a fact which helps tie in Misys' other company now in the Unix market, BOS Group, a user of Altos hardware. TIS also has its own applications division which has developed several successful accounting packages for customers in the housing association, catering and field maintenance sectors. Consequently, TIS is seen as the kernel of Misys' Unix push, since it will now now constitute its source of supply for total Unix solutions, or as Lomax says, it is the group's own little IBM. TIS chairman Gordon Skinner expressed himself "delighted" with the move. "Although we have just had our most profitable year, the merger means that TIS will be able to grow even faster and tender for larger contracts".

Mentor the first Unix niche player

The acquisition of Mentor Systems Plc, however, points the direction of the group's acquisition policy over the next year when it will be forging ahead, buying up niche market systems companies in the Unix arena. For Mentor, with a current turnover of £6m, is an example of the type of house that Misys is now hunting. It deals in high end technical software, and has strong accounting packages for the construction industry. At present it has a user base of 300 with products like Contractor, which is used by companies such as Alfred McAlpine and the Bryant Group on hardware by Hewlett-Packard, NCR, ICL and Convergent Technology. Lomax plans to expand Mentor's packages into the low end of the niche market to take bites out of the Tetra and Multisoft market. And, after all this acquisitive activity, Misys now has a coherent divisional operating structure which comes into effect next month. The group now officially has a financial services sector (Misys Dataller, BaseSys), a business systems sector (BOS, Zygol Printers, Modular Technology, ICC), a solutions sector (CPP, CHA, CHA Communications, Mentor), and an Open Systems sector (TIS companies).

OEMs FAVOUR INTEL'S MODEL 303 AS UNIX FILE SERVER

The Hillsboro, Oregon Systems Division of Intel Corp has diversified into a new market with a range of AT-compatible 80386-based machines that are powerful enough to be converted into high-performance network file servers. The new model, better known as the MicroComputer Model 303, has 10 expansion slots, a 33MHz 80386 motherboard, 4Mb of main memory, and 64Kb of cache memory, along with eight half-height peripheral bays to support the increased storage demands of high-performance applications like servers, CAD/CAM and graphics. Intel is marketing the Model 303 to OEM customers that are reselling them into the general market, bundled with third-party software and peripherals, as a file server in a pedestal or desk side configuration for business and technical applications, according to Electronic News. One such OEM customer using the pedestal Model 303 and the upcoming 80486 model as a file server is the Seattle, Washington-based subsidiary of MicroAge Computer Corp, PGI. This company buys the processors from Intel, bundles them with additional hardware from Altos Computer Systems and Mitsubishi Electric, adds software, and then resells the kits to more than 400 value added resellers in the business and technical communities. It is converting the 303s into file servers by adding Unix-based operating systems and communications hardware and software, and claims it will have such file servers available in July, with an 80486 version ready by late in the first quarter of next year. Other OEM customers believed to be interested in the 303 include Unisys Corp and AT&T Co. However, Unisys' only comment on the situation was that it would incorporate Intel's 33MHz 80386 and 80486 in future workstation products, but declined to say whether it would also buy the Model 303. AT&T is widely believed to have closed a multi-million dollar OEM deal for Model 303s too.

XEROX ADDS TCP-XNS GATEWAY SUPPORT

Xerox Corp has announced the marriage of its Xerox Network Systems with the standard Unix networking facility to create Xerox TCP-XNS Gateway Service, offering mail, file transfer, printing and terminal emulation operations between XNS and environments using TCP/IP. A Xerox External Mail Gateway-X400 enables users on XNS networks to exchange electronic mail with public and private X400 systems. The company also announced an IGES 4.0 Graphics Conversion capability for new Xerox engineering graphics applications, enabling them to import and export graphics data from other programs. And the company has an 80386 co-processor for its 6085 Professional Computer System and enhanced local network capability for MS-DOS micros, so that users can switch "almost instantly" between MS-DOS and Xerox ViewPoint electronic desktop, and use a variety of methods to swap data between MS-DOS and ViewPoint applications. TCP-XNS Gateway Service is \$6,000, X400 gateway \$10,000, 80386 board \$4,000 and Ethernet-to-XNS XNS PC Plus 2.0 \$250; all available third quarter.

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3Com Corp says that the Ashton-Tate-Microsoft-Sybase SQL Server has been certified by Ashton-Tate for compatibility with 3Com's 3+Open LAN Manager network operating system: this means, reckons 3Com, that 3+Open customers can use their personal computers for complex data processing tasks, such as handling airline reservations or doing sales order entry.

- 0 -

Buried in IBM's mountain of recent press releases is the news that its AIX family of Unix operating systems are to comply with the Issue 3 of the X/Open Co Ltd Portability Guide - but don't hold your breath, because it will be the third quarter of 1990 before IBM starts to offer X/Open base level-compliant AIX operating systems on all new AIX releases and the AIX computers they support at that time: compliance covers Commands and Utilities, System Interfaces and Headers, Internationalisation, and C.

- 0 -

LSI Logic Corp, fabricating versions of both the MIPS Computer Inc and the Sun Microsystems Inc RISCs, has formed separate MIPS and Sparc divisions, and has tapped Gene Hill, who headed the engineering and design efforts for the 80286, 80386 and 80486 at Intel Corp to head the Sparc division; Brian Halla, vice-president of the Microprocessor Products Group, will head the MIPS group on an acting basis.

- 0 -

Hewlett-Packard Co has acceptances with respect to about 97% of the shares of Apollo Computer Inc in response to its \$13.125 cash tender offer and expects to complete the acquisition of the firm by May 22.

- 0 -

And Minnesota Mining & Manufacturing Co has ordered 50 HP3000 Spectrum RISC models from Hewlett-Packard in a contract worth more than \$15m. The Models 925, 935, 950 and 955 are to replace many of 3M's 16-bit HP3000s - it has 133 of the things - over the next 15 months, and the order is a vindication of Hewlett's high-stakes gamble to move most of its computer product lines to the RISC.

- 0 -

IXI Ltd of Cambridge, and Unix Systems Magazine will be conducting a referendum on Unix user interfaces at the forthcoming European Unix User Show in June to find out which version is most popular with users - a similar survey at the recent UniForum trade show in San Francisco resulted in a marginal win for OSF/Motif (UX No 224): voting forms will be available on both stands and in the first day's show newspaper.

8700.

A steady trickle of IBMers who have left the company as true believers in Unix after working on development of IBM's RT and finally thrown in the towel over the company's failure to bring out RT models in the timeframe for which they were designed made it clear that all was far from well at the company's Austin, Texas Advanced Workstations Division, and evidence that nothing has improved comes with the news that 14-year IBM vet Charles Sawyer, most recently a senior technical staff member working on AIX Unix, having before that worked on the RT software system architecture definition, has followed IBM Fellow Glenn Henry to Dell Computer Corp, also based in Austin, to take the director of product planning post.

- 0 -

Siemens AG and Unisys Corp has signed a "PABX & Computer Teaming" worldwide alliance for non-exclusive co-operative development and marketing of integrated speech and data products, and both companies have committed to support standardisation for Computer Supported Telephony Applications: Unisys will initiate development of a telephony Applications Programming Interface for Unix machines, and as well as linking their hardware and applications, the two will team on network management - Siemens has already signed similar agreements with DEC, Hewlett-Packard and Mannesmann-Kienzle

- 0 -

In an effort to popularise its massively parallel Connection Machine, of which it has sold 35 in the \$5m-to-\$10m CM-2 64,000 processor incarnation, Thinking Machines Inc, Cambridge, Massachusetts has come out with two small-scale models of its Single Instruction Multiple Data machines. The CM-2a Model 4 has 4,096 processors and will cost \$500,000, the CM-2a 8,192 CPUs and be \$1m: the very simple processors are packed 16 to a chip and are linked by an internal packet-switched network. Thinking Machines also announced agreement with DEC for integrating its CM-2s with VAXes.

- 0 -

Turns out that the reason that HBB Electronics Inc, which came with Daisy Systems Corp's Cadnetix Inc acquisition, kept its own identity in the merger (UX No 230) was that the computer-aided engineering business was on the block - and the buyer looks to be the UK's Racal Redac Ltd, Tewkesbury, Gloucestershire subsidiary of Racal Electronics Plc: Redac has signed a letter of intent to pay \$19m for HBB, but the talks have been going on for some time and could still collapse.

Things are even worse at Norsk Data A/S than it had previously suggested, and it has restated the provisions given in its preliminary figures - now putting the figure at the equivalent of \$6.8m against about \$39m in January: the company says that restructuring has been more far reaching than it had planned, but business has not picked up - new orders in the first quarter were \$84.8m, down from \$96m this time last year, it lost money in the first quarter and will lose more in the first half; separately, Norsk Data announced that has formed its Comtec publishing and printing systems unit into a separate company to give it more autonomy.

- 0 -

Businessland's Advanced Systems Division vice president Kevin Compton was quoted by Microbytes recently as saying that his retail chain would have "no trouble" selling \$100m worth of NeXT Inc computers over the next year: he scoffed at suggestions that NeXT would not be able to manufacture that many systems by claiming that NeXT are "better prepared than a lot of big, established companies".

- 0 -

Crawley, Sussex-based Rediffusion Simulation Ltd has been growing apace since it was acquired by General Motors Corp's Hughes Aircraft Inc, and production capacity at Crawley has expanded 40% over the past three years as demand for its computerised flight simulators soars: now the firm is to establish a new systems engineering base in Glenrothes, Scot land and assemble propeller aircraft simulators for US customers in Tulsa, Oklahoma: the company uses Unix hardware from Sun Microsystems and Charles River Data Systems alongside its Gould Unix and MPX mini-computers.

- 0 -

Arix Corp, San Jose says that Douglas Davis is quitting as president and chief operating officer "to pursue personal objectives": chairman and chief executive Eugene Manno adds Davis' posts; Davis says he will consult for Arix for a spell.

Arix Corporation UK 491 576361.
Cadnetix UK 793 513400. Cray US 612 333 5889. Encore Computer Corp US 508 460 0500. Fujitsu UK 628 76100. IBM US 212 848 2737. IXI Ltd UK 223 462131. Insignia Solutions US 408 446 2228. Intel Corp US 793 696 1000. LSI Logic US 408 263 9494. Logitek UK 257 426644. Mips Computers US 408 720 1700. Mitek Systems US 619 566 7125. NCR US 513 445 5000. Network Computing Devices US 415 694 0650. Norsk Data Norway 472 626 1000. OSF US 617 621 8772. Omron Tateisi Electronics JAPAN 75 951 5111 9100. Pyramid UK 1 222 8515. Racal Redac UK 684 294161. Rediffusion Simulation UK 293 28811. Reuters Holdings PLC UK 324 8481. Siemens UK 932 785 691. Silicon Valley Software US 408 725 8890. Solbourne US 303 772 3400. Sony Germany 010 49 221 59 66532. Sun Microsystems US 415 960 1300. TIS UK 628 810909. Thomson Computer UK 904 611666. Unisys UK 1 965 0511. Unix International Inc US 201 263 8400. Xerox US 203 329

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HEWLETT SETS 68040 BOARD UPGRADES FOR HP, APOLLO KIT

Hewlett-Packard Co is promising users of both its own and Apollo Computer's 68030-based workstations board-level upgrades to the 68040 processor when it is available in quantity from Motorola Inc. The company said that Apollo, running as a Division in its present headquarters in Chelmsford, Massachusetts, would be part of the Workstation Group, based in Sunnyvale, California. All the current Apollo products will continue, but a merger-management organisation has been created to speed the process of integrating Apollo, its products, people, processes and organisations into one unified business. It named its own man, David Perczek, who joined Hewlett in 1973 and was most recently general manager of the imaging and obstetrical care unit, to succeed Thomas Vanderslice as general manager of the Apollo Division. The first Open Software Foundation-compliant operating system from the company should come out next year.

NCR ADDS NEW MULTI-PROCESSOR TOWER - PREPARES FOR 68030

NCR has filled out its top-end system range with a new model, the Tower 32/825. Supporting up to 256 users and 128Mb memory, the new machine can be configured with from one to six 30MHz 68020 application processors, and fits between the existing Tower 32/650 and the top-of-the-range 32/850. Each application processor has 40Kb cache memory and Motorola 68882 floating point co-processor, and the "slim-line", 10 slot cabinet includes a "plug-in" design of integrated disk and tape units, eliminating cabling and making field upgrades and repairs easier. UK list price for the new system is £62,500 for an entry-level 32-user configuration, available from September. And a 20-slot, 68030-based version of the 32/850 is currently in the works, according to an NCR source.

IBM MARKETS IMAGE PROCESSING SOFTWARE FOR RT, PS/2s

IBM is quite excited about the image processing software that it has agreed to market from Image Business Systems Corp, New York. ImageSystem is described by its developer as a local area network-based document-handling imaging application that runs on the RT under AIX Unix. It enables the RT to serve as an independent file server for PS/2s - or any personal computers running MS-DOS - linked together on an IBM Token-Ring or Ethernet local area network, and as a gateway to an IBM mainframe. It is designed for applications such as claims processing, invoicing and accounts receivable reconciliations - transaction-oriented business applications where imaging and OCR can help overcome paper bottlenecks, and Image Business Systems reckons that implementations typically begin as cost saving or productivity programs, but generally bring customer service and other intangible benefits as well. ImageSystem comprises CentralStation, which runs on the RT and provides central tasks such as file management, and TaskStation, ScanStation, OCRStation and DeviceStation software running on PS/2s on the LAN. It is designed to provide a customisable software architecture for creating integrated image-oriented business applications. The components support image capture, optical character recognition, file folder and work queue management, as well as text, data, and image manipulation. It needs AIX 2.2.1, C and AIX/NFS Network File System on the RT, plus the Sybase relational database manager.

NEW RT "DELAYED UNTIL NEXT YEAR"

IBM really does seem determined to marginalise the RT, which would explain the steady trickle of top talent quitting the Austin, Texas RT development base for other companies that are more expeditious in matching their lip-service to a belief in Unix to action: Electronic News hears that the next generation of IBM's RT Unix box may not now ship until the first or even the second quarter of next year - on the specious grounds that the present RT is really doing quite well in general business markets, and IBM doesn't want to kill it off while it is still generating revenue; the fact that the RT has failed completely in its intended role of engineering workstation, and that a machine that was designed for launch around now will be hopelessly uncompetitive a year from now suggests strongly that IBM is determined the RT shouldn't become more than a footnote in IBM's line.

SONY'S MIPS STATION OUT IN JAPAN

Word from Japan is that Sony Corp has launched its first MIPS Computer Systems Inc RISC-based machine as the RISC NEWS, and claims for it a higher performance than the equivalent Sun Microsystems and DEC RISC machines. It uses the top-end R3000 chip is the basis of the a new, top-of-the-range series called the NWS-18000, rated at 20 MIPS by Sony, compared with Sun's Sparc line at 16 MIPS, the DECstation-3100 at 14 MIPS, according to Sony. The machine has multi-media capability, with an audio interface kit and audio compression, with a long-recording time ADPCM audio real-time encoding board. Prices and dates have not yet been announced.

XEROX TO ASSERT USER INTERFACE RIGHTS

Announcing that Metaphor Computer Systems Inc, of Mountain View, California had agreed to pay royalties on its Metaphor iconic graphical user interface, Xerox Corp says it intends to make available broad new licensing arrangements for the graphical user interface that it developed at its Palo Alto Research Center and copyrighted in 1981. It is not clear where Apple Computer Inc stands as a result of the Xerox decision to assert its rights in the interface, the key distinguishing feature of the Macintosh computer. It also calls into question Apple's suit against Microsoft Corp and Hewlett-Packard Co over the look and feel of Presentation Manager and NewWave, suggesting that if Apple were to win the lawsuit, Xerox would come out the real winner.

CANADA'S UNIX BOOM MOVES ON APACE AT TORONTO MULTI-USER SHOW

The Canadian Multi User Unix Computer Show and Conference, held in Toronto's Metro Convention Centre under the shadow of the city's CN Tower, proved to be a very lively affair, despite the accompanying heatwave that brought summer to the city which lies on the northern shore of Lake Ontario. Fast growing Toronto is the centre of Canada's information technology and business community. There are now reckoned to be around 21,000 systems in operation throughout Canada, and most people at the show were talking very optimistically about future prospects.

Focusing on the 'revolution' of open systems strategies in his keynote address, Gilbert Williamson, president of NCR Corp, chose the process of political change currently underway in the Soviet Union as a metaphor for what the global computing community is now witnessing with Unix, and the solutions it offers. He argued that an irreversible tide of 'glasnost' is sweeping the information technology industry, the cutting edge of which is, and will continue to be, distributed computing. In what was regarded by other delegates as a powerful and political speech, he also proposed the creation of a basic "Bill of Rights" for users, in the open systems marketplace.

Backing its president's open systems claim, NCR was showing off the first commercial implementation of Novell Inc's Portable NetWare communications software, linking PCs up to its Tower machines, as well as its new 32/825 system, (see front page). In total, NCR now claims to have sold over 70,000 of its Tower systems worldwide.

In view of last week's revelation of defections from IBM's Advanced Workstations Division, (UX No 232), Nicholas Donofrio, president of the group responsible for the development of the RT was not so forthcoming about IBM's commitment to Unix strategies in his conference address, but he did say that the company is working hard to improve upon the number of transactions in its RISC processor architecture. He was unforthcoming on the issue of the patent letters regarding IBM's ownership of RISC technology which they issued last year, and it seems that Sun is so far the only known recipient.

Around the stands, Commodore International - as it seems to do at most of the big shows - pulled the wraps off its Unix offering, but this time it is a new 68030 machine, the Amiga 2500UX; there was no news on the much more publicised 68020 based T 2500, (UX No 223). The 2500UX runs Unix System V.3.3 and can also run AmigaDOS in a separate partition on the 100Mb hard disk, with the Amix Windows multi-tasking user interface. The 25MHz version of the 68030 has 5Mb RAM expandable to 9Mb and the desktop also has X-Windows and TCP/IP and Ethernet support. The 2500UX will begin shipping in Canada later in the summer and will cost around CAN \$8,500. Stan Pagonis, director of Commodore's Canadian marketing operation in Agincourt, Ontario, said that UK and West German launches would probably follow, but said a US release was likely to be a long way off. He said the reason for the early Canadian launch is because Commodore has such a strong dealer and VAR network in the country.

Toshiba Canada, Markham, Ontario, is to begin shipping a new multi-user Unix desktop this week, the T8500/25, which runs AT&T Unix V.4.2 with BSD extensions and MS-DOS 3.3, as well as MS OS/2. It has a 25MHz 80386 with 4Mb RAM expandable to 8Mb, 64Kb of cache and a 100Mb disk. It comes with X-Windows, Remote File System, TCP/IP and Ethernet support, together with three AT compatible expansion slots and a T5100 compatible slot for Toshiba or XT cards. Costing CAN \$13,000, the T8500/25 is targeted at the government, medical and education areas - Toshiba is aiming for a 2% share of the Unix marketplace in Canada.

On the Macintosh side of things, AT&T Canada, Willowdale, Ontario, was showing off a new video graphics board from baby Bell, Truevision Inc, Indianapolis, Indiana, which is compatible with all Mac II software. The NuVista board is for high end graphics applications ranging from video production and graphic design to digital pre-press and medical imaging. Staying on the fortunes of the Mac, as far as A/UX is concerned, Apple says that whilst there are around 2,300 sites in the US, it has sold only 15 licenses in Canada so far. However that's more than anyone in the UK is prepared to say at present, no one at Apple could put any figure on the number of A/UX sites over here.

Julius Oklamcak, Atari Corp's technical manager in Canada gave a few sketchy details about a Unix machine that is scheduled for an October release date. The TT and TTX/X 68030 based desktops will run AT&T Unix and are likely to be the first in a new series of machines. There was also a fair amount of wheeling and dealing announcements at the show. Vestronix Corp, Kitchener, Ontario, says it has signed an agreement with Olivetti to jointly market the Pro-C applications generator on the LSX 3000 series of minicomputers. Arix Corp, San Jose, California, has called up three new resellers to market Arix systems in Canada. These are Crestline Computer Solutions Inc, Toronto, Canada, Cantel Computer Corp, Montreal, Quebec, and Sysnet Computer Systems, Mississauga, Ontario. The deal is said to be worth US \$3m over the next two years. Ogivar Technologies, Ottawa, Ontario, has won a marketing and technology agreement with the Florida based Harris Corporation's Computer Systems division. Ogivar is to distribute Harris mid-range computers in Canada, integrate Harris systems with its own microcomputers and develop a French and bilingual version of Unix for systems. Ogivar says it is also to market its laptops in the US through Lanier Business Systems, Ogivar expects to do around \$15m in the US during the first year of the agreement.

IBM MID-RANGE: ASNA HAS FIRST C COMPILER FOR AS/400...

IBM has been promising, but stalling on, a C compiler for the AS/400 ever since the machine was launched, but there is no point in the company holding its own product any longer - Amalgamated Software of North America Inc, Malibu, California will just start eating its lunch. Diploma/C is due to be available worldwide in September - no prices given - and is claimed to be Systems Application Architecture-compliant. IBM will view the product as a two-edged sword: on the plus side, it means that applications written for Unix will be able to be moved across to the AS/400 in the short term, but in the medium term, many developers of new applications for the AS/400 are likely to favour C over RPG 400, and will be able to make those applications available for the generality of Unix systems as well. As the only supplier of AS/400 hardware, IBM is able to keep prices artificially high, whereas the fierce competition in the Unix market means that prices are extremely keen, so that C will begin to be seen as a route away from the AS/400 into the cheaper Unix world.

...EMERALD BUYS SST TO COMBINE AS/400, SAA WITH UNIX

Last week, Bothell, Washington-based Emerald Technology Inc, which offers a utility to simplify transferring System 36 workloads to AS/400 and claims to be the market leader in 5250 terminal emulation products - last November it announced an AS/400 PC Support-compatible version - said it had merged with SST Data Inc, a Milwaukee, Wisconsin company that specialises in Unix-to-IBM AS/400, System 36 and 38 communications systems. Emerald, which is the acquiring company, stresses that the combination strengthens the tie between IBM's proprietary Systems Application Architecture and the open systems architecture provided by Unix. Products from SST Data include the Handshake line, which links Unix and IBM mid-range systems and is used by such as Sears, Roebuck & Co, Union Pacific Railroad and Reynolds Metal and others - and AT&T Co is to remarket Handshake with its 3B2 and 6386 Unix machines. The company is an IBM Business Partner, with the only IBM-approved link between the AS/400 and Unix systems.

INTEL ACQUIRES BELL TECHNOLOGIES

Intel Corp has quietly bought up the business assets of Bell Technologies Inc of Fremont, California in a move likely to boost its systems integration business. Bell, established for over eight years as a supplier of multi-port cards, "Blit" graphics accelerators and the associated Unix software for Intel-based computers, has around 30 employees and reported revenues of \$10m in 1988. Intel, which is enjoying an increasingly active OEM business for board and system level product from customers such as AT&T, Olivetti and Unisys Corp, is expected to expand its offerings with the Bell products, and use the new division to work on next generation products, using processors such as the i486 and i860 - Intel used Bell hardware for demonstrations at the recent demonstrations of the i860 at Uniforum last month. Intel may also be considering entering the workstation systems market using the Bell products. However, it is unclear whether or not Intel will take on Bell's operating system software - Bell Technology is thought to be number three in the Unix system software business after Santa Cruz and Interactive Systems - which would bring Intel into direct competition with those organisations. Bell founders Dimitri Rotow and Robert Grossman will be joining Intel.

ADDAMAX EXTENDS TRUSTED UNIX KITS WITH SECURE NETWORKING

Trusted systems expert Addamax Corp has extended its B1 level Unix security extension kit with a new networking product, B 1st-Net 1.0, announced earlier this month. The Champaign, Illinois-based company, which recently announced that it was working with ICL on the UK Ministry of Defence CHOTS contract (UX No 225), claims that the new product is a "logical extension" of its activities, providing multi-level security for networking between Unix systems. Both products are designed for hardware manufacturers and integrators attempting to meet the National Security Center's "Orange Book" requirements for B1 and C2 class trusted systems. Addamax Vice President Gary Grossman said that Addamax had "planned for secure networking since day one, so existing users can have secure networking without any re-engineering". While standard Unix networking interfaces are sufficient for normal applications, Addamax has built on the de facto TCP/IP protocol set so that it can take advantage of multi-level file and database servers, in the context of a network security architecture based on the ISO security model. It is therefore applicable to any layered protocol set, such as the OSI and GOSIP standards, as well as proprietary protocol stacks including DECnet and XNS. Pre-release versions of B 1st-Net are currently running on DEC, ICL and "other undisclosed hardware". The plan is to integrate the product with Digital Communications Inc's 10Net and Verix Corp's trusted network products to provide demonstration systems - and one US systems integrator, Centel Federal Systems, says it will be working on integrating 10Net and B 1st-Net to sell to its Defense and Civilian Agency customers. Addamax says it has also donated current interface definitions to the IEEE POSIX committee, the Open Software Foundation, and the TRUSIX Unix security standards efforts currently being worked on by AT&T, Amdahl, Sun Microsystems and the National Computer Security Centre.

...AS SISL WINS BT CHOTS SUPPORT FOR SECURE X.400

The other consortium battling for the CHOTS project business is headed by British Telecom, which has chosen the UK's Secure Information Systems Ltd - known as SISL - as its partner for secure electronic mail and message switching. SISL has developed Secure 400, a multi-level secure implementation of the CCITT X.400 electronic mail standard, included within the Open Systems Interconnection model as an applications utility. Secure 400 can handle electronic mail messages with different security classifications, a problem previously tackled by using physically separate computer systems for classified information. Working with standard software such as the Uniplex office automation package - a key MOD requirement, according to SISL sales director Jim Fisher - Secure 400 is said to be the first secure X.400 implementation available, and runs in Unix, Secure Unix or Xenix-based platforms. It also conforms to the UK Government Open Standards Interconnection Protocol (GOSIP) version 3.0. Fisher said that the product "offers levels of security that will not be included in X.400 until the 1990s". Price for a typical implementation would be in the region of £50,000 to £250,000. Based in Fleet, Hampshire, SISL also produces Secure 200, an OSI communications package for distributed applications, and SAFE, a document registry system. It is currently working with three hardware manufacturers on B1 and B3 secure Unix, and has also completed work on a secure Xenix implementation for Altos.

DATAPOINT ABANDONS NCI PACT FOR NEW DX RANGE

Datapoint Corp has made another push into the Unix market with the launch of a new series of DX machines, following the breakdown of its OEM agreement with Norwegian company Norsk Computer Industrie, originally unveiled at last year's Uniforum show (UX No 165). According to Don Pothier, Director of marketing support at Datapoint, the NCI machines were "having problems passing regulatory agency radiation rules", and so were replaced with the new range. But Datapoint is also thought to have been uneasy about the growing influence of its competitor Olivetti over NCI and its parent Scanvest Ring - which Olivetti now plans to acquire in full (UX No 231). The new DX family, which will be available internationally, are based on the 68030 processor, and are VME-bus based, System V compliant, and have "extensive networking and connectivity options". The desktop DX50 3 slot processor starts from \$8,495, and six (DX100), 12 (DX200) and 20 slot (DX400) versions are also available, with the top-range, 64-user models priced at from \$36,425. Pothier would not reveal the source of the new machines, but said that they were from a US manufacturer, and would be the subject of further announcements over the next few weeks. Datapoint has an existing OEM agreement with Charles River Data Systems for the 2400 Series data entry machines, which are now to be distributed in the UK by Standard Platforms Ltd of Blackburn, Lancashire.

CDC MANAGER WANTS TO BUY ETA

Lloyd Thorndyke, former president of supercomputer manufacturer ETA Systems Inc, shut by Control Data last month, has been knocking on venture capitalists' doors all over the US trying to raise funds to buy the assets of the business from CDC. Thorndyke, now a CDC senior vice-president, on leave from the company, told Reuters he needed \$30m to \$50m to buy key assets and for operations, adding that several venture firms had expressed interest, but that none had so far made a commitment. "I need one person to step forward with part of the money and I believe the rest will come," he said. He would not start talks with his employers until he had commitments for the financing.

COMPAQ ADDS 33MHz DESKPRO

Compaq Computer Corp is claiming unrivalled speed, power, and internal storage capacity for its three new 33MHz 8038-based computers. The new Deskpro 38/33 line comprises Models 84, 320, and 50, the numbers reflecting the size of the fixed disk drive. Announced in the US today, the machines come with 4Kb of cache memory, eight expansion slots, a memory slot capable of holding 1Mb of 32-bit RAM, and support for five internal storage devices, offering up to 1.3Gb of storage capacity. Performance-wise, Compaq says that the new models offer a 35% improvement over 25MHz machines, such as its Deskpro 28/25 and IBM's best PS/2. The Model 84 costs £7,000, while Models 320 and 50 cost £9,700 and £12,000 respectively. Delivery next month.

VME SERVER CONNECTS ICL MAINFRAMES WITH UNIX, DOS.

Two UK companies have collaborated with ICL to produce an open systems file server package aimed at ICL users, which integrates the VME, Unix and MS-DOS operating systems. The new product, EXS is the result of work carried out by communications specialists Network Designers Ltd of Kingston Bagpuize, Oxfordshire, Industry Standard Software (ISS) and ICL's mainframe systems division, and allows an ICL Series 39 mainframe running VME to act as a fileserver to MS-DOS and Unix systems connected to it via ICL's OSLAN Ethernet local area network. The first result of the collaboration is EXS/NFS, which provides an implementation of Sun's Network File System under VME, allowing transparent data sharing between the three operating systems. At the PC level, display, printer and file access is provided by PC-NFS in which have just been adopted by ICL for use with its newly launched MS-DOS DRS range of PCs. Installed at several trial sites, EXS will be available from both Network Designers and ISS from October 1989.

LYNX LAUNCHES REAL-TIME INDUSTRIAL PCs

Lynx Real-Time Systems Inc from Campbell, California, has introduced two ruggedised Intel-based Unix systems aimed at the industrial PC market. According to Lynx, the IS/38 family has been built "from the ground up", rather than modified from existing hardware, and uses special cooling and filtering systems, shock mounted and grime protected disk drives, a rack mounted chassis, and large capacity backplane for specialised adaptor cards. The 1MHz Model 40 uses the 8038SX processor and has a starting price of \$995, which the Model 0 uses a 20MHz 8038 with 80387 floating point processor, and starts at \$1,995. Both run LynxOS, a Unix compatible real-time operating system developed by Lynx that contains no AT&T code (UX No 18).

ENCORE UK INTRODUCES MULTIMAX 500

Encore Computer (UK) Ltd - formerly Gould Computer Systems - has launched the Multimax 500 shared memory symmetrical multi-processor introduced by Encore in the US back in February (UX No 211,217). The machines are rated at from 17 to 170 Mips, and use up to 20 30MHz NS32532 processors from National Semiconductor, with up to 10Mb memory and 7.2 Gb disc storage. Encore offers three "fully parallelised" Unix-based operating systems to run on the Multimax: the Berkeley compatible UMAX4.3, System V-based UMAX V, or the Carnegie-Mellon Mach operating system. Other software includes Parallel Fortran and Ada, and Pascal, C and Cobol compilers, as well as database packages from Ingres, Oracle and Informix. UK marketing manager Philip Martin said he was "astounded by the number on Ingres users it can support", and Encore intends to target the machine primarily at the commercial marketplace, as an on-line transaction processor, high performance file server or Pick machine, as well as for software development. The heart of the Multimax family is Encore's Extended Performance Processor card (XPC), which includes two NS32532 processors and dual caches. Up to ten cards, connected by a 100 Mb/sec Nanobus can be added. Prices start at under £100,000 for a two CPU Multimax 510 with 32Mb memory and 00Mb disk, although lower cost systems using 25MHz processors are also available. Shipments begin in July.

CUE DEMONSTRATES OPEN SYSTEMS CONFORMANCE

The UK's own mini X/Open - a group of hardware manufacturers known as CUE, or Common Unix Environment - are to demonstrate conformance to the X/Open and Government Open Systems Interconnect Profile (GOSIP) at a conference and exhibition scheduled for June 22nd at the Institution of Electrical Engineers in central London. The demonstration, said by the group to be the first of its kind, is the result of twelve months collaboration between CUE members, and according to CUE chairman Eddie Bleasdale shows "that specialist manufacturers are able to implement the emerging standards for Open Systems faster than the multi-nationals". Founded last June (UX No 182), CUE members include IMP, ITL, Spider Systems, Lynwood Scientific and SyFA Data Systems, who will demonstrate networking of their individual X/Open CAE conformant systems using GOSIP. The conference, free for managers and executives responsible for the implementation of computing strategies, will include presentations on moving from proprietary to open systems computing, with a keynote speech from Kenneth Warren, Chairman of the House of Commons Select Committee on Information Technology.

Unix in Japan

Oki Electric Corp is the latest Japanese company to jump on the Sun Microsystems bandwagon to market the Mountain View, California company's workstations OEM, mainly to users in the financial services industry for applications such as foreign exchange dealing and securities trading; Oki, which will offer the Sun-3 and the RISC-based Sun-4 as the Okitec S series, joins distributors Toshiba Corp, Fujitsu Ltd, a C Itoh & Co subsidiary, and Nippon Steel Co: Oki reckons it has lined up its first big customer already, saying that Fuji Bank looks certain to buy.

Nothing's for nothing and Sun Microsystems does well out of letting Oki Electric offer its workstations: it will get first crack at Oki's planned 4Mbit memory chips - 20,000 to 30,000 a month are planned initially, 100,000 a month by year-end.

Sharp Corp is getting active in Japanisation of software for the Pyramid 9000 minicomputers which it buys OEM from Pyramid Technology Inc of California: it has commissioned Ascii Corp to do a Japanese version of Informix and Air Co of Osaka to do Unify, while Sharp itself does a local version of Sybase; Sharp hopes the Pyramid boxes will position it as a supplier of "office mainframes" that will be able to handle all types of Japanese data.

The Open Software Foundation is holding a meeting in Tokyo starting this week, to gauge the feelings of the computer industry in Japan, following Unix International Inc's event last week in Japan - where the establishment of an "internationalisation" working group to explore the specific needs for non-English language Unix functionality was discussed.

Sony Corp is now marketing Hunter Systems Corp's XDOS emulator for MS-DOS under Unix for its News and pop-News workstations - but the Japanese version, being developed by Air Corp in Osaka, is still a few months away.

OSI/NETWORK MANAGEMENT FORUM NOW HAS 63 MEMBERS

The OSI/Network Management Forum international organisation formed by British Telecommunications Plc, AT&T Co and like-minded companies as a body devoted to speeding the implementation of Open Systems Interconnection standards, has announced the addition of four new Associate members, bringing total membership to 63 telecommunications and computer companies. Joining the Forum are McDonnell-Douglas Network Systems Co, Stratus Computer Inc, Teknekron Communications Systems Inc, and the Ungermann-Bass Inc subsidiary of Tandem Computers Inc. The Forum's second document, which defines an initial set of application messages, is now under review by the membership. The work of the Forum is being handicapped by the insistence of IBM and DEC to pursue proprietary systems for network management, but the Corporation for Open Systems and the Standards Promotion & Application Group have teamed up with the Forum to create a united front on the issue.

KODE MOVES UP-MARKET WITH SANYO ICON'S 8000

Kode Computers Ltd of Swindon in Wiltshire, the UK distributor of Sanyo's Icon range, is now ready with the Icon 8000, based on Motorola's 88000 RISC architecture (UX No 210), and first shown at UniForum in March. An extension to the present Icon family, which comprises the Icon 2000 and 4000, it conforms to the 88open binary compatibility standard, and has two Motorola 68020 processors in addition to the 88000. The new machine runs under MS-DOS, Unix and Pick, and all three operating systems can run concurrently, with simultaneous access to and transfer of data. The Icon 8000 supports up to 256 users and delivers up to 15 MIPS. The current model will be upgraded from 20MHz to 25MHz by the last quarter of this year, and a 33MHz version will be available by the first quarter of 1990. Jack Davis, Icon's vice-president of corporate development was present at the launch, having just returned from a meeting in Stockholm of the 88open Software Initiative. He said that Icon had chosen the 88000 chip set on the basis of its performance and the ease with which it supported operations in a multi-processing environment. He also said that the new machine would be a much more powerful workstation on a single user environment. Asked if the Icon 8000 would run under other operating systems in the future, Davis claimed that it would be technically possible to run it under most systems. If funds were to be made available, (and parent company Sanyo should perhaps bend an ear to this) VMS and MVS would be of particular interest.

APPLE READY WITH TOKEN RING, X WINDOW SERVER

Apple Computer Inc will next month come out with a board and supporting software to enable its Macintosh machines to participate in IBM Token Ring networks. According to Newsbytes, the TokenTalk board, due on June 12, is expected to be only for Macs with the NuBus, and to cost between \$1,000 and \$1,300. The announcement is also tipped to include an X Window System server for the Macintosh, a wide area communications product to support both IBM SNA and X25, and a feature to enable Macs to exchange files with DEC VAXes. Also likely is AppleTalk 2.0, to extend beyond the 254-node barrier.

SHRINKAGE PLANS AT MBS AFTER £14m LOSS FOR 1988

The microcomputer distribution company MBS Plc has plummeted into losses of £14m for 1988 as against profits of £5m made in the previous year. The announcement came with details of a proposed management buyout of MBS' loss making Product Sales division. The buyout team Realnew which is headed by an MBS director, Derek Lewis, has agreed to buy the division for a consideration of around £28m. The company is also negotiating with "interested parties" for the sale of its specialist Altos division, Microtex. MBS took a further £7m loss on top the £14m on the withdrawal from personal computer distribution and its restructuring programme. Part of the company's problems stem from its IBM-related business, since IBM has been offering maximum discounts on many of its products. So long as MBS completes the management buyout by July 17 the company's auditors say it can carry on trading. In future the greatly shrunken company plans to focus on providing computer and communications services.

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UNIX INTERNATIONAL ADDS 23 MEMBERS

Amongst its other activities in Tokyo, Japan a few weeks back (UX No 231,232) Unix International took the time to announce the addition of 23 members, bringing total membership up to 74. Notable amongst the new members were hardware manufacturers such as Acer, Dell Computer, Encore, Integrated Solutions, MIPS, Sequent, Sequoia, Silicon Graphics and Tandem; end-user organisations such as Citybank, the First Austrian Savings Bank, the German Unix User Group, Nippon Steel, Southwestern States Bankcard Association and the Supreme Command of the Swedish Defense Force; and more representation from the Asia Pacific regions, with participation from ASCII, C. Itoh Techno Science, Nihon Unisys and the Tata Consultancy. Other new members are AVCOM, CETIA (a division of Thomson Inc), Cambridge Technology Group and the Electronics Research and Services Organisation. Around 20% of Unix International members come from the Asia Pacific

...UPGRADES X/OPEN CONFORMANCE TO XPG3

Unix International and AT&T's Unix Software Operation have confirmed that Unix System V Release 4.0 will conform to the latest edition of X/Open's Portability Guide 3 (XPG3), when it becomes generally available in the autumn - original plans specified XPG2, the edition current at the time. Published back in January, XPG3 adds Posix compatibility to the older edition.

...AND REVEALS COMMITTEE MEMBERS

Also revealed for the first time were the results of elections to Unix International's Executive and Steering Committees. Responsible for general business management of the organisation, the Executive Committee consists of Roger Sippl (Informix Corp), Ron Lachman (Lachman Associates), Steve Tolchin (Pyramid), Richard Bailey (Tandem) and Jeremy Thomas (Unisoft). The Steering Committee, which manages the open processes and work group activities working on Unix System V include Bob Anundson (88Open), Michael Tilson (HCR), Richard Wirt (Intel), Dr Heinz Lycklama (Interactive Systems) and Terry Smith (Motorola).

The RISC revolution continues: "two of the Bunch" have apparently opted for Motorola's 88000 processor, while the Advanced Computers Inc division of Bolt, Beranek and Newman Inc says that it is "investigating development opportunities" for Motorola's 88000", and has joined the 88Open consortium: BBN currently produces the massively parallel Butterfly computer using 68020s, and is reportedly working on a parallel database engine with NCube Corp and Oracle Corp - its communications division already uses the 88000.

And a new company will enter the Sparc systems market early next month, according to sources.

Meanwhile, MIPS Computer Systems has a new managing director of European Operations - David J Black was previously president of Sun Microsystems Canada Inc, and he plans to "exploit the strong European demand for system building blocks": at least two European companies, Dansk Data Elektronik A/S of Herlev in Denmark, and De la Rue Plc's Crosfield Electronics of Crawley, West Sussex (UX No 172), are thought to be preparing for the launch of MIPS-based hardware.

Although it wants to keep 68020s and 30s to itself, Motorola Inc has agreed to allow Thomson-CSF SA to second source the 88000 RISC microprocessors - but only for use in military and aerospace applications: Thomson gets the 88100, 88200 and future parts.

Clarification: Gigatape GmbH, Puchheim, West Germany asks us to make it clear that Gigatrend Inc, Carlsbad, California is its US subsidiary; the West German company is the originator of the high-capacity digital tape drives (UX No 229).

23 Unix International members have so far taken advantage of the Early Access program offered by the group for members with source code licenses.

Relational Technology Inc has revealed Release 6.2 of Ingres, promising that the relational database now comes with a tool set that enables developers to create and deliver applications even more quickly and efficiently, and also helps ensure that the applications more accurately meet end-user requirements: it has "numerous additions and extensive enhancements" in the Applications-by-Forms Interface, the Forms System and language, and a 4GL Interpreter is entirely new; shipments are set for early summer.

Ada compilers are currently running on 10,000 computers worldwide, and about 5% of the lines of code owned by the US Department of Defense is now in Ada, as well as nearly half the programs under development, a Wall Street Journal update on the language reports: Jean Ichbiah is however far from satisfied - his Alys SA Ada products and services house has turned its first profit, of \$700,000 on \$15.6m turnover, after nine years in business - and he won't be happy until Ada is running on one million computers.

Microsoft Corp has reportedly cut its estimate of 1990 sales of the OS/2 operating system to 1m copies from its previous projection of between 2m and 3m: according to Kidder Peabody & Co, Microsoft's chairman, Bill Gates, admitted the revised projection at the Software Publishers Spring Seminar in San Diego - news of the projection hit Microsoft shares, off \$2 to [\$57.50.

Microsoft Corp is set to release version 6.0 of its C compiler, which will include the Programmer's Workbench for access to programming tools, and the hypertext help system Microsoft C Advisor, as included in QuickC 2.0, released last January.

CONTACTS

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Number 234

APRICOT'S "WORLD FIRST" WITH i486 SERVER FOR UNDER £10,000

Birmingham's Apricot Computers plc has made good its promise to be out early with an i486-based machine with the launch yesterday of its VX FTserver range, codenamed Titan (UX No 231) - and claims to have boosted the performance of the i486 with a specially designed Hypercache, 128-bit wide and 8k deep, which allows the i486 to operate in its burst mode. The aggressively priced servers come in two ranges: the VX 400 series of MS-DOS (or optional OS/2) network servers, aimed at MS-Net, Lan Manager, Novell Netware/386 and Lan server operation; and the VX 800 Series for Unix. Memory configuration and serial I/O provision are the major differences between the two ranges, with the Unix models boosting standard RAM from 4Mb to 16Mb and featuring 32 or 64 channel serial support as standard. There are four models in each range, beginning with the Model 10, based on a 25MHz 80386 and with 117Mb hard disk, and followed by the 25MHz i486 Models 30, 60 and 90, which are configured with 338Mb, 638Mb and 1047Mb hard disks (SCSI or RLL) respectively. Using the Micro Channel Architecture bus, the systems support Ethernet (Token Ring optional) and VGA graphics on the Motherboard, and also includes fault tolerant features through the Advanced System Controller subsystem, with uninterruptible power supply, system environment control, disk shadowing and system diagnostics. A back-up option using digital audio tape technology from Hewlett-Packard and Sony, for 1.2Gb storage on a single DAT cartridge will be available fourth quarter. Also available is Apricot's Security System, with security management software and security card, as on the Qi workstations. The new systems will form the core of Apricot's distributed computing policy along with the Qi PS/2 compatibles and AT-based Xen workstations, but may impact low-end sales of the Sequent VX 9000 multi-processor minis. Prices range from £8000 to £22,000, with a low-end i486-based 400/30 rated at 15 Mips and including 4Mb RAM, SCSI drive system and 338Mb hard disk still breaking the £10,000 price barrier. A VX 800/30, three times more powerful than a similarly configured Altos 2000/20-8, would cost just under £12,000, compared with £40,000 for the Altos, claimed Apricot. Shipments begin July for the 386 versions, and September for i486 machines.

TOSHIBA PLAN FOR PERSONAL SPARC COMPUTERS PROGRESSES

The agreement between Sun Microsystems Inc and Toshiba Corp to challenge IBM and OS/2 in the personal computer and laptop market with lower-cost personal computer-like Unix workstations based on Sun's Sparc RISC microprocessor - revealed here this time last year (UX No 182) took a step nearer fruition yesterday when Toshiba announced details of its agreement with Sun, saying that it would have a line of machines to come in below Sun's new Sparcstation 1 on the world market early next year. Ironically, Toshiba is wed to Motorola Inc on microprocessors, and is not one of the big band of chipmakers fabricating versions of the Sparc: it will initially use Sparcs from the existing suppliers, but plans to design its own version - "smaller and faster than those currently available". The "new class of workstation" was foreshadowed last June, when Sun embarked on a Far Eastern tour to encourage low-cost manufacturers to take on IBM with low-cost Sparc-based Unix machines, and work was already under way then on design of the Sparc-based laptop, being engineered to deliver 7 MIPS. Toshiba was one of the first Japanese companies to buy the Sun workstation family OEM and sell them under its own name.

SUN PROFITS DOWN - PRODUCT DELAYS LIKELY

Sun Microsystems has revealed that net income for its fourth quarter, ending June 30th, will be "significantly below" results for the same quarter last year, and that depending on revenue levels, the company "could experience a slight loss". According to a statement issued by Sun, revenues are expected to fall below recent expectations, and could fall below the \$497m level of the third quarter. The causes, which Sun claims will "largely be confined to the quarter", include the conversion to a new management information system in April, which apparently slowed down production early in the quarter, coupled with the introduction of five major new products back in April (UX No 227), an event that some sources within Sun believed to be premature. Although backlog and incoming order rates are still strong, and Sun says that acceptance of the new products has been good, the production ramp is being impaired "by an insufficient supply of certain components", said the Sun statement. New product manufacturing has been further delayed by "continued strong sales of Sun's traditional products". These factors mean that Sun's original promise of full availability within three months is unlikely to be met - with some sources claiming that up to a nine month delay could be possible. Sun says, however, that it expects fiscal 1990 "to be an excellent year".

LONDON SHOW THIS WEEK

The European Unix User show is on this week at Alexandra Palace in North London: David Tory of the OSF and Peter Cunningham of Unix International will be hosting the keynote speeches. Product highlights include new low-end systems from TIS (page 2), the RC9000 fault tolerant Risc computer, and a chance to evaluate the current state of the user interface battle, with presentations of both Open Look and OSF/Motif, not forgetting Open Desktop from SCO, which incorporates Motif (page 3).

HP'S NEW DRIVE BOOSTS SONY DDS DIGITAL AUDIO TAPE FORMAT

Hewlett-Packard has given a big boost to the Data Digital Storage, (DDS), standards group with the launch of the HP 3450A digital data storage tape drive for OEMs. The 5 1/4" form drive comes with a SCSI controller, DAT cartridges which store up to 1.3Gb of data in the DDS format, and will be available in August. Apricot Computers (see front page) claims to be the first company to integrate the drives into its systems, due out in September. Sony Corp was the first major company to endorse the DDS standard with the launch of its SDT-1000 system last month. Its main use will be to serve as an archiving backup for workstations, low end minicomputer and high end PCs. Search time however is around 20 seconds, about 1,000 times slower than a Winchester drive. DAT uses tape cartridges the size of ordinary audio cassettes, with 4mm tape, but records like a video cassette recorder. Two DAT standards are vying for supremacy at the moment. DDS uses a sequential recording technique that means changes have to be appended. However it has a faster transfer rate than its Data/DAT competitor - 183Kb per second against 177Kbps - and stores slightly more - 1.3Gb as opposed to 1.2Gb. Data/DAT is more like a disk drive, it has a direct search technique, however DDS is expected to become more like Data/DAT over time. So far twelve companies are lined up on the Data/DAT team, including Apple Computer and Hitachi, but only Gigatrend has a product available as yet, (UX No 229). According to a study of the market by Freeman Associates, about 14,500 drives using DAT have been shipped so far, a figure expected to reach 300,000 by 1992 and double again by 1994.

CISCO SYSTEMS LINKS X.25 AND TCP/IP

Hard on the heels of its multi-protocol router launched last month, (UX No 226), Cisco Systems, Menlo Park, California, has a new protocol translator for X.25 and TCP/IP communication links. The two slot server chassis which runs a 68020, has 1Mb of system memory, Ethernet and serial interfaces with TCP/IP and X.25, can host up to 100 concurrent sessions and costs \$9,400. It allows full interchange to take place between X.25 and TCP/IP on the host and server, and automatically converts between the different parameters.

CDC MANAGER WANTS TO BUY ETA

Lloyd Thorndyke, former president of supercomputer manufacturer ETA Systems Inc, shut by Control Data last month, has been knocking on venture capitalists' doors all over the US trying to raise funds to buy the assets of the business from CDC. Thorndyke, now a CDC senior vice-president, on leave from the company, told Reuters he needed \$30 to \$50m to buy key assets and for operations, adding that several venture firms had expressed interest, but that none had so far made a commitment. "I need one person to step forward with part of the money, and I believe the rest would come", he said. Thorndyke said he would not start talks with his employers until he had commitments for the financing.

TIS INTRODUCES LOW-END MIPS MACHINES TO UK MARKET

TIS Ltd is introducing the low-end RISC systems from MIPS Computer Systems launched back in February onto the UK market, and will be showing the systems at the European Unix Show this week. The 12 Mips M/12 server, which will be available from July, is aimed at file server applications at the department level, or as the main system for smaller companies, and according to TIS, will sell for under £20,000, bringing down the cost per Mip to below £2,000. TIS, which was appointed an Apple value added reseller last year, is expected to use the machine as a file server for networks of Apple workstations. Also introduced at the show will be the MIPS RS10 family of low-end X-Window display workstations, which have up to 4.5Mb memory, support Ethernet and TCP/IP, and sell in the US for \$3,200 - no UK prices as yet.

TEKTRONIX SIGNS WITH NETWORK COMPUTING DEVICES

Network Computing Devices Inc, the Mountain-View, California-based X terminal makers, has agreed to cooperate on the future development of X Window hardware. Tektronix will also take a version of NCD's current product line to market to its customers. The agreement, valued at around \$12m to NCD over the next three years, will see Tektronix extend the NCD products towards high-end colour graphics and ruggedised versions optimised for Tektronix graphics support. "The NCD products will round out our product line, and allow us to focus internal development resources on visualisation technology", said Larry Kaplan, vice president and general manager of the Tektronix Information Display Group. The company says it will sell the products into computer-aided design and drafting, computer-integrated manufacturing, computer-aided software engineering, and technical publishing and control systems.

JAPANESE CONSORTIUM WORKS ON STANDARD X TERMINAL

A consortium of 17 - or 18, according to your source - Japanese workstation manufacturers, display manufacturers and software houses are lining up behind the X Window System and plan to make it the basis for a standard X Terminal for accessing Unix systems. Calling itself UWS for User-interface WorkStation, the consortium expects backing from makers of mainframes and non-Unix computers as well. The UWS Consortium will develop Japanese functions for X Terminal and expand it for general-purpose workstation displays. Initially the consortium will release specifications for a monochrome terminal to cost \$2,400 and a colour terminal for \$4,500, by the autumn.

TADPOLE HAS WIND-RIVER REAL-TIME OPERATING SYSTEM

Tadpole Technology, of Cambridge, UK, has released a full implementation of the VxWorks real-time operating system for its TP32 VME and TP33 Multibus II single board computers, using the 68030 processor. The VxWorks operating system runs under Unix for target real-time applications development, and is available for Motorola and Sparc-based computers (UX No 185), and Tadpole says it is looking to port the system onto its 88000 range of boards. TP-VxWorks is available in development and target packs, with the development pack containing software and hardware for the host system and one target. Host systems may be either a Sun-3 or TP-IX environment, connected over Ethernet using TCP/IP and NFS to the target board.

RC COMPUTER READY WITH MIPS FAULT TOLERANT RC9000

RC International - Denmark's largest computer manufacturer, which is now 50% owned by STC (UX No 200) - will be showing its fault tolerant mainframe, the RC9000, for the first time at the European Unix Show, Alexandra Palace, this week. The Unix-based machine, which uses the R2000 RISC microprocessor from MIPS Computer Systems Inc, coupled with fault tolerant software licensed from Tolerant Computer Systems Inc (UX No 102), is aimed at intensive transaction processing applications, and according to RCI has already been employed by STC "in large projects in London". Based in Ballerup, near Copenhagen, RCI also offers a range of Intel-based PCs and Motorola-based departmental systems, which it will be networking together on the stand. It markets systems to central and local Government, manufacturing and general business customers, but is also hoping to win OEM contracts.

SANTA CRUZ DISTRIBUTES OPEN DESKTOP TO DEVELOPERS

Santa Cruz Operation has begun distributing the first developer kits for Open Desktop, the Unix-based systems and applications software bundle announced at UniForum earlier this year (UX No 221). Including OSF/Motif as the front-end graphical interface, RTI's Ingres database and SCO Xenix with networking and virtual memory, a run-time Open Desktop package is due to sell for a \$1,000 price tag, and is intended to provide 386-based computers "with the features and benefits of high-end graphical workstations for the price of a PC". The developer's version provides application software, updates, online support systems, and in the US discounts on hardware from participating OEMs - however initial versions do not include the Ingres or Locus PC Xsight components, which will be added over the next few weeks. List price is \$5,000 until September 1st. At the European Unix User Show, SCO will also be showing its mainstream Unix System V/386 3.2 operating system product, along with SCO applications such as SCO Professional, Integra, FoxBASE and Lyrix. SCO co-founder and vice president Doug Michels will be speaking at the Conference.

SONY TO LAUNCH MID-RANGE WORKSTATION

Sony Microsystems will use the Show to launch a new mid-range NEWS workstation - the 68030-based NWS-1500 series. Rated at 3.9 Mips, the new system includes a 68881 coprocessor, 4Mb memory expandable to 32Mb, Lance Ethernet controller and SCSI interface all on a single board measuring 23cm by 29cm: no prices given. Sony will also be showing the recently launched dual 68030 NWS-1930 system (UX No 229), but not the MIPS Risc based top-end machine that emerged recently in Japan.

PRIME TO MARKET SUN SPARCSTATION 1...

Prime Computer Inc is preparing for marketing of the new low-end Sparcstation-1 from Sun Microsystems next quarter, and reportedly may also take the 68030-based Sun-3/80 models and other, high-end Sparcstations. The requirement is from the Computervision side of the house, which has been using the 68020-based Sun-3s since 1987, but the firm hopes to have its own as well as Computervision's CAD/CAM packages up on the Sparcstation 1 by the end of this year, when all the lines will take the CADDStation name.

...AND LAUNCHES LOW-END "MATCHBOX" EXL

As expected (UX No 228), Prime Computer Inc has extended its 80386-based EXL Unix family down with a new EXL MBX model aimed at from two to 10 users in small work groups, costing \$8,200 to \$30,000. It runs Prime's version of Unix System V.3.1 with support for MS-DOS using Locus Computing Corp's Merge 386 and the Prime Information EXL and version of Pick. It takes up to 33 asynchronous lines and up to 470Mb disk; main memory goes from 2Mb to 16Mb. The EXL MBX is available immediately in the US.

APOLLO MAY COST HEWLETT \$30m; 750 JOBS IN JEOPARDY

Hewlett-Packard Co executives have acknowledged that the company's \$475m acquisition of Apollo Computer Inc could cause up to 750 people to lose their jobs as plants are closed, and may require the Palo Alto, California company to take pre-tax charges of up to \$30m to cover the costs this fiscal year. According to Electronic News, Apollo's proprietary RISC-based Domain 10000 high-end workstation is not too long for this world - Hewlett says it will be phased out in a few years, although a significantly upgraded version is in the works for later this year or early next. The company believes that 750 people, 17% of Apollo's workforce, will be surplus, but some may be offered other jobs; no specific plants have yet been identified for closure, but all 68040 boxes are likely to be manufactured at a single plant.

SUN SETS 3D GRAPHICS BOARD

Sun Microsystems Inc is tipped to come out with a two- and three- dimensional Roadracer graphics accelerator for its Sun-386i station this week, giving it three dimensional capability for the first time.

US NAVY MAKES FUTUREBUS PLUS MANDATORY AFTER 1991

The US Navy has made use of the Futurebus Plus high-speed bus a mandatory requirement for all "mission critical" computers that it buys after 1991, Reuters reports from Pittsburg. Conceived in 1982 as a faster, more efficient bus for microprocessor-based machines, Futurebus Plus is being defined by the Computer Society of the Institute of Electrical & Electronic Engineers. The decision seems to be a blow to IBM's hopes of establishing the Micro Channel as the standard high-speed bus of the future. IBM is among companies seeking to get involved in developing the Futurebus Plus specification, as are Hewlett-Packard Co, Unisys Corp and Honeywell Inc. One project alone, to equip 300 ships and aircraft, will require thousands of Futurebus Plus computers - and the Navy has some 200 projects all told that will need it. Intel Corp, which pushes its proprietary Multibus II, and Motorola Inc, which prefers the VMEbus, are both backing Futurebus for next generation systems. The specifications are expected to be ready this summer, and first products to come out within 18 months.

MICROSOFT "CUTS OS/2 SALES FORECAST FOR 1990"

Microsoft Corp has reportedly cut its estimate of 1990 sales of the OS/2 operating system to 1m copies from its previous projection of between 2m and 3m. According to Kidder Peabody & Co, Microsoft's chairman, Bill Gates, admitted the revised projection at the Software Publishers Spring Seminar in San Diego. News of the projection hit Microsoft shares, off \$2 to \$57.50.

DOCUMENT TECHNOLOGIES ENHANCES IMAGE PROCESSING SERVERS

Privately-held Document Technologies Inc of Palo Alto, California is another young US company hopeful that document image processing will grow into a major new business area, and has come out with a new line of host-controlled image processing subsystems that are designed to integrate seamlessly with conventional mainframe, minicomputer and network-based data processing systems - very similar to the products picked up by IBM from Image Business Systems Inc for the RT (UX No 233). Called ImageServer, Document Technologies' new family is designed to provide complete support for the rapid and simple integration of document and data processing. Key to the product line is the company's proprietary distributed image database architecture, all document image processing tasks are off-loaded from a host onto attached Document Technologies ImageServer subsystems, freeing the host computer to control the system application without having to perform any image processing tasks itself - and the ImageServer subsystem appears as a standard terminal to the host, requiring only simple protocol extensions to support the image processing tasks. The system supports document display, printing, scanning, communicating and manipulating pixel maps of document images. The company says it has developed a high-performance, multi-function image processor, which is at the heart of every ImageServer, using multiple parallel co-processors to provide "unprecedented" levels of performance in document image processing applications - but unfortunately fails to say what processors it is using. Each ImageServer includes two programmable serial channels and an IEEE 802.3 Ethernet co-processor.

Image scanners, image printers and other peripherals can be connected directly to an ImageServer via high-speed "video" interfaces, so that they can operate at their maximum rated speeds - up to 60 image pages per minute. A fast hardware compression-expansion co-processor supports standard CCITT image compression for "optimal speed and compatibility". Storage options include high-speed magnetic and exchangeable optical write-once disks. An Image Terminal connects directly to each ImageServer, displaying document images at true 200 or 400 dots per inch resolution on a full 8.5" by 11" portrait screen. The Image Terminal can display interactive terminal session data via widely-used window managers, enabling ImageServers to emulate a variety of standard terminals in existing application environments, and applications for standard ANSI or X terminals can be augmented with image function with "little or no modification to existing code".

Distributed image database

For people wanting to distribute the things, multiple ImageServers are interconnected over a back-bone Ethernet to support access to image peripherals and libraries via the distributed image database architecture. Latest additions to the line are the ImageServer 200 200dpi image server subsystem; ANSI/ImageServer applications, which supports emulation of a standard ANSI interactive terminal, and the X/ImageServer, which emulates a Unix-hosted X terminal. Volume OEM price for a complete ImageServer subsystem starts at less than \$5,000, depending on storage options and configuration, and is out now. The ANSI/ImageServer and the X/ImageServer firmware applications are each priced at \$250.

NIPPON STEEL FORGES AHEAD WITH SUN OEM SALES

Nippon Steel Corp is stepping up its competitiveness in the market for Sun Microsystems workstations it buys OEM by bundling both local software and applications imported from the US. Products include Super-Tec S1 from the US, and an ASIC design system developed by Nishimura Research Institute of Tokyo in conjunction with other companies. Nippon Steel will also expand its sales offices to include a branch in Nagoya, the heartland of Japanese industry. The company is also the distributor of the MassComp machines from Concurrent Computer Corp, Tinton Falls, New Jersey, but is perceived to be putting more muscle behind the Sun product line at present; the company sold 300 NS-Suns in the year to March, and is aiming to get 700 away this year, although 70% will go to companies within the Nippon Steel group; there are now seven Japanese companies buying Suns OEM - the other six are Fujitsu Ltd, Toshiba Corp, Oki Electric Industry Corp, Fuji Xerox Corp, Tokyo Electron Corp and CI Techno-Science.

\$45m WRITE-OFF AS QANTEL JOINS STAMPEDE INTO UNIX

Companies with proprietary computer architectures are going down like ninepins in face of the headlong stampede into Unix and the latest to succumb is Hayward, California-based Qantel Inc, successor to Mohawk Data Sciences Inc. The company expects to take a \$45m charge against its profits for the year to April 30 last to cover the cost of abandoning further development of its Sigma computers and doing all new software development in fourth generation languages for Unix machines. It will continue to market its vertical applications on its existing machines, but plans to launch a new line of Unix-only computers in the autumn. Most of its existing applications are written in Basic, and these will either be translated into a fourth generation language, or be rewritten on one. Talks on debt restructuring are progressing.

AIX/370 - THE GOOD AND BAD NEWS ABOUT MAINFRAME UNIX

The introduction last month of graduated monthly licence fees for IBM's AIX/370, the mainframe Unix that has to run as a guest under VM (Amdahl Corp has had a native 370 Unix for ages now) is good news for 9370 users, but bad news for people wanting to run it on a 4381 up. Where the thing was originally announced with monthly licence charge of \$3,000 regardless of processor size (CI No 889), it now starts at \$1,190 a month on a baby 9370, \$1,585 a month on a slightly bigger one, \$1,025 and \$2,245 on the biggest 9370s, it goes over the \$3,000 a month mark at \$3,305 on the 4381 - Model Group 30 for pricing purposes, and is \$5,290 a month on smaller, \$6,825 on the biggest 3090s. One-time charges range from \$29,760 on a baby 9370 - that's \$2,760 more than when the thing was announced, and it still hasn't shipped yet! - to \$204,800 on a 3090-600S - the top price was \$144,000 on the then biggest 3090s when it was announced. Similar graduated charges - apply to AIX/370 Network File System, which now costs a one-time \$1,980 to \$13,650 according to processor size; where the monthly licence was \$200 regardless of processor, it now costs \$79 to \$455 according to processor size. Both were due to ship in March 1989; IBM had stressed its full-hearted commitment to Unix by putting them back to fourth quarter 1989; now they will be on limited availability in the third quarter: users must be grateful for small mercies, which also include limited availability of AIX PS/2 on 80386-based models, but only for people wanting to integrate PS/2s with mainframes running under AIX/370.

PARCPLACE CO-OPERATES WITH DIGITALK OVER SMALLTALK

ParcPlace Systems, the object-oriented specialists working on the development and marketing of the Smalltalk-80 language, has signed a licensing agreement with fellow Smalltalk developer Digitalk Inc of Los Angeles, maker of Smalltalk-V products for Unix systems. The agreement gives Digitalk royalty-free use of the Smalltalk-80 language, as well as to characteristics of system implementation that overlap between the two companies' products. ParcPlace Systems was spun-off from Xerox Corp in April 1988, and includes the core Smalltalk development team - Adele Goldberg, Glenn Krasner, Duane Bay and Peter Deutsch. This month the company is planning to release a new version of Smalltalk under a different name, which it says will be "more accessible to corporate information system users and programmers". And at the end of June, ParcPlace is set to launch its long-awaited programming environment for C++, Syncgy (UX No 216).

RIVALS LAUNCH OBJECT-ORIENTED PASCAL VERSIONS

Object-oriented technology is now beginning to penetrate into the mainstream standard computer languages, and at the end of last month two versions of object-oriented Pascal were released by rival language developers Microsoft Corp, Redmond, Washington, and Borland International, Scotts Valley, California. Microsoft's QuickPascal has a windows-based editor, and is said to be the fastest implementation available, linking programs up to 15% faster than its rival: cost is \$99. Borland's Turbo Pascal (5.5) is more expensive at \$150 (or \$250 for the professional version), but includes both dynamic and static objects, and (like C++) constructor and destructor key words for initialising and deinitialising objects. Both products take their starting point from Apple's Object Pascal, and include an integrated debugger and third party support libraries - although Borland claims its debugger works on object code, unlike Microsoft's source code version.

...BUT C++ WILL DOMINATE, SAYS NEW REPORT

Smalltalk, developed in the 1970s, may have been the original object-oriented language, but the clear winner among languages now available will be C++, says a new report published by London's Ovum Ltd this month. Providing an evolutionary path for the large number of existing C programmers, C++ is already emerging in major development projects, and is currently being used for internal projects by companies such as Sun, Apollo, Microsoft and Apple, as well as by its originators, AT&T. The report - "Object-oriented Systems: the Commercial Benefits" by Judith Jeffcoate, Keith Hales and Valerie Downes, tracks the use of C++ in seven organisations, and claims that productivity gains achieved include a reduction in the amount of code needed by a factor of five. The current market for object-oriented products is split mainly between hybrid toolkits used for developing artificial intelligence systems (52% of revenues in 1988), and pure programming tools such as compilers and programming environments (44%). New market opportunities include class libraries, application generators for system developers, and end user tools. In the early 1990s, predicts the report, existing database suppliers and CASE tool vendors will move into the market with object-oriented versions of their products, swelling overall revenues from \$140m in 1988 to over \$2 billion by 1995. The report costs £550 or \$995: contact Ovum on London 255 2670.

UNISYS SYSTEM FOR PHONE COMPANIES

Unisys Corp has an Simplified Message Desk Interface Expansion Unit for telephone companies, developed by its Convergent Technologies Inc unit in co-operation with BellSouth Services. Designed to increase availability of enhanced services on existing exchanges by expanding the number of ports up to 63-fold, it is a Unix system, initially for AT&T IAESS and Northern Telecom DMS-100.

CLF YEOMAN SEEKS £15.6m IN RIGHTS ISSUE

Following reports of the Group's difficulties (UX No 216), Yeoman Plc has formally announced a rights issue to raise the equivalent of £15.6m for the Dublin-based group, to cover the losses Technology for Business has incurred since being acquired by the Group last year. The issue will cover the expected £12m provision for the write-off of Technology when it is sold. The issue is a four-for-one stock units offer with the 10.9m new units being issued at 202 pence each. Dealings in the new Units are expected to begin today, as are dealings in the existing Units which were suspended on April 28. The issue, which is being underwritten by SG Warburg & Co, closes on June 16. Aside from problems with Technology for Business, however, the rest of the Group has performed well so that end of year results show pre-tax profit up 51% at over £12m on turnover up 62% to around £67m, meeting the forecasts made when CLF was acquired.

MORE UNIX DEVELOPMENTS FROM DIVERSIFYING FOCUS

Information Builders Ltd put about six months of announcements out together at the UK Computer Measurement Group user meeting in Glasgow yesterday, leading off with a move into computer aided software engineering products, IBM MVS and MVS/XA versions of its Level V expert system development software and a Systems Applications Architecture-compliant version of PC/Focus using Presentation Manager which will give the company SNA LU6.2 communications for the first time. Information Builders also promised its ACE repository as competition to IBM's long awaited, but as yet unannounced, repository by the fourth quarter of this year, and unveiled a list of new implementations of Focus. The new machines on which Focus is now supported include those from Sequent Computer Systems Inc, adding to the growing list of Unix versions available (Sun, Apollo, AT&T and Pyramid); and support on Tandem Computers under the Guardian operating system is scheduled for delivery in one year. A new Sybase server version of Focus is also launched under Unix, having already been made available under VMS. The software engineering product is called FACT, for Focus Application Creation Tool, and is a way of automating structured development methodologies. In the past, customers that didn't like the prototyping approach to rapid software development encouraged by Focus simply went elsewhere. Now structured methodologies will be supported and Information Builders says that FACT is independent of the methodology used. It was built with a UK-written product, itself written in ADA by Systematic Ltd of Bournemouth, Hampshire, called Virtual Software Factory, which is a kind of tool for writing Case tools, built around a Semantic Database of its own. The whole tone of the Information Builders approach is to tell the world that it is no longer just a fourth generation language company, but is prepared to develop software tools of all types, and for all popular environments.

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There's more interesting news on the Japanese saga that we have been following over the last few weeks; according to Tom Mace, Unix International's director of marketing, Unix Software Operation's System V development work will "ultimately" be merged or integrated with the Sigma project's own Unix work - previously there has been no indication of such a move: the X/Open deal with Sigma, (UX No 232), is limited to ensuring the conformance between X/Open and Sigma's software tools: Japan's Ministry of Trade and Industry has spent some \$200m on the Sigma project so far, and it's standard Unix workstation, the project's goal, is due to be released sometime next year.

- 0 -

Interex, the HP user group launched at UniForum earlier this year, is holding a 'birds of a feather' meeting after the forthcoming Usenix exhibition in Baltimore, Maryland: scheduled for June 18 the meeting will focus on Hewlett's HP-UX Unixlike operating system.

- 0 -

Update: following the fortunes of French expert systems house Cognitech, (UX No 229), we understand that the French nuclear reactor builder Framantone has bought a 50% share in the company - Framantone has its own expert systems subsidiary, Framantec, and the two look to be in competition until the parent company decides what to do with them: the Paribas bank and not the Bank Paris Nationale as originally thought, was involved in the venture capital funding of the acquisition.

- 0 -

Motorola has managed to reduce its MVME147 double board set, which runs a 20MHz 68030 with 8Mb memory, down to single board size using surface mount technology, reducing the space occupied by components on the board, offering the capability for increased processor power on its Delta series: Motorola is also now offering an entry level version, the MVME147 SRF, which uses a 16MHz 68030 with 4Mb memory.

- 0 -

Unisys has introduced some network products for A Series mainframes, allowing existing applications to communicate over BNA and TCP/IP without modification, to OS/1100, PC and Unix systems - licenses will range from about £10,700 for the low end A1 to £35,000 for the high end A17.

In what sort of numbers do manufacturers like Apricot Computers Plc get new parts like the Intel Corp 80486 at this stage in the development cycle? Apricot says it has 10 80486s, which arrived at the beginning of May, and that the parts are now good, and that it is confident of having enough to meet demand for ships of its new box in September.

- 0 -

Bull 89 is taking place in Rome this week, and Bull HN is expected to announce a new Microsoft Windows-based windowing environment called Microlink, which will allow users to access Bull's GCOS and Unix machines on the network simultaneously: Bull is also ready to announce faster models in its proprietary DPS 7000 range of mainframes running GCOS7.

- 0 -

Micro Focus, most well known for its Cobol compilers, is expected to reveal a move towards fourth generation language products at the show this week.

- 0 -

Compaq Computer Corp is working on a dual processor 80386 system with an EISA bus, according to PC Week.

- 0 -

Data Access Corp, Miami, Florida, has released DataFlex version 2.3b for IBM's AIX PS/2 operating system - it combines the functions of a generator, relational database, an image orientated forms processor, menu system, code and report generators, multi-file query, graphics for MS-DOS systems, and utilities.

- 0 -

And another episode in the life of the unborn new RT - it is now expected to emerge under another name, in both multi and uni-processor configurations, and is claimed to be faster than the DECstation 3100, which means at least 14 MIPS and 3.7 MFLOPS.

- 0 -

Uniforum UK, the new name for the Unix group /usr/group/UK, has signed up more vendors for its marketing survey, Advantage Unix: they are DEC, Hewlett-Packard, Data General, Texas Instruments, Oracle and HCL.

Olivetti and Oracle Corp have signed an OEM agreement allowing both organisations to independently sell Oracle tools on the Olivetti LSX range of Motorola (and Motorola compatible Edge processor) based systems: Oracle has also finalised a joint marketing agreement with Bull HN Information Systems, where the two companies will work together on marketing Oracle software on the entire Bull range.

- 0 -

UK add-in board manufacturer Chase Research, Isleworth, Middlesex, will be showing a new high-capability intelligent I/O card using a 16MHz 80186, and also promises an interesting fax management system.

- 0 -

Integrated Solutions Limited, the SD-Scicon spin-off artificial intelligence software house (UX No 230), has added more hardware platforms for its Ppoplog multi-language program development environment: it is now available on Sequent Symmetry and Sun 386i and Sparc micros.

- 0 -

Cincinnati, Ohio based Tominy Inc says it has ported its Mach 1 Application Development Environment to AT&T's 3B2 systems and 68030 platforms - Mach 1 is claimed to permit integration of multi-vendor software development environments: runtime licence starts at \$1,000, development licence at \$1,750.

CONTACTS

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DEC READY WITH NEW MIPS MACHINES - MARKET PRESSURE INTENSIFIES

Signs that a general slowdown in the technical computer systems business intensified this week with the news that DEC is to continue with an aggressive series of product launches in July, introducing a low-end DECstation 2100 using a slower version of the Mips R2000 Risc processor, and high-end asymmetrical multi-processors with 3D graphics, according to Digital Review. Two versions of the top-end BI bus machines are anticipated; the System 3300 (using the R2000 chip) and 3400 (using the R3000), and DEC is also expected to introduce other non-RISC machines and a low-end MicroVAX. The DEC deal will pile on the pressure at Sun, where poor fourth quarter results (UX No 234) and rumours that the Sparcstation 1 will be very late, have been the first signs of a stumble in the highflying workstation company. But sales of the new DEC systems are not thought to have been spectacular, as software is still in relatively short supply for the machines, while margins for sales of the traditional VAX lines are still more attractive to the company. Meanwhile, Hewlett-Packard, which is now working on the integration of its workstations with the Apollo range using the 68040 processor, is expected to be slowed down by the merger process.

...AS DEC TO USE INGRES BASE FOR ITS OWN SQL PRODUCT

DEC has resolved the thorny issue of an SQL relational database for use with its Ultrix Unixlike by buying Ingres technology from Relational Technology Inc to use as the basis of what will become its own proprietary SQL database for Ultrix, promising that third party applications written for it will be portable to its own Rdb/VMS database, which is being bundled with VMS 5.0, and to other open systems. It is likely that it will bundle a run-time version of the resulting product, for which no date has been given, with Ultrix, much to the annoyance of suppliers of rival databases such as Oracle Corp.

CDC's SYSTIME DISSOLVES INTO MANAGEMENT BUYOUTS

Control Data Corp finally got shot of its troublesome UK Systime Ltd business last week, and the solution for the once-substantial Leeds systems integrator is dismemberment by management buy-out. Five separate companies are being created, the biggest being Service Technology Ltd with 65 people, which will take over the distribution and support of the Altos Computer and Computer Consoles machines, and financial services and technical software - the converter from DEC Basic to Unix Basic. VisionWare Ltd (see page 5) will take over the PC Connect Microsoft Windows-based communications product for enabling MS-DOS micros to be used as terminals to Unix systems; PC Xvision; SQL Connect; and an unannounced set of Unix utilities. Manufacturing Solutions Group Ltd takes the Sysimp and Jobman Unix manufacturing control packages. Aran Ltd takes throughput VAX manufacturing software and support. And the fifth is Streetwise Ltd, which takes the back-office Unix software for point-of-sale applications at multiple retailers. The Utopia financial ledger system is being sold to Ki Computers Ltd of Leeds, and the Leisure Centre Management package to Rutherford Computers Ltd, also of Leeds. Terms of the acquisitions have not been disclosed; some venture capital was raised; completion is set for mid-June.

BIPOLAR HAS 65 MIPS ECL SPARC

Bipolar Integrated Technology Inc, Beaverton, Oregon has come out with the first ECL implementation of Sun Microsystems' Sparc RISC architecture, claiming the six-chip set to be the world's fastest microprocessor, enabling desktop workstations to run at three to four times the speed of those out today. The BIT Sparc is claimed to run at over 65 MIPS and a peak 40 MFLOPS. Bipolar is offering samples now, volume early next year, but didn't give a price for the set.

ARDENT PLANS FULL RANGE

It begins to look as if ambitious young companies are now much better served by Japanese sugar-daddies than by US venture capitalists, and the \$50m of new cash from its majority shareholder Kubota Ltd for Ardent Computer Corp follows similar largesse from their Japanese shareholders for Solbourne Computer Corp and Sanyo Icon Inc. The new cash more than double's Kubota's investment and will enable the maker of Titan graphics computers to bring out a new line of graphics computers in the Autumn going from low-cost personal "desktop supercomputer to a full-scale mini-supercomputer setting a new price-performance point. The desktop product, says founder Allen Michels, will be aggressively priced to appeal to large volume OEM customers for whom the cost of high-performance computers has previously been prohibitive. About half the \$50m will be in the form of equity financing this year, and the remainder will be provided in long-term loan and development agreements over the next several years. When the equity financing is completed next month, Kubota will hold a stake of about 44% in Ardent. Kubota has already invested \$44m and the company also raised \$13m in US venture capital in February 1986.

UI AND USO WORK ON UNIX CONTRACT

Even though Unix International and AT&T's Unix Software Operation have had a signed contract for a month now, it turns out that this particular legal document isn't good enough for their lawyers, who according to one Unix International insider, have spent weeks "tightening up the language" - writing in plain English, making sure there is no "waffling" and reinstating a key section that mysteriously got deleted from the draft as it got shuffled back and forth. Basically what they are trying to make airtight are those "what if clauses, as in, what if AT&T wants out of the business?" Or "what if Unix International wants a bigger share of things?" Interim Unix International chairman Don Herman indicated that if the Unix International-Unix Software Operation-AT&T relationship came to blows, Unix Software Operation by contract would get the Unix operating system for a big fee. However his colleague stressed last week that "there's no guarantee Unix International can take [Unix] over, but AT&T would discuss it." Once the lawyers are finished honing their masterpiece we might all get the chance to read it: Unix International is seriously considering making it public, despite worries that the legal jargon could be misinterpreted.

EX SUN ENGINEERS SPEED UP NFS "BY FIFTY PERCENT"

A company from Palo Alto, California claims to have come up with a networking system that improves the performance of the Network File System, NFS, on Sun servers by at least 50%. Legato Systems Inc has introduced Prestoserve, a hardware/software product that acts as a filesystem accelerator, cutting network server overheads and speeding up critical NFS functions. It comes with a software tape, VME bus board and documentation. Priced at \$8,000 it will be available from September. Prestoserve was designed by Legato's founders, a team of software engineers largely responsible for developing NFS. In particular input/output functions and a server's NFS disk write speed have been speeded up under Prestoserve. The first implementation is for Sun-3 and -4 NFS servers, though others are said to be under consideration, and is the first in a series of networking products the company is said to be developing. Legato was founded in September of last year with funding from Mayfield Fund and Greylock.

BIM GAINS PROLOG DISTRIBUTOR IN UK AND IRELAND

Belgian company BIM has given the green light to Integral Solutions Ltd, Basingstoke, Hants, to act as distributor for its Prolog system in the UK and Ireland. BIM Prolog runs on the entire Sun range including the new Sparcstation. It includes a window based development environment which features a mouse driven, source level debugger. Windowing and graphics libraries, as well as interfaces to relational databases are provided. Full price is £4,300, discounts will be available for education and those involved in ESPRIT projects.

UNIX BOOMS IN FRENCH MARKETPLACE

The French installed base of Unix systems totalled 51,400 at the end of 1988, representing 250,000 terminals and worth \$835m according to consultancy Pierre Audouin Conseil SA. Market leaders were Bull SA, Sun Microsystems, Apollo Computer and Hewlett-Packard, together accounting for 52% of the market by value, up from 44% in 1987. Bull was the leader with 13.18%, followed by 12.53% for Sun, 9.5% for Hewlett-Packard, 6.33% for Altos, 5.5% for Apollo - so together, Hewlett and Apollo leapfrog Bull into number one spot - 4.09% for SMH SA, 3.6% for Olivetti-Logabax - selling mainly AT&T 3B machines, 3.49% for IBM, 2.99% for Matra Datasysteme - up for grabs now that Matra is effectively out of the computer business, 2.84% for Texas Instruments, a lowly 2.57% for DEC, 2.47% for Celia SA - and 30.91% for all the rest. Surprises? Unisys Corp and NCR Corp are clearly not making the same impact in France that they are elsewhere. In volume terms only Sun was over the 10% mark. The consultant reckons that shipments last year soared to 21,200 systems against 13,200 in 1987, a growth of 61%, which was exactly the rate recorded for 1987 over 1986. Will it keep up the pace this year? Audouin thinks not, suggesting that it will moderate to 48% - compared with an increase of just 11% for all hardware ships. By value Unix systems also grew to 7.8% of sales in France last year, up from 5.9% in 1987. Particularly important, large accounts are now aware of Unix, and over 60% of respondents to the survey believed that business applications would be the most important Unix market in 1989.

PRIME READY TO SURRENDER TO MAI BASIC FOUR

Prime Computer Inc is ready to talk terms with MAI Basic if it can't find a white knight by July 26. The besieged Natick, Massachusetts minimaker postponed its annual meeting to that date from June 14. It is still hoping it can find a white knight, and has directed First Boston Corp and Smith Barney, Harris Upham & Co to continue their talks with third parties in the hope of selling at a higher price than MAI's new offer, and to resolicit interest from others who were previously contacted. Either way, the affair should now be settled by the annual meeting.

RECOGNITION EQUIPMENT WANTS PLEXUS ASSETS

The bones of failed Unix systems pioneer Plexus Computers Inc, which has been trading under Chapter XI bankruptcy protection since March, look like going to Recognition Equipment Inc, Dallas. Recognition has a letter of intent to acquire Plexus' image processing software technology, and hopes to have it wrapped up by mid-July, and intends to trade on the name by setting up a new Plexus Software Inc as a wholly-owned subsidiary, which, it plans, will market a comprehensive line of local area network-based image processing software for complex data processing applications, and take in the Plexus UK subsidiary based in London. Financial terms of the agreement have not been disclosed.

BAWAMBA EASES MAC-TO-MS-DOS/UNIX PROGRAM CONVERSION

In what could prove a significant threat to Apple Computer Inc's proprietary Macintosh market, a Burbank, California company, Bawamba Software Inc, has released the first version of a software package that is claimed to effect quick conversion of applications written for the Macintosh to run on MS-DOS and OS/2 personal computers. According to Newsbytes, the company says its Multiplatform Compatibility Package will enable a developer to change C or Pascal source code from a Macintosh program to MS-DOS or OS/2 source code in weeks instead of the months it would take to do a rewrite. Originally conceived as a method by which Macintosh applications could retain their look and feel on MS-DOS boxes, Package now converts the Macintosh interface to the Open Look interface developed by Sun Microsystems and AT&T for Unix, because the company wanted to avoid flak from Apple's legal department. Pull-down windows are replaced by pop-up windows, a menu bar is replaced by a vertical main menu that pops up when the mouse button is pressed, windows are dragged from their frames, as well as resized from all four corners. Screenplay Systems, which shares premises with Bawamba, will be the first to use the product, putting its Movie Magic Scheduling/Breakdown package through the conversion program. Bawamba is also doing a version to convert Macintosh software to Unix, also using the Open Look front end. The threat to Apple comes from the fact that much of the software written specifically for the Macintosh is very attractive, but Macs are much more expensive than mass market AT-alikes, so that while users would much prefer a Mac, many just can't afford one.

NIXDORF TAKES \$75m FIRST QUARTER LOSSES

The struggle to return to financial health is going to be much longer and harder than Nixdorf Computer AG had hoped, and the company has now reported that it made a DM148 - \$75m pre-tax loss in the first quarter of 1989, and that the trend was continuing this quarter. The losses were on sales up 7%; Nixdorf has reduced its payroll by 1,100 since November, and cost of production is up only 6% against 10% this time last year. It hopes its cost-cutting measures will lead to operating profit in the second half, but a full-year profit now looks unlikely.

TRON CONSORTIUM TO BRAVE US AT COMDEX/FALL

Tron - The Real-time Operating Nucleus all-things-to-all-men operating system - is the most controversial computing topic in Tokyo these days, but the Tron Association has no doubt and wants to spread the message to the outside world. It took space at Hannover and Belgium's Flanders Technology, and this autumn will breach the current world one computer show in prestige, Comdex/Fall in Las Vegas. The Tron Association has won the participation of foreign-affiliated firms, including IBM Japan, Motorola Inc and Siemens AG. Tron has leaped into the news following its inclusion by the US government in its formal list of trade complaints against the Japanese: the US is unhappy about plans to standardise on Tron for computers in Japanese schools, and fears that the government may mandate it for key contracts. The complaints are without merit, because the Tron specifications are freely - and cheaply - available, and US firms are free to use them if they wish. The real threat of Tron to the rest of the computing world is that it is giving Japanese participants their first experience of developing system software from the ground up - almost all Japanese chips have to be designed using US software and Japan's software development industry is still in its infancy. But whether Tron is a commercial success or a failure, its true importance to the Japanese is that it will enable them to cross the last great frontier to mastery of all the elements of computer technology.

NEW UNIFORM SET FOR BOSTON

Following the success of its winter counterpart, a summer Uniform exhibition has been quickly organised, and will take place at the Hynes Convention Centre in Boston, Massachusetts, between August 22 and 24: keynote presentations will be given by Donald McInnes, vice president of DEC; Larry Dooling, president of Unix Software Operation; and Lewis Amaro, vice president of the Open Software Operation.

...AS DEC PUTS 1989, 1990 DECWORLDS ON HOLD

With everyone in the company suffering a pay freeze, it is not politically a great idea to go in for the conspicuous extravagance like DECworld in Boston or DECville in Cannes, and the company has decided not to stage the events this year, and has put the 1990 stagings on hold as well. DECworld attracted between 50,000 and 60,000 to Boston in 1987, DECville 16,000 to 20,000 to Cannes in 1988, but as well as the expense, they tied up 25,000 DEC employees for the duration and more.

MODCOMP GETS SERIOUS WITH REAL-TIME REAL/IX UNIX

AEG AG's Modular Computer Systems Inc in Fort Lauderdale, Florida is beginning to show the benefits of the investment from its giant West German parent, and this week came out with a string of announcements led by its heavily previewed Real/IX operating system, which it describes as the first pre-emptive real-time Unix (ignoring claims by Concurrent Computer Corp, which says it has had pre-emptive real-time Unix for over two years) for its Classic Tri-Dimensional minicomputers. The fully pre-emptive kernel enables high priority tasks to be executed in real time, removing contention with lower priority processes and includes synchronisation mechanisms that ensure uncorrupted data without compromising real-time performance. To determine the sequence of task execution, Real/IX uses both fixed priority and time sharing scheduling, the scheduler supporting 256 real-time or time-sharing priority levels, with real-time ones getting the most favourable priorities. By supporting asynchronous input-output, Real/IX can process while performing input-output operations, and enhanced memory management facilities enable a process to be locked into memory, cutting out slow disk accesses. Users can schedule events to either absolute or relative time, and Real/IX also supports a fast binary semaphore mechanism that reduces system call overhead, allowing several processes to communicate without restricting real-time performance. It is object-code-compatible with Unix System V and fully meets the System V Interface Definition and System V Verification Suite; ModComp is also committed to X/Open's common application environment and the evolving IEEE Posix - it is a member of Unix International. Out in August, Real/IX will be included into the system prices for the Tri-D 9300 and 9700 and is separately priced at \$12,000 for some existing systems. Also of some note is a new General Language System that offers three industry-standard compilers - C, Fortran 77 and Pascal - for flexible coding, interlanguage callability, and easy portability among its machines. Programmers can choose from a number of optimisation options, depending on their expertise and the task, writing application-specific programs in the most appropriate language and incorporating them into sub programs written in any of the three languages. Modcomp also announced Oracle Version 6.0 and related tools on the Classics, at from \$19,000 for the base system, from December. A new DECnet Network Interface, integrates all ModComp Classics, 16-bit as well as 32-bit under MAX IV or MAX 32, into a DECnet Phase IV network. It starts at \$10,000 from August. A new Ada Compiler System is supported under Real/IX and MAX 32 and an interface to Oracle is planned. Starting at from \$22,000, it will be available in first quarter 1990.

FPS COMPUTING ADDS ECL SUPERMAX

Floating Point Systems Inc, the Beaverton, Oregon company now trading as FPS Computing has added a SuperMAX second generation matrix algebra accelerator module for its FPS M64 attached scientific processors. The company claims that the new accelerator can do 152 MFLOPS, at a price of \$130,000 to give a cost per MFLOPS of just \$855. As many as eight SuperMAXes can be added to an FPS M64/60 to give peak performance of 1.2 GFLOPS. SuperMAX is targeted at users with very large matrix applications, such as those found in the aerospace and electronics industries for analysis of structures, electromagnetic wave behaviour and fluid flow. All applications for the original MAX will run on SuperMAX without recompiling or relinking. The subroutine library for SuperMAX automatically checks the processing and storage resources available for a particular problem and divides the work among them to achieve the minimum time-to-solution, and is transparent to the user. With SuperMAX, FPS is offering high density removable disk subsystems of up to 14.4Gb capacity. Each SuperMAX module contains four processors, each based on high density ECL gate arrays to deliver seven times the power of the original - CMOS - MAX.

THE ROAD TO TRUSTED UNIX

by William Fellows

Recent, and well documented intrusions of Unix systems by "trojan horses" such as virus attacks, worms, and other security breaches via covert channels, have, over the last few months highlighted the problem companies face when trying to maintain security using a multi-user operating system underwritten by a rationale of openness and portability. Naturally the spotlight has fallen on ways and means of finding solutions to these problems, and a number of firms are taking a leading role in developing secure Unix packages. One of the more lively presentations from a Conference that accompanied the European Unix User Show was on this theme, delivered by Peter Alsberg, chairman of Addamax Corporation. The impetus of the secure Unix industry is focused on developing "trusted" Unix systems, that is systems which are trusted to block certain threats, but not others, encapsulating a more rigorous approach than the concept of "security," in which a system may be secure because it blocks threats A, B and C, but is not secure because it does not block threats X, Y and Z. A trusted system is said to be one which enforces precisely stated security policies which are designed to counter specific threats to security.

Rainbow standards

The US National Computer Security Center, (NCSC), has what is known as the "Rainbow" series of standards for defining security in various information technology arenas. The familiar Orange book defines criteria for evaluating trusted computer systems, (TCSEC). The Red book deals with trusted networks and the Blue book deals with PCs. Others include the Green book for password management, the Brown book for audit security and the Yellow book, which defines what can be used where. As yet there is no book for evaluating security in databases. TCSEC evaluation classes range from minimal security - D; through discretionary access controls, (DAC), comprising of discretionary security - C1, and controlled access - C2; to mandatory access controls, (MAC), with labelled security - B1, modular security - B2, and isolated domains - B3; up to verified security, a formal proof of security - A1. However it would seem that none of these are a replacement for sound engineering, nor are they prescriptions for specific solutions or functional or requirement specifications. What they do provide are assurances of security from testing, through specification, verification and configuration to distribution and documentation.

Commercial controls

Most commercial systems it appears, do have some kind of discretionary access controls, though according to Alsberg these are usually near to C1 and C2 criteria and far from B3 security. Unix has no concept of mandatory access controls, so developing B level compliant systems with Unix tends to be a very costly and time consuming process - such controls have complex effects on the file system, shared resources and devices running off it. Often it is precisely these shared resources that open up "covert channels," allowing data to be passed between users when in fact it should have only restricted access. To minimise the presence of covert channels in systems, Alsberg says that system design should be addressed to level B2 and above, and although there will always be shared resources, the worst offenders can be designed out. Vaccines and inoculations, such as those prescribed by companies such as Sun after the Arpnet worm attack at the end of last year, (UX No 205), are only one shot solutions and are virus specific. Mandatory controls in particular can help contain damage when incursions like this take place. Unix can be made trusted, and the Unix interface can be used at all classes Alsberg argued, "its just a matter of time and money, but the trick is to keep it Unix".

Demand, development & the future

The demand for trusted Unix systems is being fuelled by NATO, the US Department of Defense and the UK Ministry of Defence, who are all engaged in \$100m+ purchases - the US Government as a whole will require C2 on everything by 1992, and is committed to spending \$1 billion. At this time over 70 systems of all types have been submitted for NCSC evaluation, but only nine have been evaluated and approved - seven at C2 level, and one each at B1 and A1. There is however only one evaluated trusted Unix, Gould's C2 Unix. Everything else is under evaluation, though research and development efforts are presently concentrated at the B1 level. A B2 Unix from AT&T is likely sometime after 1991, which will almost certainly force a similar offering from the Open Software Foundation. As for the future, Alsberg sees B1 Unix being an off-the-shelf standard by 1993, B2 shortly after, and B3/A1 Unix applications becoming available from specialist houses around the same time. Because of the niche market target areas, Alsberg thinks B3 or higher systems are unlikely to be targeted by Unix International or the OSF, the main commercial markets being in the B2 hemisphere.

DG COLLECTS UNIX PARTNERS - WORKS ON SOFTWARE SHORTAGE

Data General's 88000 based AViiON systems launched back in March, (UX No 220), were on show for the first time in Europe this week at the European Unix User Show. UK prices for the machines were also revealed. The AV/300 workstation series range from £6,154 for the bottom of the range 17 Mips system, up to £20,292 for the 20 Mips equivalent. The AV/500 multi-user/server systems start at £26,510, going up to £104,127. Also announced was a \$5m, three year VAR contract with Zetaco Inc, Minneapolis, Minnesota, for AViiON Systems, and under a separate agreement Zetaco is to licence DG/UX 4.1, Data General's Unix implementation. The AViiON workstations will be used in future generations of Zetaco's Sun based NETstor series. Tadpole Technology is also reported to have acquired a licence for DG/UX 4.1 which it will use as the core implementation of its own Unix implementation TP-IX. Tadpole says it will port TP-IX to its range of 88000 boards, as well as to the Intel i860. Since its launch back in February at Uniforum, DG/UX 4.1 has suffered from a lack of supporting software, and Data General says it is now working hard to address this problem. Under an agreement just completed with Green Hills Software Inc, the Glendale, California based company's FORTRAN, C and Pascal compilers are to become available directly from Data General for AViiON and Dasher systems. At the show, Data General's director of open systems marketing, Janpieter Scheerder, also revealed that the company is to adopt the DEC/HP Motif user interface as the standard on its DG/UX systems, including the AViiON Risc machines. However Scheerder said that it "won't be the only one", and indicated that a proprietary interface is also under development.

*** European Unix User Show 1989 ***

ALTOS ADDS MEMORY, PERIPHERALS TO SERIES 1000

Altos Computer Systems has boosted its systems line with a new range of peripherals for the 386 Series 1000. Included in the announcements are 190Mb and 700Mb disks, disk expansion cabinets, a 2Gb back-up unit from Exabyte, uninterruptible power supply, and a new terminal, the Altos VII. Also added were a 9 track tape drive interface and the new SCSI II interface, which doubles existing data transfer rate. And Altos has provided additional logins on the latest version of its operating system, Altos System V/386, which now supports up to 64 users. On the software side, Altos has introduced a new bundle of office automation software under the title Altos Open Office, which brings together Word Perfect 4.2, SCO Professional, JSB Multiview along with mail and calendar facilities within a single package. Price in the UK is £3795 for 386 Series 1000 and 2000 system, with an unlimited user licence. But many Altos dealers are waiting for the company to bring out a more powerful machine at the top end of the range: Altos is thought to have plans for a 128 user system for launch later this year.

ICL EXPANDS DRS400 SYSTEMS - ADDS X/OPEN CONFORMANCE

ICL has added to the DRS400 (previously Clan 4) range of Motorola-based systems it buys in from Datamedia Inc with two new systems: the DRS400 Level 70 and Level 75. The systems use the Motorola 68030 processor running at 25MHz, and are the first to use ICL's own port of Unix System V.3.2, now called DRS/NX, and certified by X/Open as conformant to the XPG2 common applications environment. The new systems add to the top end of the DRS 400 range, supporting from 16 to over 40 active users, and are likely to be used as workgroup or departmental systems. ICL offers 8Mb memory on the Level 70, and 16Mb on the Level 75, both expandable to 64Mb, and up to four 300Mb hard disks. Prices for a full 24 user configuration start at around \$45,000. ICL was one of the prime movers behind the formation of X/Open back in 1985 (UX No 23), and is now working hard to bring its own Unix range - bought in from various suppliers such as Datamedia and Computer Consoles Inc - up to full X/Open certification with a single X/Open certified version of System V.4 across the range during 1990.

BAYDEL PACKAGES SUN'S FOR INDUSTRIAL MARKETS

New UK company Baydel Ltd of Leatherhead, Surrey, is taking Sun boards and adapting the supporting hardware and software, to reach the mechanical and industrial niche markets that Sun cannot reach. Based on the Sun-3 and -4, there is a 386, 25MHz tower file server, and a supermini. Both use 600Mb Winchester, a small system disc and standard 150Mb tape cartridge. This gives a capacity of up to 2Gb, which can also be backed up on to a single 2Gb 8mm video type tape cartridge. Terminal support is serial, or via Ethernet running under TCP/IP. The machines run Unix 3.2 and include NFS. Each is available in stand alone or rack mount enclosures for industrial, ruggedised, military and TEMPEST applications.

MICRO FOCUS ADDS Co-WRITER COBOL GENERATOR FOR UNIX

Micro Focus Plc has added a report writer for Unix systems. The company claims that Co-Writer/2 can be used to supply "fourth generation functionality" within a Cobol application. Co-Writer/2, for use with Cobol/2, is also available for MS-DOS and OS/2; no prices were given.

VISIONWARE LAUNCHED

VisionWare Ltd chose the European Unix Show as its launchpad last week. Set up by Systime technical development manager Tony Denson and commercial manager of the Visionware group Chris Holmes, the new company is currently negotiating for the acquisition of exclusive rights to Systime's VisionWare software product range. The flagship product is PC-Connect, which allows PCs to act as a front-end to Unix machines using Microsoft Windows: it is currently re-badged by Altos, and deals are also in place with Bluebird, Computer Consoles Inc, UK computer manufacturer Jarrogate, and software distributors Sphinx Ltd. An extension of the product, PC-XVision, turns PCs into X servers, still using MS-Windows as the interface. Other products in the pipeline include SQL-Connect, giving PC users the ability to make SQL queries of a host based relational database management system, and new suite of Unix based utilities using MS-Windows.

ARIX PROMISES EXTENDED SYSTEM 90 SERIES LATER THIS YEAR

Arix Corp, San Jose, California, is due to extend its latest System 90 upwards with Sparc boards and 68040 upgrades when the latter become available, according to UK and European managing director David Bethel. The system 90 series, which includes the up to four processor model 40 and up to eight processor model 80, currently supports between 16 and 512 users, and uses tightly coupled 68020s running at 25MHz for a performance range of between 4 and 30 MIPS. Arix, which claims to be the world's third largest manufacturer of mid-range systems, selling hardware mostly through OEMS such as ABS, Mannesmann Kienzle, Microtex, Star and Unisys Corp, is set to introduce a new high end series of systems later this year, and Bethel says existing machines will become POSIX stamped in October. Arix uses a proprietary bus architecture employing three distinct processing paths connected to a bus arbiter, each of which can be upgraded to derive greater performance. Arix's European division now employs ten people, and Bethel says that there are now some 1,000 Arix systems installed in Europe, the UK market is reckoned to account for 500 of these.

UNIX INTERNATIONAL WILL MAP OUT UNIX FUTURE BY YEAR END

During his keynote speech on the second day of the conference, Peter Cunningham wasn't giving any clues away about the future of Unix International - bearing in mind recent speculation that the group may be considering a move to bring the reins of Unix nearer to its grasp. However he did shed some light on a few of the less esoteric goings on within the organisation. The Unix International Road Map, which was the subject of much discussion at the launch of Unix International back in February, (UX No 216), and subsequently seemed to get lost somewhere on route, has re-emerged with a commitment from Cunningham that it will arrive at its destination by the end of the year. It's aim is to provide a path plan for the direction of Unix development over the next five years, with timescales for future Unix releases, allowing software and hardware companies to coordinate their own development efforts accordingly. On the workgroup side, specifications for the multi-processing version of Unix are due to be set by Q3 this year, the design approach will be finalised by the end of the year and the product is expected to hit the streets sometime during 1991. As far as the early access programme for development versions of V.4 is concerned, it seems that 80% of those members eligible have taken up their option to receive early versions of Unix, which means that 23 major companies around the world already now have final development versions - their own products based on V.4 should then be available within the next six months - but what of the other 20% we ask? Finally Unix International has consolidated its European base, appointing Steiner Holstad from NEC Norway as head of operations in Brussels.

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Solbourne Computer Inc has signed agreements with distributors in Australia, Greece, Taiwan and Israel totaling \$19.8 million over the next 12 to 36 months: the deals are with Solbourne Computer Australia Pty Ltd in Kew; ACE-Hellias in Athens (a subsidiary of American Computers and Engineers Inc, Los Angeles); Solbourne Computer Isreal Ltd (owned by Omnitech Ltd in Tel Aviv); and Syscom Computer Engineering in Taipei, Taiwan.

- 0 -

Pyramid Technology Corp shares lost 26% of their value, plunging \$3.50 to \$9.75 late Tuesday after the company warned that it may report a loss for the quarter to June 30.

- 0 -

Sun Microsystems has launched a new GXi graphics accelerator card for the Sun 386i, claiming that graphics performance is boosted from three to ten times: using the 5 MIPS TMS34010 graphics processor from Texas Instruments, with software drivers from Sun, and costs \$2,750 (£2,250 in the UK) for existing Sun 386i users.

- 0 -

Cimline's UK subsidiary Cadline is on the verge of changing its name to bring it in line with its parent company - an announcement is expected sometime in July - Cadline's earnings are expected to be more than £7m for its financial year, which ends in September.

- 0 -

UK expert systems house Telecomputing Plc of Oxford will be ready with DEC VAX and Unix versions of its Prolog-based Top-One expert systems building product at the start of next year: Top-One was launched at the end of 1987 and currently runs on IBM and ICL mainframes, although so far only thirteen licenses have been sold so far, all in the UK.

- 0 -

In an effort to increase support for the Sparc, Sun has reportedly approached NCR Corp suggesting it use it in its mainframes in succession to the NCR 32 microprocessor: it has also been in touch with Compaq Computer Corp and Acer Technologies in the hope of getting them to use Sparcs for future products.

Acer America Inc, San Jose has merged its Acer Counterpoint Unix systems acquisition with its pre-existing Acer Technologies personal computer business to create a new Acer America Inc. Counterpoint founder Pauline Alker now becomes president of sales and marketing.

- 0 -

Pixar Inc, San Rafael, California, cut its workforce by about 25%, citing slow growth in the market for its image processing systems.

- 0 -

IBM UK announced a new category of dealer at the European Unix User Show last week: dealers selling RT and PS/2 hardware using the AIX operating system can be designated Multi-User Centres - the equivalent of SAA System Centres - if they meet IBM criteria including staff with Unix expertise, at least three reference sites, and "a proven track record" in selling to and supporting Unix customers, according to Mike Lunch, IBM UK's Multi-user Sales Manager: the first 32 will be announced today, including Ferrari Software of Egham, Optim Computers, Letchworth and Mytek of Birmingham.

- 0 -

IBM is touting a chart from the May edition of Unix Review showing the PS/2 Model 70 running AIX Unix with a price-performance rating of \$2.64 per Khornerstone - better than Compaq Computer and Sun machines, far better than the 4.71 rating for the Model 70 under SCO Xenix: a comparative study of AIX and Xenix by UK consultant Digitus Ltd also found that AIX performed better, except running processor-intensive tasks.

- 0 -

Hewlett-Packard Co has won a £3m order from the Engineering Department of Cambridge University for over 100 HP9000 Series 300 Unix workstations and two of its high-end HP9000 800 Unix RISC machines.

- 0 -

Another big Unix systems order for Hewlett-Packard Co, this time \$30m for 40 HP9000 Series 800 RISC machines from courier DHL Europe, which wants them to improve its delivery efficiency in continental Europe.

In a shock move, Stratus Computer Ltd is putting UK prices on its fault-tolerant XA2000 models 110 to 160 computers up by 10% with entry prices now ranging from £145,000 to £635,000 with effect from July 1: the company blames inflation and the dollar's rise against sterling; smaller models are not affected.

- 0 -

DEC was reportedly showing off a working version of its long talked of Posix compliant version of the VMS operating systems at a recent DEC User Society meeting in the US: but a generally available version is not expected for some time, although some conformance should find its way into VMS version 5.3, due out in the first quarter of 1990.

- 0 -

Cincinnati, Ohio-based Tominy Inc has implemented its Mach 1 Application Development Environment to AT&T Co's 3B2 systems and 68030 machines - Mach 1 is claimed to permit integration of multivendor software development environments: runtime licences start at \$1,000, development licences from \$1,750.

- 0 -

Trying to embarrass Motorola Inc as much as it can over its microcontroller patent infringement suit, Hitachi Ltd has filed an amendment to its counterclaim against Motorola to include allegations asserting that the MC68030 microprocessor infringes Hitachi's US Patent No 4,646,271: "Motorola's improvident filing of its lawsuit against Hitachi caused Hitachi to re-examine its patent portfolio in view of Motorola's products - we discovered that Motorola's MC68030 infringes our patent," stated a spokesman.

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CANON PAYS \$100m FOR 16% NEXT INC STAKE

Despite the jibes and the scepticism that greeted Steve Jobs' NeXT Computer System when it was finally launched, NeXT Inc has won some very powerful allies indeed - IBM became an early fan when it took a licence to the NeXTStep user interface for Unix, the redoubtable Ross Perot pumped \$26m into the company at a time when the delays over getting the product to the launch-pad were damaging NeXT's credibility, retailer Businessland Inc has signed for \$100m of the workstations, and now, as well as announcing plans to market the NeXT Inc machines in Japan, Canon Inc, which supplies the controversial optical disk drive, has revealed an investment for a daunting \$100m in the company. The cash - which represents a 16.7% stake in NeXT Inc, valuing the start-up company at \$600m, and bringing Jobs' own stake down to 50% - is thought to be needed to ramp up production to fill the giant order from Businessland. The investment gives Canon the exclusive right to market Next's computer in Asia, but Canon gets no technology or manufacturing rights. It says it plans that the NeXT machine will be the only Unix machine it offers, implying that it will not be marketing Apple Computer Inc Macintoshes under A/UX Unix. Canon gets a seat on the board but is limited to a maximum of 20% for the next 10 years. The machines to be sold in Japan will be manufactured entirely by NeXT at its highly automated manufacturing facility in Fremont, and will carry the NeXT brand name. Japanese companies have become much bolder in backing young US computer companies - for a decade, Fujitsu Ltd's big investment in Amdahl Corp was a lone aberration, but Kubota Inc's funding of Ardent Computer, Sanyo Electric's majority stake in Icon International and Matsushita Electric's bankrolling of Solbourne Computer - in each case enabling the companies to come out with new products at a much faster rate than is normal for venture capital-funded US start-ups, is likely to herald a wave of such Japanese investments.

DEC SPEEDS ULTRIX FOR RISC STATIONS

DEC has looked again at its implementation of Ultrix on the new DECstation range of workstations that utilise RISC processors from Mips Computer Systems Inc, and come up with a faster version. Ultrix-32 version 3.1 and Ultrix Worksystem Software version 2.1, which ships this Monday, will be available both on the VAX and DECstation ranges, but on RISC-based systems it should result in performance increases of up to 30%, according to DEC. "When we first moved Ultrix over to the new RISC machines we did it rather quickly under market pressure", said DEC's Ultrix marketing manager Joe Menard. "Now we've optimised the kernel and re-compiled it." DEC claims that following performance comparisons using a range of applications, it has measured gains in four separate areas: from 12% to 15% on process forks, 20% to 30% on disk read/write/copy, 15% to 25% on system calls, and 15% on network throughput. Although performance gains do not apply to the VAX implementation of the new release, DEC has added Ultrix support for the 3300 and 3400 VAX systems, as well as for its 128Mb solid state disks, its RF30 150Mb and 400Mb DSSI disks, RRD 40 optical disks and various communications boards for the VAX range. The new version can be installed as a patch to Ultrix version 3.0 and UWS 2.0, avoiding the need for full scale integration at customer sites, said DEC.

AT&T HAS C++ RELEASE 2, OPEN LOOK AGREEMENT

Release 2.0 of C++, described as the first "industrial strength" release of the object-oriented language, will be available to industry vendors by the end of June, according to AT&T, which released the new version at the Usenix show in Baltimore last week. Release 2 includes all the major features the author of the language, Dr Bjarne Stroustrup of AT&T Bell Laboratories, has developed to date, notably multiple inheritance, where a child object can inherit the properties of more than one parent. There is also expanded documentation and a product support programme. Vendors supporting the product included HCR Corp, which is providing the first packaged version of the compiler, Mentor Graphics, using the language to develop its next generation design tools, Ontologic Inc, working on a object-oriented database, and hardware vendors including Sun, Apple and Apollo/Hewlett-Packard. AT&T has also agreed with Sun Microsystems Inc that each will incorporate the other's X Window-based tool kits - AT&T's X Toolkit, Sun's XView - for the Open Look user interface into their source code products, so that developers can take their pick.

OSF ISSUES THIRD RFT FOR DISTRIBUTED COMPUTING

The Open Software Foundation has, as expected (UX No 223) issued its third Request for Technology document to solicit interoperability technology, in its initial move to create "a vendor neutral networking and distributed computing environment". The aim is to identify the core technologies needed to support distributed applications including services such as remote procedure calls, naming of network resources, authentication and network security, presentation services for multi-vendor data representations, and distributed file systems - corresponding to the Session, Presentation and Application layers of the OSI model. Applications not a part of the core services (such as electronic mail), and network protocols and interfaces of OSI level 4 and below are not included within the RFT. Letters of intent are due in on July 28th, with complete submissions to be ready by October 6th. The next stage is a members technology review meeting scheduled for November, after which an evaluation team will review the submissions. OSF said it envisaged shipments by mid-1990. Submissions are likely to involve technologies from various sources, and are expected to be the subject of fierce debate as OSF members push for their own vision of the distributed model.

MULTIFLOW PICKS METROLOGIE

Multiflow Computer Inc, with European headquarters in Louvain-la-Neuve, Belgium, has picked Metrologie SA to distribute its Very Long Instruction Word Trace machines in France, in an agreement valued by Multiflow at over \$9m over its three year period. Ing C Olivetti SpA handles them in Italy, and GEI Rechner-systeme GmbH for West Germany. Metrologie is a long-established specialist computer distributor, with 1,500 employees, 15 subsidiaries and three affiliated companies - it sells via 11 distribution offices throughout France. Multiflow, which recently was forced to shelve its plans to merge with Adage Inc (UX No 232) says it is currently setting up a subsidiary operation to handle sales in the UK.

INTERNATIONAL NEWS

BULL SA PREPARES ITS STRATEGY FOR THE SINGLE EUROPEAN MARKET

Amongst major additions to its proprietary DPS7000 main-frame range, and the launch of the Bull Micral 600 micro running under MS-DOS or Unix with 25MHz 80386 Intel processor at Bull '89 in Rome recently, Groupe Bull attempted to shed some light on its future Unix and open systems policy. According to UK managing director George McNeil, Bull really is one company now and is trying to behave like one, despite its geographical differences which are continually highlighted by the two main companies that make up the Group: Bull SA, the French lynchpin (92% owned by the French government) and covering most of continental Europe and much of Africa, and Bull HN, which more or less accounts for the Rest of the World except for Japan, where NEC, the third part of the triumvirate holds sway (although as something of a sleeping partner at present). Clearly, however, there are no plans to merge these two organisations into one big multinational, for the key team phrases were "integration" and "complementary activities" that respect the differences between nationalities. Both McNeil and Jacques Stern, chairman of Bull HN, argued that internationalism meant compatible hardware, but that vertical markets and their consequent software solutions would retain national differences. Roland Pampel, chief executive officer of Bull HN, elaborated the international theme saying that Bull SA has a full grip on the European computer industry, while Bull HN, via the Honeywell connection, has access to US research and development, and 15% shareholder NEC gives a technological input from Japan. Consequently, Bull is arguably, structurally ready for the Single European Market, as it stands astride the Atlantic.

Incompatible Unix

Open systems, of course, fit in beautifully with the new corporate image being courted by Bull, since, under its philosophy, common hardware gives the company the ability to bring in its open market strategy in the Single European Market, whereby it focuses on the provision of software for niche markets. At present, however, Bull produces two incompatible Unix operating systems: Bull SA has the DPX 2000, while Bull HN has the XPS 100. According to McNeil, an announcement will be made later this year heralding the arrival of an Open Software Foundation-compliant system using the OSF Motif user interface. All applications running on either of Bull's native versions of Unix will then be ported to the new system. McNeil said that he then believed the DPX 2000 and the XPS 100 would be phased out. Pampel, however, denied that this would happen, saying that native versions of Unix would still be sold. Ultimately, Bull hopes to have Unix integrated with the GCOS ranges, as well as with its native Unix offerings. Pampel said that while Unix on GCOS 8 and GCOS 7 was as yet unannounced, a Unix co-processor for the DPS 7000 "was probably coming out". But, he declined to comment on the amount of turnover that Unix systems would generate for Bull in five years' time, and would not even go so far as to say that it be more than the 10% that it derives from "Open Systems" at the moment.

NOW ICL BUYS 40% STAKE IN GERMAN UNIX SOFTWARE HOUSE META-TECH

ICL, the UK's largest computer company, has announced that it will be taking a 40% stake in manufacturing systems specialist Meta-Tech GmbH, which specialises in computer-aided design and manufacturing, production planning and expert systems, on Unix hardware. ICL will collaborate with Meta-Tech, which employs 40 Unix specialists, in the manufacturing field. No financial details of the acquisition have been given. The move comes after a year in which ICL has been forming partnerships with a number of German software companies, including InfoPlan of Cologne for the Indus production planning and control system. Unix in Europe

TRINITEC FORMS AMARANTE FOR COMMS SOFTWARE

Trinotec Plc, the diversifying London-based display terminals distributor, has established Amarante Ltd as a subsidiary to specialise in software and communications products. Amarante is the second subsidiary to emerge from the Trinotec stable in the last eight months. The first was Conformix Ltd, which was set up to address the Unix market and currently distributes for Intel, Interactive Systems, Genicom and Specialix Systems. Amarante's first distributorship is for Banyan Systems wide area network, Vines. The system runs on 80286-and 80386-based machines and supports a number of local area and wide area networks. The core of the network is Streettalk, a global naming system that gives access to the multi-user file and shared printer services, electronic mail and integrated services to asynchronous host computers and IBM host computers on 3270 SNA or Bisync. The new company acknowledges that the dominant system in this market is Novell's NetWare, but argues that Vines is aimed at corporate networking, rather than Novell's workgroup market. Nonetheless, Amarante is priced to appeal to both. The 80286 version is around £1,000 and the 80386 just under £5,000.

ALTOS ACCOUNTING VARS TO MERGE

UK Altos accounting reseller Office Automation Ltd of Norwich has announced that it is to merge with Inta Electronics of Wokingham, Berkshire, in a bid to speed up its growth levels. Founded in 1982, the company is an Altos value-added reseller specialising in accountancy systems using the Multisoft Premier package, and last year achieved a turnover of around £3.5 million. Four year-old Inta also uses Altos hardware as the basis of its Tetraplan and Chameleon accounting systems as developed by Tetra Business Systems Ltd. The move will add £1m turnover to the as yet unnamed new company, which is opening a new North London office and installing a further eight sales and support staff, taking the total number of staff up to 65, and the customer base to over 600. Both Office Automation and Inta have their own support operations, which are to be combined at Inta's facility in Wokingham, and may be expanded as a third party maintenance operation. The two companies will continue as separate entities until the new holding company is established. Ray Townsend, Sales and Marketing Director with Office Automation, said that he was looking to double the company's turnover in 1990, and said that he was currently evaluating additional Unix hardware platforms to supplement the Altos business.

NCUBE, ORACLE TEAM LAUNCH THIS WEEK

Oracle Corp will early this week share a platform with Portland, Oregon-based developer of massively parallel computers NCube Corp to announce "the world's fastest supercomputer" and the first supercomputer to run both Unix and the Oracle relational database. News of the new NCube surfaced in May with word of a new hypercube that would have as many as 8,192 nodes, each using a specially-designed processor (UX No 231). The existing NCubes use 32-bit "VAX-style" complex instruction set nodes, and can be front-ended by a Unix workstation. The aim of the Oracle development effort, which is also thought to involve Bolt, Beranek & Newman Inc's BBN Computers, is to design a parallel database engine that will be four times faster and 20 times more cost-effective than relational databases on the biggest IBM hosts.

SPECTRUM CONCEPTS OPENS MAC COMMS

Spectrum Concepts Inc, New York has a software system "that will give Apple Macintosh computers unprecedented access to corporate communications networks, the firm claims. XCOM 6.2 for the Macintosh is based on IBM's Advanced Program-to-Program Communications Logical Unit 6.2 specifications, and any XCOM 6.2 computer can exchange files, jobs and reports with any other XCOM 6.2 computer. XCOM 6.2 is available for IBM VTAM hosts, S/36, S/38, AS/400, MS-DOS and OS/2, DEC VAX, AT&T 3B2, Apollo and Sun workstations. XCOM 6.2 is claimed to be the first, and currently the only, Macintosh application to use MacAPPC and is compatible with SDLC, Token-Ring and AppleTalk. Due out in September, it costs \$450, and needs MACAPPC installed.

INTERACTIVE UN-BUNDLES UNIX WITH ARCHITECH SERIES

Kodak-owned Unix operating system supplier Interactive Corp is fighting back with its own new marketing strategy following the launch of Open Desktop by its rival Santa Cruz Operation at Uniforum earlier this year. But instead of opting for a low-cost bundling deal like Open Desktop, Interactive has un-bundled its products into a series of Unix system software modules, allowing systems designers and VARs to choose their own configuration. Interactive's Architech Series packages the modules into three main areas - application, network and workstation - allowing configurations ranging from non-networked run-time environments to full software development platforms. Along with the base 386/ix System V.3.2 compatible operating system, Interactive offers starter, extender and developer configurations within the three categories. An application starter system, for instance, is priced at \$745 for a single user system including 386/ix operating system, VP/ix MS-DOS under Unix, the Ten Plus user interface and documentation: a multi-user version costs \$1,445. An extender pack would also include PC-Interface, while the developer pack - priced at \$1,445 single-user, \$2,145 multi-user - has the full Unix software development system and text processing utilities. Network and workstation configurations can be configured in a similar way, including such components as TCP/IP, NFS and X Windows. Interactive has recently signed OEM deals with Bull SA and tiny UK computer manufacturer Jarogate Ltd of Surbiton in Surrey, and has a major distribution agreement with Intra-Unix of Berlin.

DEC "RECASTS STRATEGY" FOR TOP-END ARIDUS VAX

DEC is reconsidering its strategy for the forthcoming top-end VAX processor, code-named Aridus because it is an air-cooled - dry - version of a water-cooled ECL CPU that has been abandoned - and may come out with one version for business and a differently cheaper version for scientific and technical users, where DEC fears erosion of its base, but use a 30 MIPS version of the processor in both. According to Electronic News, the plan had been to make the cheaper version a 21 MIPS version of the processor - achieved by using a slower clock speed. VAX MIPS are generally reckoned to be about two thirds of IBM MIPS, so the uniprocessor performance should approach that of the full 3090 uniprocessor. The business version is expected to be offered with up to four processors and in that configuration to deliver at least 100 VAX MIPS - 66 IBM MIPS or close to a 3090-300. The technical version is expected to be limited to two processors, although the quad version is not likely to appear until six months after the single and dual processor models. The machines are expected to arrive later this year, but before then, a 7 MIPS processor for the VAX 6000 line is expected. DEC has also considered offering VAXclusters of four of the quad processor Aridus machines to create a complex delivering 400 MIPS.

ZILOG FINALLY SOLD TO ITS MANAGEMENT BY EXXON CORP

Zilog Inc, just about the last remnant of oil giant Exxon Corp's ill-starred plunge into computer technology in the mid- 1970s, has been on the block for several years now, but the company has finally got shot of the business, selling it to its management, with financial backing from Warburg Pincus Capital Co LP. Headquartered in Campbell, California, Zilog, whose Z80 was the runaway winner in the second generation 8-bit microprocessor market but stumbled in the 16-bit market because Zilog delayed a 16-bit version until it had tried and largely failed to establish the incompatible Z8000, now majors on applications-specific integrated circuits, using the Z80 and its Z8 microcontroller variant, the Z280 16-bit version, the Z8000 and its Z80000 32-bit version as standard cells as well as separate components. It has manufacturing plants in Nampa, Idaho and in the Philippines. The purchase price - in cash - was not disclosed.

PRIME "EXPECTING BETTER OFFER" TO TOP MAI BID

Prime Computer Inc now says it now believes that "prospects for a better bid" than MAI Basic Four's "are in fact substantial". The company says it is in discussions with "several Fortune 500-sized companies and two well established leveraged buyout firms", and is continuing to resolicit 65 potential buyers who turned it down earlier this spring. One of the potential suitors has submitted sealed documents to the court evidencing "serious interest" in making a bid for Prime, but saying it needed four weeks to evaluate the company. Prime says that its investment advisors value the whole MAI bid package at the equivalent of \$16.55 a share to \$17.80 a share, and suggests that bidders who weren't willing to beat the \$20 cash bid from MAI, now withdrawn, may well be willing to bid higher than the lower offer.

HHB - FIRST IN A STRING OF ACQUISITIONS FROM RACAL-REDAC

The pace of the fast growing electronic design automation market is hotting up with news of the acquisition of computer aided engineering firm HHB Systems Inc by the Racal Redac Group Ltd. It is the first move in a drive by the company to climb to the top of the ladder in this marketplace, which is led by Daisy/Cadnetix Inc, Mentor Graphics and Valid Logic Systems. Bought for a snip at \$19m - Cadnetix paid \$77m for the same Mahwah, New Jersey based company only last year - HHB is to be operated as an autonomous division by its new parent. It was stressed that this won't mean the two will be competing in the same market areas. As well as an improved computer aided engineering - CAE - capability, and consolidating its future in the simulation market, HHB brings much needed distribution channels in the US and Asia to Racal Redac. HHB is the first in a series of buy ups the Tewksbury, Gloucestershire based company has planned for the coming months, to draw new products, distribution and service outlets into its stable. Formerly CAE sales have represented only about 20% of Racal Redac's sales. One immediate consequence of the new ownership is the integration of some development programs, which will lead to a new range of CAE tools by the end of the year, according to Dr Gary Vanstone, managing director of the Racal Redac group. In particular, a VHDL capability is to be added within its electronic design automation product environment. VHDL is a virtual hardware description language for simulation techniques which has been adopted as a standard by the IEEE. There may also be some job losses from the US sales force of HHB during the restructuring process, a sales team already savaged from the loss of some 60% of its workforce when the Daisy bid for Cadnetix became apparent - HHB currently employs around 110 people worldwide.

Pummelling

A condition of the sale has been that Daisy will still take HHB products via an OEM agreement, and Racal Redac says it expects more OEM deals to be struck soon. HHB manufactures a range of computer aided engineering tools, the most well known of which is the CADAT logic simulator package for printed circuit board and application specific independent circuit, (ASIC), design. NEC for example uses CADAT to undertake around 300 chip designs a year. Products from Racal Redac and HHB are already compatible - work on integration has been going on for the last four years under the terms of an existing OEM agreement in which Racal Redac bought in the CADAT package. They run on MS-DOS and VAX systems, Unix 386 boxes and the RISC machines from DEC, Sun and Apollo. Sales to Racal Redac represented 17% of HHB's total revenue last year, sales which have taken a pummelling more recently, mainly attributed to the way the company has been passed around like a rag doll. HHB saw sales of only \$5m for the entire first six months of the year, although these have picked up to \$3.9m for the third quarter - break even point according to a company spokesman, and they are expected to reveal a rise again this quarter which ends July 1st. Revenue of the combined operations of the two firms is expected to be around \$90m for the year. The CAD/CAE market is said to be forging ahead with growth rates of 30% a year or more, the printed circuit board market a less hasty 15%, with Racal Redac claiming a 40% a year growth rate in its business to Japan, and 9,000 installations worldwide. In other news from Racal Redac, the firm has added Visula Plus to its Visula CAD/CAE/CAM suite. It allows printed circuit board design to take advantage of multiple "panel" manufacturing strategies, in which boards are made in multiple quantities on one sheet of laminate known as a "panel," rather than singly.

SOFTWARE TOOLS 89

Last week's heatwave in the UK didn't put off the enthusiastic visitors to the 1989 Software Tools exhibition held in London's Wembley Exhibition Centre, though at some of the more popular stands they were getting a free sauna thrown in with product demonstrations.

At the show DEC announced that it is to support some of Systematica's Virtual Software Factory products on its systems - the analyst/designer workbench packages are to be manufactured, marketed and supported by DEC throughout Europe under a software agreement. First to become available will be HOOD-SF, the commercial version of the workbench built by Systematica for the European Space Agency. Priced at £8,500 on VAX/VMS systems, it includes DECwindows and DECnet support, and Ultrix versions will follow in a couple of months. HOOD-SF supports the Hierarchical Object Orientated Design method, and incorporates automatic Ada generation. Towards the end of the year, SSADM-SF will become available, supporting the Structured System And Design Methodology, which is mandated by the CCTA for all UK civil government projects. DEC's UK CASE marketing manager Chris Martin says that it will be developed to include the new version 4 of SSADM when it appears in October.

As a result of this deal, Systematica has formed a separate subsidiary, Systematica Digital Products, to service DEC and its customers. Based in Bournemouth, Hants, Systematica Ltd is getting hard to ignore. Cognos Inc, the Canadian software house recently signed up for the Virtual Software Factory, (UX No 231), and more recently Information Builders announced that its new Focus Application Creation Tool was built using it (UX No 234). Systematica says that the product, the first parts of which were released in 1987, pulled in £2m of sales in its first year.

DEC also revealed a new release of VAXset, its package of software engineering tools - now include DECwindows support, as well as the availability of XD Ada MC68020 V.1 - a family of cross development tools for developing real time Ada solutions, launched in conjunction with SD-Scicon in Madrid at the Ada Europe Conference last week. And DEC says that Vax Ada V.2, VAXELN Ada V.2, VAX LISP V.3 and VAX Document V1.2 are also now available.

Cognos Software was itself much in evidence at the show, with the prototype version of PowerCASE, a software engineering development package developed with Systematica's VSF, (see above), running on a Sun 360 workstation. Using Cognos' own design methodology the tool enables designers to develop a system through each phase in the standard life cycle model right down to coding in Cognos' own PowerHouse 4GL. Versions for Hewlett Packard's HP-UX and Apollo machines are said to be under development. Pricing and availability will be revealed later this year. In addition it is thought that Cognos software will be developed to run on AIX in IBM's AS/400, where it is already featured under OS/400. Cognos is also to set up a Research and Development Centre at its European headquarters in Bracknell, Berkshire. There are reported to be around 3,500 sites worldwide using the range of Cognos software, about 700 of which are in the UK.

UK Kodak company Yourdon, based in London, used the show to launch a multi user CASE tool called Cradle, running on Apollo workstations at present, which will be ported to Sun's kit and DEC VAX systems by December. Like many other tools on show at the exhibition Cradle is a development environment that encompasses the system design lifecycle through most of its stages. A ten user licence costs £30,000. It supports Yourdon's own structured method, YSM, which is claimed to improve on SSADM by incorporating a real time element for the development of real time systems, and generates code in Ada, C and Pascal. In addition, a version that incorporates object orientated design capability will be available from the end of the year. Previously Yourdon software only ran on PCs, and there are reckoned to be around 600 sites currently using its applications.

BBN's X TOOL AIDS PARALLEL PROGRAM ANALYSIS

The BBN Advanced Computers subsidiary of Bolt Beranck & Newman Inc, Cambridge, Massachusetts is one of the handful of companies pulling out all the stops to create means to make parallel processors less daunting to program and to use, and the company's latest offering is the Xtra integrated programming environment for its Butterfly GP1000 parallel processor. Xtra stands for X Tools for Runtime Analysis: based on the X Window System, it is claimed to be the first commercially available set of software tools to enable programmers to understand easily and to deal with the complexities inherent in multiprocessor systems. It makes full use of X Window's multiple windows, mouse-driven inputs and pop-up menus so that the programmer can see a full picture of the program in real time, and so spot what is going wrong. Xtra includes a TotalView source-level multiprocess debugger to enable the programmer to watch the effects of many processes running simultaneously, and by having a group of related processes to share a single breakpoint via a single menu command, TotalView causes all related processes to stop so that the programmer can examine the state of any or all of them. Xtra will also integrate the company's existing Gist graphics-oriented event display utility that enables programmers to analyse dynamic program behaviour, and by displaying a user-definable time sequence of events for each processor, it identifies performance bottlenecks. And BBN has added a graphical state display function and an event histogram utility so programmers can compare activity on different processors and ascertain program timing variability. TotalView is \$5,000 and is available now for the Butterfly GP1000. Gist is bundled with the Butterfly and is planned to be an integrated Xtra module late this year, and additional modules will appear early next year.

PHOENIX ADDS POSTSCRIPT

FUNCTIONALITY TO WORKSTATION SOFTWARE
Phoenix Technologies Ltd, Norwood, Massachusetts has developed a new version of its PhoenixPage systems software, enabling vendors of Unix workstations to offer as an application on their systems the full function of an Adobe Systems PostScript printer, which then prints to a cheapo non-intelligent laser printer. Running under the host operating system, the new implementation of PhoenixPage uses the system's CPU, memory and disk storage to perform printer management functions typically handled by a laser printer's controller. Integrators can then opt for lower-cost laser printers while remaining compatible with several page-description languages and printing standards, not only PostScript, but also PCL from the Hewlett-Packard LaserJet Series II, HPGL and CGM. It supports the three different printing environments: SCSI printers like the GCC Technologies' Personal Laser Printer; network printer servers; or personal page printers like the HP DeskJet series. Users can also preview PostScript files on the screen and the system will support a larger number of fonts. To achieve performance levels comparable with the Apple LaserWriter NTX series, a compiler and CPU ratings of 6,500 Drystones are needed, as well as 2Mb memory, Unix System V.3.2 or equivalent; SCSI interface, video interface, or integrated video circuitry to drive a laser printer; or a parallel or serial interface to drive a DeskJet printer. No prices.

LISP INTERFACE TACKLES AI DEVELOPMENT BOTTLENECKS

User interfaces are still all the rage, and Symbolics Inc, Burlington, Massachusetts has teamed up with Lucid Inc to create one for Lisp systems. The two companies have committed to support the Common Lisp Interface Manager, which Symbolics describes as a powerful, high-level, object-oriented user interface management system. The system is designed to address the two main bottlenecks in applications development: the difficulty of creating window-based applications with current low-level window systems; and the difficulty of making the applications portable across operating systems and hardware. The Lisp Interface Manager is a layer on top of a window system that takes on the host system's look and feel, such as Open Look and Motif, the interfaces promoted by the rival Unix camps, Unix International Inc and the Open Software Foundation. The Common Lisp Interface Manager takes advantage of the the existing investment in low-level window system standards such as the X Window System but goes beyond it to provide a complete set of tools for writing complex window-based applications. To promote standardisation, and to ensure portability, the two are negotiating with International Lisp Associates Inc to have that company provide implementations to interested Lisp vendors. International Lisp will co-ordinate the development of the Common Lisp Interface Manager specification, which will be submitted to the ANSI Common Lisp Committee when complete. As well as the three named companies, Xerox Corp's Palo Alto Research Center was involved in the specification - in particular developing "fundamental new insight" into the design of architectures that provide flexible and efficient support of a wide range of user interface functionality. The Common Lisp Interface Manager incorporates design concepts from Silica, Xerox PARC's Lisp-based window system kernel, which features "a novel use of object orientation to manipulate the fundamental concepts in the window system kernel explicitly. Xerox claims that this "meta level architecture" makes it possible to provide applications portability without dictating look and feel or compromising functionality or performance. Silica's meta level architecture is described as similar to the metaobject protocol developed by Xerox PARC for the Common Lisp Object System. Symbolics believes that with the standardisation on Common Lisp, standardisation of the object system and now tackling the user interface management system, the three barriers to applications portability are being overcome. Pricing and availability for the Common Lisp Interface Manager are to be announced at a later date.

RANK XEROX TOUTS FORMS PROCESSING AS NEXT "SPREADSHEET"

After four years of development, Columbia Software Inc of the eponymous Maryland town has come up with a fully-integrated forms processor with database capabilities, called FormBase. The product is being promoted as a new horizontal software category with the potential to become as omnipresent as spreadsheets and word processing. So far the product runs only on MS-DOS boxes - release 3.1 and up - using the 80286 up, and needs 640Kb memory. FormBase is described as seamlessly integrating desktop data entry, forms creation and database management enabling relational files to be created on-screen. Xerox has an exclusive worldwide marketing agreement for the product. Priced at £495 in the UK, the forms processor will be available from next month as part of the Rank Xerox Desktop Software range.

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Microport is still going through its death throes - the company recently filed for Chapter 11 bankruptcy - and negotiations to reorganize and pay off its \$2.5m debt could take up to four months; if no plan or buyers are forthcoming after that Microport would be forced to file under Chapter 7, allowing a receiver to be appointed to take over the company.

- 0 -

X/Open held a major meeting with its users last week in Montreal: around 70 users attended with the intention of hammering out a market requirement document based around X/Open's Common Applications Environment for X/Open vendors.

- 0 -

It now appears that the so-called "Sparcintosh" from Sun Microsystems may not have been the machine launched recently as the Sparcstation-1: the real Sparcstation - a PC-like low-end machine, is likely to appear early next year according to some observers.

- 0 -

Meanwhile Artecon, of Carlsbad, California, has introduced an erasable optical drive subsystem, available in dual-chassis enclosures with or without other disk drives: storing up to 594Mb of data on each 5 1/4 inch optical disk, it runs on Sun OS 4.0.1 with the Sun3 or Sun2 SCSI host adaptor, with an Artecon device driver controlling the SCSI device on Sun 3 and 4 workstations - prices start at \$6,994.

- 0 -

Sony Microsystems Co has signed an independent software vendor agreement with Cadence Design Systems, San Jose, California, which will offer its electronic computer-aided engineering software tools for use on Sony's NEWS Unix workstations: under the agreement, Cadence will retain responsibility for licensing, distribution and support of its products, and Sony itself will be a major user of the software.

- 0 -

Strand Software Technologies, a division of Watford, Hertfordshire-based AI Ltd has officially launched its commercial programming language designed for parallel processing called Strand88, which was previewed here back in November (UX No 205): the language has a foreign language interface enabling existing systems to be embedded in a Strand harness to bring out the latent parallelism in their design, and preserving large amounts of existing code; Strand88 is currently available on Sun Microsystems and Intel iPSC/2 kit, and 60-day test drives cost £150, deductible from any ensuing software licence.

The OSF/Motif interface is expected to go on general release from July.

- 0 -

Cray Research Inc has an order - value not given, for a Cray Y-MP from General Atomics, which operates the San Diego Supercomputer Center at the University of California, San Diego on behalf of the US National Science Foundation.

- 0 -

Should have seen it coming: Sun Microsystems Inc has been wapped with a complaint seeking class action status in connection with its warning that profits for the fourth quarter to June 30 will be below expectations; its directors and chief financial officer are also named in the nuisance suit.

- 0 -

An upbeat Paul O'Grady told the Micro Focus Plc annual meeting that sales in the first quarter of the current year were strong where usually the first quarter is slow, and that as most of the company's trading is done in US dollars, the soaraway dollar, if it continues, will make the figures expressed in sterling look better - all of which suggests that the shares may still be undervalued.

- 0 -

Not wanting any lingering nastiness, Hewlett-Packard Co has moved quickly to settle the token ring patent dispute outstanding between Willemijn Holding BV and its Apollo Computer Inc acquisition: Hewlett paid a "substantial sum" to settle the claims against Apollo and entered a licensing agreement for the Soderblom token passing ring technology at the heart of the dispute.

- 0 -

Sun Microsystems Inc is to use the 105Mb SCSI ProDrive from Milpitas, California-based Quantum Corp in its SparcStation 1 and Sun-3-80 systems, and the Desktop Disk Pack storage subsystems: Sun is already taking production quantities.

- 0 -

Fujitsu Ltd has picked Micro Focus Plc Cobol/2 for its M-series mainframes running its UTS/M version of Amdahl Corp's Unix System V, and on its A-series Unix office computers: it is the first time that Micro Focus Cobol has been selected for use on IBM 370 architecture mainframes.

- 0 -

Also in Japan, Micro Focus has won a contract from Nippon Unisys Corp for Japanese language Cobol/2 compilers and tools for marketing with its MS-DOS, OS/2 and Unix machines.

Motorola Inc says it is to announce new members of 88open in the near future, rumour is it could include a defector from the Intel i860 camp, the company also says it expects to ship 10,000 Delta systems worldwide this year.

- 0 -

Interactive Development Environments, Sutton, Surrey, was showing off a CASE environment at the UK Software Tools exhibition last week for its Object Orientated Structured Design approach, which merges traditional top down concepts with object orientation. It extends Booch's object orientated design notation for Ada, and supports object orientated languages such as C++, Eiffel and Smalltalk, as well as Fortran, Pascal and C. Prototypes are available for Sun and Apollo workstations.

- 0 -

UK firm Real Time Products of Birmingham has signed an agreement with Industrial Programming Inc to distribute the US based company's range of real time operating systems, including MTOS-UX/88K for Motorola's RISC chip, launched in April, (UX No 228).

- 0 -

Motorola Inc's Microprocessor Products Group in Austin, Texas now has 27MHz versions of its 56001 signal processing chip, previously clocked at 20.5MHz: NeXT Inc, Palo Alto, California uses the 56001 in the circuitry that gives the NeXT Computer System Compact Disk quality sound and handles a number of other signal processing functions; the 56001 is a 24-bit part where most digital signal processors are 16-bit; samples are out now at \$144.

- 0 -

The Department of Trade and Industry is reported to be working on a project to merge SSADM with its French equivalent Merise, with a view to system design methodologies after 1992.

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X/OPEN MAPS OUT FUTURE OF CAE

The rise of X/Open as the driving force in standardising the open systems environment continues unabated, with new plans revealed this week. The future of its Common Application Environment, which sets out a standard set of requirements for software development, is to be mapped out in a document known as the "Prospectus of Market Demand," due to be published in the Autumn. Whilst the exact nature of its content is currently being debated within X/Open, the document will be based on recommendations thrashed out at its recent meeting in Montreal, (UX No 236). Attendees were drawn from three areas, existing X/Open members - limited to one representative each, to tame their influence - non-member hardware manufacturers, such as Cray and Amdahl, as well as over 100 delegates from the open systems user community. Those from the last two categories were invited to contribute proposals and ideas for a wide range of features to be included in future specifications of the CAE - the idea being for X/Open to bring its software application programme into line with specific market requirements. The meeting was broken down into ten working groups, each focusing on a particular area of interest - such as networking, migration, compilers and testing - the results are to be incorporated into the CAE, with a commitment from members that they will develop products in accordance with these guidelines. According to sources, the whole user interface issue was also hotly debated at the meeting with Unix International's Open Look, and the Open Software Foundation's Motif currently vying for attention. X/Open is currently biding time on this issue, and while a decision is expected soon, the group seems set to avoid a straight choice between the two and go for a more limited set of interface toolkit specifications, perhaps capable of supporting both. Unix International's Tom Mace reported that the meeting had been "tremendously successful," and revealed that 13 new members of Unix International are to be announced next week.

SUN HAS TAIWANESE SUPPORT FROM TATUNG AND DATATECH

Volume manufacturing of low-cost Sparc-based desktop systems will soon emerge from Taiwan, following an announcement from Sun Microsystems Inc of licensing agreements for the use of the Sparc Risc processor and system software (including the Open Look interface) with leading Taiwanese PC manufacturers Datatech Enterprises Company Ltd and Tatung Company. But according to Electronic Engineering Times, the two signings are the only remaining Taiwanese vendors left from Sun's major recruitment drive for Far East business begun last June (UX No 182): a number of Taiwanese companies, including Acer and Mytec, were close to signing with Sun before aggressive sales pitches from Intel and Microsoft Corp convinced them to hold back, said the paper. The two companies who have signed will be helped with research and development on the Sparc by Taiwan's Industrial and Technical Research Institute, which has also signed licensing agreements with Sun. The announcements came as Sparc International, the independent consortium pushing future Sparc marketing and development, launched its first membership drive and elected a chairman, Peter van Cuylenburg from Texas Instruments. Cuylenburg claimed that over 400 companies had expressed an interest in participating in the Sparc architecture's evolution, and said that the Sparc was "the best possibility for re-creating the PC phenomenon in the Unix/Risc environment".

IBM EARLY WITH DESKTOP 80486 UPGRADE

IBM has moved fast in an uncharacteristic bid to be Compaq and the clone makers to be first with an announcement of an 80486-based desktop machine, for delivery in the fourth quarter - but the offer is limited to upgrades for customers with the PS/2 Model 70 A21 and will not be marketed as a finished product. Customers are required to surrender their 80386 processor module. It is confined to the one PS/2 model because that is the only one that is designed with a "separate processor complex" on a daughterboard on top of the main planar board - IBM hinted that it liked this design and might use it in future PS/2s. Called the PS/2 486/25 Power Platform, the board is claimed to offer up to 80% higher performance in business applications than the 80386 CPU it replaces, and up to three times the performance in numeric-intensive applications. The board includes the 25MHz 80486, which has integrated maths co-processor, cache memory controller with 8Kb of internal cache memory, and replaces the multi-chip equivalent that makes up the 80386 processor. The new board - which has to be fitted by a dealer - costs \$4,000 - £3,000 in the UK, and people who want one will have to buy the Model 70 A21 first. However, despite claims of 100% capacity with the 80386, AIX Unix apparently needs further testing, due to its "direct 32-bit addressing", and will not be available for the new processor until the first quarter of 1990. In the US, but not, apparently in the UK, IBM announced substantial price cuts on the Model 70 - it falls 20% to \$9,000, and the maths co-processors for 70s and 80s are also reduced - the 16MHz 80387 for the Model 80 falls 11% to \$800, the 20MHz one by 7.7% to \$1,200 and the 25MHz one now costs \$1,300.

APOLLO TWEAKS SERIES 10000

- CONTINUES DEVELOPMENT

Hewlett-Packard has quashed rumours that its RISC based Apollo Series 10000 graphics personal supercomputer may be discontinued, revealing that a new and more powerful successor is under development "right at this moment." A string of performance enhancements for the existing Series 10000 have also been announced, which suggests that the company is gearing up to compete all the way down the line with the likes of Stellar Computer Inc and Ardent Computer Corp for the top end of the graphics marketplace. The company points to the fact that over one thousand Series 10000 systems have now been sold in the US - about 25 in the UK. Stellar has already introduced its new high end system, the 35 MIPS rated GS2000 at £125,000, (UX No 230), and Ardent is due to come out with a new full scale superminicomputer later this year, coming in above its existing desktop Titan series. No timescale for the new Apollo machine has been suggested, but the company says that by tweaking software in the existing Series 10000, particularly at the compiler level, performance enhancements of up to 80% have been achieved. However the good news for customers is seen that these enhancements will not affect the price of the Series 10000 - it remains at \$69,900 for an entry level model. As well as the performance boost, a range of communications and storage features are also being made available for the 10000. To allow greater connectivity, a SCSI bus has now been added to the 10000, which already features VME and PC-AT compatible offerings. And new 1.4Gb and 2.8Gb disk systems will allow users to configure up to 5.6Gb of storage, and a new 1600/6250 bits-per-inch nine track tape drive and 2.3Gb 8mm tape drive offers further back up storage. IBM's Token Ring network is now supported, which means that customers can choose between two Ethernet, IBM Token Ring or Apollo Token Ring networks in any combination.

...AND HP WILL USE EXTENDED NCS

At the same time, H-P is also set to integrate Apollo's Network Computing System, NCS, into its systems, following joint development by Apollo and DEC which has extended the remote procedure call component of NCS - it will eventually lead to support for wide area networking. In other news flowing out of H-P's acquisition, it seems that there will be no attempt to fully integrate H-P and Apollo's respective Unixalikes, HP-UX and Domain. Rather the company plans to wait and use the Open Software Foundation's OSF1 as a common operating system across the various Unix systems.

INTERNATIONAL NEWS

**OBJECT-ORIENTED CASE TOOL
BUILDS DATABASES ON SUN, VAX**

Database Technologies, Brookline, Massachusetts, has released version 2.5 of its C-Data Manager, an object oriented programming and database building tool. As per most CASE tools in this area, it allows programmers to define types of data objects as well relationships between them, but without the need to learn a new database language. Library functions call up these objects at run-time for execution in a database schema. A high level interface provides support for network and entity-relationship database models, including those of the recursive and many-to-many type. Other features include multiple keys, variable length objects, dynamic arrays database recovery functions and multi-user support. At the low-level, data access is both sequential and random via B-tree algorithms. C-Data Manager is aimed at CAD/CAM, AI, text processing and graphics environments. Written in C, it is supported on Sun for \$350, Macintosh, \$150, PCs, \$150, and VAX systems, \$400.

**PEGASUS VECTOR PROCESSOR
FOR VAX "THIS AUTUMN"**

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 11 launch, and a version may also be offered for the VAX 6300, while a more integrated version will be offered for the forthcoming machines using the Aridus processor, which are being dubbed the VAX 9000 series. The vector processor is expected to deliver about 100GFLOPS and as with IBM's 3090 Vector Facility, it will be possible to put in one per CPU in a multiprocessor.

**COMPUTER ASSOCIATES BIDS \$333m
PAPER FOR CULLINET**

Computer Associates International Inc, already the world's biggest software company by some distance, plans to get even bigger - and to compound its database management system problems further, by acquiring Cullinet Software Inc, Westwood, Massachusetts. The recommended share exchange offer - half a new Computer Associates share following the two for one split that was made last week - for each Cullinet out - values the company at \$333m. The acquisition will add about \$200m to Computer Associates' annual turnover of \$1,030m. Computer Associates' last big acquisition was of Applied Data Research Inc, whose key product, Datacom/DB, competes with Cullinet's IDMS in the IBM mainframe world, though both have been losing ground. Cullinet has been building up software for the DEC world over the last three years, and last year changed its colours to open systems with its new generation Enterprise:DB relational database.

... AND SNAPS UP CRICKET

Computer Associates International Inc has taken enough time off from its major effort to acquire Cullinet Software Inc to negotiate a move into the Apple Computer Macintosh graphics software market by buying all business assets of Cricket Software Inc. The products involved are the Cricket Draw object-oriented drawing program for creating camera-ready art; Cricket Paint monochrome painting application; Presents development tool for creating desktop presentations; Expression library of device drivers for font and graphics output and the Cricket Color Paint painting application.

**US MEMORIES INC CONSORTIUM TO BE
FORMED TO MAKE 4M-BIT CHIPS**

The US Semiconductor Industry Association is backing the incorporation of a new memory chip manufacturing company, US Memories Inc, which is supported by major US manufacturers led by IBM, DEC and Hewlett-Packard Co. Provided the anti-trust hurdles can be overcome, the new company will fabricate 4M-bit memory chips to IBM's design for the companies backing the \$1,000m project. The plan is for user companies to hold 70% of the equity of US Memories, chip manufacturers 30%; users will get chips from it in proportion to their investment, and will commit to take a minimum number of parts. The seven initial backers also include four chipmakers - Advanced Micro Devices Inc Intel Corp LSI Logic and National Semiconductor Corp. The seven will provide funds to explore details and prepare a business plan for a manufacturing corporation but it is estimated that US Memories will need \$500m in equity funding and another \$500m in loans and other finance and the seven reckon that it will be feasible to go ahead with the project only when another 12 companies have joined and agreed to contribute to the costs. Although the first product from the new company is planned to be a 4M-bit dynamic based on IBM's design, the plan is for it to diversify into other types of memories - a suggestion that has already caused a howl of anguish from one small company that has invested heavily to get into statics, and is breathing imprecations of anti-trust. The group has named Sanford Kane as president and chief executive - he resigns his post of vice-president of IBM's General Technology Division, immediately. British-born Wilf Corrigan, chairman and chief executive of LSI Logic becomes chairman of US Memories. The embryonic company will work closely with the Sematech consortium in Austin, Texas, whose mission is to develop leading edge semiconductor process and fabrication equipment.

MAI BASIC FOUR CHIEF QUILTS

MAI Basic Four Inc president and chief executive William Patton has rather left the Tustin, California company in the lurch as its hostile bid for Prime Computer Inc reaches its climax. He resigned suddenly this week, and will be succeeded by William Weksel on a temporary basis until a permanent successor is found; he acted briefly in the post before Mr Patton was appointed; there is some speculation that the resignation may mean that MAI has been negotiating with Prime and reached agreement on a new structure leaving no room for Mr Patton. But as we went to press, news was filtering through that Prime had received a better offer than MAI's, but wasn't saying who from.

YOKOGAWA FUNDS SUPERTEK

Another small US computer company, minisupercomputer builder Supertek Computers Inc, Santa Clara has attracted investment attention from Japan: Yokogawa Electric, holder of the Japanese shares in the Yokogawa Hewlett-Packard joint venture, is putting \$13.5m into Supertek and will get a 67% stake in Supertek Computers Japan, which will be renamed Yokogawa Supertek this month. Supertek's S-1 is Cray-compatible.

SUN RAISES \$250m MORE FROM AT&T, OTHERS

Sun Microsystems Inc is getting close to the end of the cash made available to it under its agreement with AT&T Co under which it can require AT&T to buy shares in the company at set intervals and at a set premium to the market price. Sun can require AT&T to buy up to 15% all told, and AT&T is free to buy another 5% in the market. The Mountain View, California builder of workstations has triggered the agreement again with respect of another 3m shares to AT&T - about 3.5% of the expanded equity, after which AT&T will hold 16% of Sun. The sale will net Sun about \$75m. But with that source of funds running out, Sun has had to look for another one to continue to finance its break-neck growth rate, and it has won a \$100m five-year revolving credit and term loan agreement from the First National Bank of Boston as agent, with Citibank NA, Security Pacific National Bank, Bank of America National Trust and Savings Association and Barclays Bank Plc chipping in. The company is also borrowing \$40m against its properties from Toyo Trust & Banking Co Ltd, bringing the total raised under the exercise to \$215m.

AND GOES RETAIL WITH DATAPHAZ

Sun Microsystems Inc has made its first move into retail distribution, signing an agreement with the publicly-quoted Dataphaz Inc, a Tempe, Arizona-based ComputerLand franchisee, which has eight stores in the south-west US. Dataphaz is to be authorised to offer the full line of Unix workstations and will form a separate group to handle the new activity. It will initially put the stations through three of its store - the ones in Phoenix and in Tucson, Arizona, and the one in Albuquerque, New Mexico. Although Dataphaz is the biggest single ComputerLand franchisee in the US, it is much smaller than Businessland Inc, which is taking the NeXT Inc Unix-based NeXT Computer System.

SCO AND COROLLARY SEAL MULTI-PROCESSING PARTNERSHIP

Corollary Inc, Irvine, California and The Santa Cruz Operation Inc have finally put a formal seal on their partnership in the development of multi-processing Unix software based on SCO Xenix System V and SCO Unix System V/386. Corollary has already shipped the first products to come out of the agreement, which include the multi-processing version of SCO Xenix that has gone to Zenith Data Systems for its Z-1000 series (UX No 185), and in its own multi-processing ATtain hardware, shown at UniForum (UX No 220). Under the contract, Corollary has access to the Santa Cruz kernel source code and adds proprietary multi-processing technology to create the 386/smp symmetrical multi-processing kernel, and the product is distributed by both Corollary and Santa Cruz to SCO customers with the appropriate hardware. It is a non-exclusive agreement, but Santa Cruz says that it endorses Corollary's extensions as the first choice multi-processing Xenix.

SOLBOURNE'S OWN 25 MIPS SPARC SET

Solbourne Computer Corp, which has been at work with its majority shareholder Matsushita Electric Industrial Co on its own implementation of the Sun Microsystems Sparc RISC microprocessor - the original design was to to a 64-bit implementation (UX No 195) - says it now has working parts. The new Sparc includes on-board integer floating point, memory manager and cache memory, and is rated at about 25 MIPS. It is not expected to appear in Solbourne products until 1990.

NCUBE, ORACLE LAUNCH 60,000 MIPS SCALAR SUPERCUMPUTER

After tracking the project since April, (UX No 226), NCube Corp and Oracle Corp finally got together last week to launch the NCube 2 Scalar Supercomputer running Unix V.3, and a version of the Oracle relational database - once it is ready. A user interface provided by Sun-3 and -4 workstations, the NCube 2 gives a much needed boost to the US supercomputer industry, which has recently come under heavy competition from the Japanese giants. Breaking with supercomputing tradition, the NCube 2 is being aimed primarily at the commercial data processing environment, particularly financial institutions and government, as well as the more traditional technical and scientific environment. The building block for the NCube systems is a VSLI single-chip 64-bit processor integrated with an error-correcting memory management unit, message routing hardware and input-output processors. The NCube 2 can utilise up to 8,192 of the chips - each with 64Mb of dedicated memory - providing up to 60,000 MIPS and 27,000 GFLOPS, and is claimed to drive applications up to three times faster than the most powerful supercomputer - 300 times faster than top of the IBM's 3090 mainframe range. First deliveries of the NCube 2 are set for next month with prices starting at \$500,000 for an entry level 64 processor model, rising to \$2m plus for a machine with thousands of processors. Oracle's Parallel Server Architecture will allow multiple copies of the database to run simultaneously on the NCube 2, taking advantage its internal network of hypercube communication paths. It will be accessed directly from the supercomputer or from smaller systems connected via Ethernet and TCP/IP, and will be available on the NCube machines from the first quarter of next year. Other interfaces are also planned for later in 1990, allowing access from other architectures such as IBM mainframes and DEC minis. Arrow Computer Systems, Epsom, Surrey, which currently sells NCube kit into Europe and the UK is to introduce the NCube 2 as soon as it is available, although pricing has yet to be determined. At present there are around 20 European sites using existing NCube systems.

* In addition, Oracle has announced four new servers for Unix 386, OS/2, Vines and NetWare 386. The first three are available from the fourth quarter, priced at £3,000, £2,000 and £4,000 respectively. The NetWare 386 version will follow in 1990 - no price given.

IBM CHANGES LICENCE STRUCTURE FOR AIX/370 UNIX

IBM has changed the rules on its AIX/370 implementation of Unix, which runs under the VM operating system, and has switched from a flat monthly licence charge for the software to a graduated monthly charge tied to the size of 370 on which it is to run. The operating system now also supports the 3480 Magnetic Tape Subsystem. It will appear on limited availability next quarter, and the AIX PS/2 programs that had been delayed to the fourth quarter will now be available in the third - but only where they are to be used in conjunction with AIX/370. The supported version of VS Fortran under AIX/370 has also been put back one release - users will now need VS Fortran 2.5 rather than 2.4. The graduated charges for AIX/370 range from a one-time \$29,760 a month on a baby 9370 to \$204,800 or \$6,825 a month on a 3090-600S; for Network File System - AIX/370 NFS - prices range from a one-time \$1,980 or \$79 a month to \$13,650 or \$455 a month on a 3090-600S.

CLIVE SINCLAIR READY WITH 250 MIP RISC PROCESSOR FOR GRAPHICS

Cambridge-based Sinclair Research is working on a 250 MIPS Risc processor likely to be available within a year, according to a report in PC Dealer. Designed by Sinclair Research designer Chris Shelton, the chip is aimed at graphics workstations and will be capable of emulating PC-compatible software at high speed, although its main purpose will be for running specialised graphics algorithms. Users will be given the capability of writing their own instructions for customised versions of the chip, which will have 256 bytes of user ROM and will cost £2,000, said the report.

SEQUOIA OEM ITL UPGRADES ITS FAULT-TOLERANT RANGE

ITL Information Technology plc, Hemel-Hempstead, UK, has added the latest 68020 and 68030 based fault tolerant multi-processors from Sequoia Systems Inc, (UX No 221), as the Model 96E and the Model 97. The 96E is Sequoia's 200 machine, priced at £250,000 for up to 100 users. The Model 97 is a 32 processor version of Sequoia's 300 system, and will go to at least 2,000 users, with a start price of £450,000. When originally announced, (UX No 221), the 300 was claimed to configure up to 64 processors, but according to sources at ITL, such a system has never actually been implemented by Sequoia. The 96E and 97 are being launched ahead of ITL's own UK developed fault tolerant machine, which is promised by Christmas. It is understood to come in below the 96E, and provides an upward migration path for smaller ITL users. Meanwhile Sequoia is said to have submitted its multi-processing Unix implementation to Unix International. Unix International is shortly to announce a standard multi-processing Unix operating system from a range submitted.

REGMA UK TAKES DOCUMENT TECHNOLOGY WORKSTATIONS FOR EUROPE

Regma UK Ltd, Houghton Regis, Bedfordshire, has been appointed European OEM for Palo Alto, California based Document Technologies' Image Processing workstations announced earlier this month, (UX No 234). The 80286, "true" 200 dots per inch version, with 100Mb Winchester drive is available now, prices start at £5,000. The 80386, 400 dots per inch machine will follow soon. At the top end, as a stand alone machine with a raster processor box, 900Mb Toshiba optical disk drive, image scanner and printer, the cost rises to £18,500. The Image Processors run the Xtended Mode Operating System - XMOS - a multi-processing, multi-tasking, real-time kernel supporting various library, windowing and network options, and can be hosted by Unix, PC and DEC VAX systems. The workstations are aimed at small to medium sized users who need to store and process large numbers of A4 documents, and can be linked into mainframe based systems - in particular Regma is looking at the way the poll tax will increase these needs in government, local authorities and business.

DEC LAUNCHES EUROPEAN PCs FROM OLIVETTI

DEC has now formally launched its "industry standard" PCs for the European market, which it buys in from Olivetti Corp: they will be called the DECstation 200 (8MHz 80286), DECstation 300 (16MHz 80386SX) and DECstation 350 (20MHz 80386), and will include DECwindows for MS-DOS, allowing PC users to run DECwindows applications which execute remotely on VMS or Ultrix hosts - prices in the UK begin at £1,679.

NOW RACAL-REDAC BUYS FRENCH SIMULATION COMPANY

Following its acquisition of HHB Systems in the US, Racal-Redac Group Ltd has made a rather smaller acquisition in France. It is paying about £300,000 for the Thom'6 subsidiary of Telesysteme, which in turn is owned by France Telecom. The company has proprietary software products for analogue, microwave and thermal simulation of complex electronic circuits. Racal-Redac will integrate the software within its Visula Plus design automation suite. Turnover for Thom'6, which has 120 systems installed at 66 sites across Europe, is expected to exceed £1m during its first year as a part of the Tewkesbury-based Racal-Redac group.

TOKEN RING PENETRATION PASSES ETHERNET IN UK MARKET - REPORT

The number of Token Ring-based local area networks in the UK has overtaken Ethernet installations, according to a new report by Apt Data Services Ltd and Benchmark Research Ltd. The study found that 36% of local area networks are Token Ring, compared to 33% Ethernet, but adds that "the transition is nothing like the sweeping aside of Ethernet that some US reports have predicted". Token Ring applications featured the fastest rate of increase of any protocol, although Ethernet ones still show a steady increase. Other protocols, such as CSMA/CA and broadband, are said to be healthy, without witnessing the rapid growth of the two dominant systems. The report also found slow uptake of local area networks in manufacturing applications; of those questioned, only 7% used Token Ring local nets in manufacturing, compared to 55% who used all types of local area networks for Office Automation and for financial applications. The report, Local Area Networks in the UK, is published by APT Data Services Ltd, publisher of Unigram-X, and also of the Telegram weekly, and costs £345.

EMPIRICAL LAUNCHES DEVICE DRIVER, TEXT RETRIEVAL SOFTWARE

US software house Empirical Research has set up a UK base in Lichfield, Staffordshire, and is introducing two Unix products on to the market. The Unix Driver Guru is basically a book on disk for Unix programmers, which provides information on writing or modifying Unix device drivers, from an overview of design right down to technical information on specific system calls and functions. Examples of device drivers are included on the disk for SCSI, input/output, liquid crystal display, and a high speed disk controller device driver for VME/SMD interface boards. Unix Driver Guru costs £95 and runs on PCs - Empirical has sold 15 of the disks in the UK since the European Unix User Show earlier this month, and over 200 have now been sold in the US. Also new from Empirical is MINDS - a text retrieval system developed by US firm Terus. Files of ASCII text are indexed - without the need for complex preparation - and MINDS can then be interrogated using plain language questions. MINDS for DOS cost £100, Unix V.3.2 versions range from £550 to £1,500 depending on configuration, and a Xenix flavour is under development.

EUROPEAN NEWS

DTI PUSHES UK INDUSTRY TO JOIN 1992 OPEN SYSTEMS STAMPEDE

The UK Department of Trade and Industry's sibling Open Systems Technology Transfer programme took its first paces last week, with a briefing held in London, addressed by the Secretary of State, Lord Young. With the single European market looming close, the scheme, funded to the tune of £12m, aims to raise the collective consciousness of entrepreneurial capital to an awareness of the benefits, and need for open systems. "I didn't see any of the earrings or sandals that usually go along with open systems conferences," said Professor Chris Edwards of the Cranfield School of Management, opening the meeting - however much of what was heard turned out to be less desirable than outdated stereotypes - namely a lot of hot air. Indeed it was more than half way through the proceedings before the word Unix was even uttered. Lord Young at least seems to be a willing participant in his own Department's "Challenge of Open Systems," arguing that the "strategic importance of open systems must not be underestimated," and urging companies reluctant to abandon their proprietary systems to "reconsider!" Charles Hughes, director of marketing and business strategy with ICL admitted that whilst ICL still has some unconnectable computer kit lying around, the company's open systems strategy "will gradually get rid of them," going so far as to predict a single, open information technology architecture, by the mid 1990s. Alex Henderson, IBM's UK director of commercial and industrial relations had the now familiar task of trying to reconcile IBM's schizophrenic attitude towards open systems solutions, holding up AIX in one hand, and qualifying proprietary kit in the other with the assertion that IBM "doesn't believe that individual supplier specifications will go away." As far as Unix is concerned he said "would you build an operating system for a very large mainframe that also runs on a micro? I don't think so." So much for Lord Young's Open Systems Challenge. It was left to David Butler, chairman of Butler Cox plc, to bring some sense to the affair, warning that if the message of open systems is getting through, there are others that are not. UK businesses it seems are far behind competitors in meeting the challenge that 1992 presents - European companies are "acting as though the changes have already taken place," citing the case of Infonet, the private data communications service owned by Computer Systems Corp - in August of last year it sold off shares to many of the top continental post and telecommunications organisations, which are astutely tooling up for post-1992 activity already.

SD-SCICON, BULL HN TO DO £4m**VIEWDATA NET FOR EUROPEAN PARLIAMENT**

A consortium led by SD-Scicon Pic and Bull HN Ltd has won a £4m, five-year European Community contract to operate a European-wide viewdata network called Organisation du Videotex du Depute Europeen, Ovide. The network will give the Members of the European Parliament elected across Europe yesterday access to a central database, which will include details of parliamentary proceedings, statistics and provide electronic mail and computer support; through national viewdata systems, Ovide will extend the service to the public. It will link viewdata systems in the 12 member nations, which run under several different standards; Scicon will begin operations later this year, when Ovide will be accessible via the Public Switched Data Network and the European Parliament's corporate network. SD-Scicon, which will handle the facilities management, receives around 60% of the contract's value, for software development and management and licence fees; software is based on its Accent viewdata system. Additional database functions will be developed using Oracle and gateways will be provided to existing EC and Parliamentary databases. The hardware centre in Brussels will use Bull DPX Unix machines, linked to terminals EC-wide.

... AS BULL-HN WINS £3.5M**UNIX CONTRACT FROM HOME OFFICE**

The UK Prison Service's computerisation project known as LIDS, or Local Inmates Database System, part of the Home Office's HOUSE initiative Home Office Unix Systems Environment - has awarded its first contract to Bull HN Information Systems Ltd, for 128 Unix XPS-100 systems valued at £3.5m. The systems, together with 1700 terminals, will be installed in prisons around the country by the end of 1992, to provide comprehensive details on all inmates. Bull has the additional job of integrating its own kit with other hardware and software from Modular Systems, Bouldon James, Chloride Power Electronics and Datalix (Management Information) Services. This project is the first of many expected to come from UK central government specifying Unix as the basis of procurement.

FUJITSU ESPANA BANKS ON NEW PICK MODELS

Fujitsu-Espana SA has launched its two Pick Open Architecture microcomputers, the S-2500 and S-2600, onto the Spanish market, and with the S-1500 introduced last September, complete the Japanese company's integral solutions for Pick. According to Fujitsu sources in Spain, the company's target is to account for 75% of the total Pick-based machines sold this year, a percentage that would represent Pick business for Fujitsu-Espana of \$8.5m. The new S-2500 and S-2600 use an independently distributed architecture, special high-speed buses, central Motorola 68030 processor with 25MHz clock, 32Kb cache memory and 16 new custom integrated circuits. They are totally compatible with all Fujitsu's other Pick-based computers, the S-Series, as well as with the Iber and Senda-20 models. They also have an uninterruptible power supply system with automatic switches in case of power failure. The new machines - also marketed in the UK and the US - come with 4Mb of central memory, expandable to 16Mb and incorporate disks of 171Mb and 389Mb with up to six drives supported for a 2.334Gb maximum, 1.2Mb 5.25" floppy, a quarter inch streaming tape drive and half-inch 1,600/6, 250 bits per inch tape. Their basic configurations range from 24 and 32 serial lines to 120 and 160 workstations. Fujitsu now claims to have 800 Pick systems installed in Spain, where Intertechnique Informatique SA of Paris, now controlled by Siemens AG, used to claim to be the market leader systems running Pick.

* A report by the Spanish Association of Computer Companies, Sedsi, reveals that computer companies operating in Spain increased sales volume during 1988 by 22%, turning over \$6,480m. The gross national market took \$5,800m of that, with exports standing at \$740m.

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IBM says that it had largely overcome supply problems of the PS/2 Model 70 A21, which should be fully available by July - but observers say that the general shortage of RT models could continue for some time - opinions are divided on whether or not the main cause is a major increase in RT sales or simply IBM's reluctance to manufacture the machines in bulk: one visitor to the Austin, Texas-based manufacturing plant estimated that only 400 to 500 per month were being produced - and those were being made to order.

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CoCAD Ltd has released version 3 of Prosa Case software, the structured analysis and design package for Unix workstations developed by Insoft, of Oulu, Finland. Recital Corp released version 5.5c of its dBase, Clipper and Foxbase compatible 4GL and relational database for Unix and VAX/VMS.

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The news that Cullinet Software Inc has achieved its first clear profit in three years has been somewhat pre-empted by the announcement that the company has agreed to be acquired for \$333m paper by Computer Associates International Inc: the merger will totally wipe out the Cullinet identity and John Cullinane himself will not be part of the enlarged Computer Associates group; should the merger go ahead there will be further redundancies at Cullinet although full merger integration plans will not be revealed until July; for the record, Cullinet went ahead with its meeting last week, attributing its return to profitability to sales of its IBM mainframe Enterprise:Builder and Enterprise:Generator products for software developers - Unix and DB2 versions had been set for commercial release by year-end.

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Hewlett-Packard has been showing off the first of its CASEdge product family, HP Software Engineering Requirements Analysis, HP SoftBench and HP Encapsulator, running on the firm's HP-UX based 9000 Series 300 and Series 800 workstations: SoftBench and Encapsulator are £1,230 and £615 respectively, both available sometime during the fourth quarter.

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Robert Kavner, head of AT&T Data Systems Group has decided on a divide-and-rule regime at the AT&T Computer Systems unit: he has handed his title as president of the unit over to two co-presidents, Gordon Bridge and Richard McGinn.

Sybase Software Ltd is celebrating a multi-million pound agreement with Salomon Brothers, which wants over 100 Sybase SQL Servers and SQL Toolsets for offices in London, New York and Hong Kong: it will run Sybase on a variety of Unix machines.

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And Sybase has signed an agreement with AT&T to produce a Unix System V.3 version of the SQL server and toolset for Microsoft Corp's Lan Manager under Unix.

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Advanced Micro Devices Inc says that increased volumes of shipments for its Am29000 32-bit RISC microprocessor have reduced production costs, and is cutting prices an average 11% on the parts at the three speeds - 16MHz, 20MHz and 25MHz; a 30MHz version is now being sampled.

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Mentor Graphics Inc has reaffirmed its commitment to the Domain workstations that are used to deliver its electronic design automation software following the acquisition of Apollo Computer Inc by Hewlett-Packard Co: it also plans to adopt the forthcoming 68040-based models.

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Having fallen \$2.125 on Thursday, Apple Computer Inc shares were off another \$2.75 in mid-morning trading on Friday at \$44.75 after analysts cut earnings estimates on the grounds that the company cannot meet demand for its new Macintosh IIcx with 80Mb at a time when demand is falling for older Macintosh lines; analysts at Hambrecht & Quist, Goldman Sachs, First Boston and Alex Brown & Sons all reportedly cut their forecasts, with Hambrecht's Bruce Lupatkin, cutting his fiscal third-quarter earnings estimates to 75 cents a share from his previous 85 cents, and reduced his fourth quarter estimate to 95 cents a share from \$1.06; last year Apple did 71 cents a share in the third quarter and 84 in the fourth.

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Apple Computer Inc has lured Joseph Graziano back from Sun Microsystems to reassume the post of chief financial officer which he held from October 1981 to May 1985, and he gets the additional title of senior vice-president: he replaces Deborah Coleman, who has been on medical leave of absence since December and wants to return at a lower level; at Sun, William Raduchel, vice-president of corporate planning and development, becomes acting chief financial officer while the company looks for a permanent replacement.

Teradata Corp, Los Angeles, is to develop a gateway linking its DBC/1021 Data Base Computer to Relational Technology's Ingres line of database tools, so they can access the DBC.

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Intergraph Corp has announced three new ports to its Clipper workstations: WordPerfect now runs on these Unix based systems, as does CLM Systems Inc's Civil Engineering Automation Library and the American Association of State Highway and Transportation Officials' Interactive Graphics Roadway Design System.

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Hold those orders for 80486 boxes - Intel Corp has started talking about the 80586, saying the part will integrate 4m transistors, against 1.2m for the 80486, and looks to have it available in 1993.

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Sorry, it doesn't count if it wasn't formally announced: with all the excitement generated by IBM's pre-emptive announcement of an 80486-based module for the PS/2 Model 70 A21, Longview, Texas-based Cheetah International Inc is beginning to feel that it rather blew it by keeping its planned 80486 machine behind a curtain at Comdex/Spring and showing it only to "select members of the PC industry", and it is now hoping that a mention in the June edition of Byte magazine will enable it to walk off with the accolade for the first 80486 machine; Apricot Computers Plc won that one, but please let it rest there - we don't want any snidey people asking whether we spelt the US firm's name correctly!

CONTACTS

APT Data Services UK 1 528 7083. Apollo UK 908 366 188. Apollo US 508 256 6600. Arrow Computer UK 3727 42557. Bull HN UK 568 9191. Corollary Inc US 714 250 4040. DEC UK 734 864 717. DEC US 617 897 5111. Database Technologies US 617 739 3390 Dataphaz US 602 351 2800 Document Technologies US 415 858 0372. Empirical Research UK 543 258811. Fujitsu UK 628 76100. Fujitsu Japan 03 544 0506 H-P US 408 447 1155. H-P UK 344 773199. IBM US 212 848 2737. ITL UK 442 42277. NCube US 503 629 5088. Oracle Corp US 415 598 8251. Oracle UK 1 948 6911 Racal Redac UK 734 782158. Regma UK 582 867222. SCO UK 923 816344. SCO US 408 425 7222 SD Scicon UK 276 686 200. Sequoia US 508 480 0800. Solbourne US 303 772 0392. Sun Microsystems US 415 960 1300. Sun UK 1 276 62111. Supertek US 408 727 5749 X/Open UK 1 834 4874.

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CONTROL DATA SIGNS COMPREHENSIVE PACT WITH CONVEX

With an urgent requirement to build new businesses following the abandonment of its ETA Systems supercomputer business, and the proposed sale of its Imprimis Technology disk drive unit to Seagate Technology, Control Data Corp is hoping to exploit its residual skills in the systems integration business, for which it needs computers comparable with the ones it has stopped making. It has already decided to hand supercomputer customers over to Cray Research Inc where appropriate, and has now signed a worldwide sales and marketing agreement with Convex Computer Corp under which it will sell and integrate the Convex C Series of minisupercomputers into specific countries, markets and accounts. Under the agreement, Control Data subsidiaries in some countries outside the US will become distributors of Convex products; in applications, vertical markets or accounts where it has a customer base, Control Data will act as the prime contractor for integrated systems incorporating Convex machines. And the salespeople of both companies will co-operate in complementing existing Control Data installed systems with those of Convex. In particular, Control Data will integrate Convex supercomputers with its Cyber mainframes, and a joint technology committee with the mandate to identify areas of possible technical co-operation and system integration will be established by the two companies. The partnership has already resulted in the sale of a Convex C230 system to the University of Groningen in the Netherlands.

MEIKO ADDS FORTRAN, C TOOLS FOR IN-SUN TRANSPUTERS

Transputer specialist Meiko Scientific Ltd of Bristol, has developed its In-Sun Transputer-based Computing Surface boards (UX No 228) into a family, and added a new set of parallel processing tools to encourage software developers. There are four boards in the series using from four to 16 Transputers, designed to fit into a Sun-3 or Sun-4 workstation. The boards boost performance from 20 to 400 MIPS and from 6 to 150 MFLOPS using multiple boards, according to Meiko. Prices start from £8,000 for boards, and from £33,000 for a full turnkey system. Meiko's CS Tools include the first Unix-compatible symbolic debugger for the Transputer and standard sequential language compilers that allow programmers to write portable parallel applications in Fortran and C without recourse to a novel language. Also announced was the 'Ensemble' program for third-party companies wishing to develop and market products developed on the Computing Surface, offering early access to new products together with concessionary price rates. Meiko says it is also to reveal a second European installation of its powerful full-scale MIMD Supercomputer (UX No 186) - the first is at the Edinburgh Concurrent Supercomputer project in Scotland. No US prices were given, although Meiko now boasts offices in Boston and San Francisco, Sunnyvale, Washington DC and Houston.

NCD SUPPORTS DECNET AS DEC WORKS ON X-TERMINAL

Network Computing Devices Inc has added support for DEC's DECnet communications protocols on its NCD16 X-Windows-based network display stations at the X-Windows "Xhibition" held in San Francisco this week (review - see page 2). The new capability, called NCDnet, allows NCD16 stations to access and display data on DEC VAX hosts running DECwindows under VMS or Ultrix, and allows the terminals to participate in a DECnet environment as a Phase IV end-node over Ethernet LANs or serial data links, and support a full range of DECnet facilities, including local name service, Mirror, and Data Access Protocol facilities. NCDnet support will be an optional extra, at \$200 per terminal. TCP/IP software remains standard. Meanwhile DEC is thought to be working on its own DECwindows X-terminal, likely to be a stripped down VAXstation costing around \$2,500.

HEWLETT ADDS LOW-PRICE ENTRY LEVEL UNIX RISC BOX

Hewlett-Packard Co has extended its HP 9000 Series 800 Unix RISC family downwards with the launch of the entry-level, multi-user Model 815S, which comes in at \$14,900 while providing 85% of the performance of the current Model 825S computer at 60% of the price. The first CMOS implementation of HP's Precision Architecture, the new machine closes the gap between the Series 800 Risc family and the 80386-based PCs: it comes with two serial ports, 8Mb main memory and a 16-user licence for the HP-UX implementation of Unix System V.2; a fully bundled system for 16 users will be \$29,500, with Precision Architecture CPU, 8Mb memory, 300Mb disk drive, a tape cartridge system, 18 serial ports and a 16-user HP-UX licence with the operating system preloaded on the disk. Up to 50 users can be connected, but HP says that from 12 to 24 active users is the recommended range. Both versions are planned to ship worldwide in September (UK prices and distribution - page 5).

XHIBITION '89 MARKS RAPID PROGRESS FOR X-WINDOWS

by Philip Gill

The Xhibition '89 conference and exhibition held last week in San Jose, California proves that the X11 protocols and the X Window System from the Massachusetts Institute of Technology have made great strides over the last year - but it also showed that much remains to be done. The small product exhibit floor, an appendage to the four day technical conference, revealed X11 as a fast emerging common denominator in the computer world. Everything short of an IBM MVS mainframe, from Unix workstations and X-terminals to Apple Macintosh and IBM personal computers were rigged up as X-servers (the workstation component, in X-lingo, while the client is the host that runs the application). Even the forlorn Commodore Amiga now has X-server capabilities, colour included, thanks to GfxBase, a small Milpitas, California-based software house. Still, the show left one pondering some questions about X, the most obvious of which is "where's the software?".

Tektronix Inc, the Beaverton, Oregon display station manufacturer put out a list of X-compatible software in conjunction with its own X-terminal launch (see page 3). That list includes about 50 applications, such as Access Technology's 20/20 spreadsheet, Ashton-Tate's dBase 1V and the Informix and Oracle relational databases. ISVs and hardware manufacturers think that's an acceptable number, given that X11 specifications weren't generally available until last January. More importantly, there was a sense that much is being held back while the world waits on the Open Software Foundation and the arrival of a finished OSF/Motif graphical user interface this fall - that's when the real push for X11 applications will begin. In the rush to be first, Frame Technology of Sunnyvale, California says it will have the first OSF/Motif compliant application in the shape of its Framemaker publishing package by September. The race is on! In the meantime, X11 compliant Framemaker was being shown in 80 percent of the Xhibition booths.

Wither X-Terminals?

The second question is the future of X-terminals. Building upon an established market presence is always easier than creating a new marketplace. Witness the rocky road that both Stellar and Ardent are travelling in the graphics supercomputer market, while old-timer graphics workstation manufacturer Silicon Graphics steadily builds upon its existing base of systems and applications with ever more powerful workstations. X-terminal manufacturers may find the going similarly hard. With PCs coming up from below and Unix workstation moving down from above, X-terminals will be caught in a price squeeze. Although prices range from just under \$1,000 for an Acer Counterpoint terminal (the company was not at Xhibition '89 by the way), that doesn't include the real per-user cost - the host cpu across the network that the X-terminal is attached to doesn't come free. But the Acer Counterpoint Model 100 isn't expandable. A more typical X-terminal might be the NCD16 from Network Computing Devices Corp, which lists for \$2,850 with 512K of RAM, barely enough considering that desktop managers like Visix's Looking Glass and IXI's X.desktop require at least half that. Add in communications overhead and room to run applications and it starts to look like at least 2 Mbytes for most users. And at \$600 per extra megabyte the cost comes to almost \$4,000, not including the per-user cost of the host. As one workstation vendor put it: "saying the purchase price of an X-terminal is only so much is like buying a car and not factoring in the cost of gasoline and maintenance." From below, companies like Graphics Software Systems and Locus Computing Corp are offering low-cost software packages to transform DOS-based PCs into X workstations. That leverages off the existing base of millions of PCs already installed, representing a hardware investment many firms won't want to get rid of just yet. X may kick new life into those old PCs yet, at the same time offering much more flexibility in expansion, mass-market/commodity prices for add-in and add-ons, and access to the existing base of much loved and much used DOS applications.

From above, workstation vendors quote prices under \$4,000 for a diskless workstation. However, X-terminal advocates point out that low prices will doom character-based terminals in the Unix market for multi-user business applications. There are some who have even gone so far as to say that X-terminals may revive the sagging fortunes if not reputations of mainframes - Unix-based, that is - since they bring graphics, mouse, and other workstations/PC like features to the mainframe world. It remains to be seen.

OSF/Motif versus AT&T/Sun Open Look

That's the easy question. Forget Open Look, the world is moving to OSF/Motif. Yes, ISVs and hardware manufacturers quickly add diplomatically, we'll whatever interface our customers ask for. We'll even do Open Look, if somebody other than AT&T or Sun asks for it. since AT&T and Sun are the only takers, ISVs are working on OSF/Motif implementations just as fast OSF programmers can shove it out the door. A couple of booths were showing Motif prototypes, but nothing real until September at the earliest.

You may have thought that OSF/Motif's victory would settle the Unix market's long, long search for an industry standard, easy to use graphical interface. Not really. It's just moved on to the next battleground, desktop managers. OSF/Motif specifies a "look and feel" but not what features it should include, and how the user interface should manage system resources and applications and access to them. Two rivals - the UK's IXI Ltd of Cambridge, and Visix Software Inc of Arlington, Virginia, have emerged. Visix has already signed up several OEMs for its Looking Glass product and disclosed a \$3.5 million bundling OEM pact with Pyramid Technology. Visix is also targeting one or more of the "big four" Unix workstation makers - IBM, HP, DEC and Sun. Looking Glass will go into beta test in July, with production shipments slated for September/October.

IXI already has customers for X.desktop, including Olivetti, NCR, Uniplex and US software distributor Unipress Software. Moreover, IXI has landed the Santa Cruz Operation and will be bundled in with the Open Desktop bundled software package, which must be considered as something of a coup, given that SCO ships more Unix systems than anybody else. Technically speaking, Visix's Looking Glass appears to have more functionality, but it may suffer in terms of ease of use precisely because of that. The sales pitch also hits a good deal more at the needs and common reference points of a technical user. But it is also blindingly fast (at least as demonstrated on a RISC-based DECstation 3100 with fast disk drives), pretty to look at and amazingly deep in details.

TEKTRONIX REVEALS X-TERMINALS

Tektronix Inc revealed the fruits of its earlier agreement with Network Computing Devices CI No 1,198), and showed off a pair of NCD-based display terminals at the Xhibition last week. The colour XN11 is a high resolution (1024 x 768), high performance 15" display station using dual Motorola 68000 processors with up to 8Mb memory, maintaining compatibility with software written for Tektronix 4111 and 4200 terminals - cost is \$7,495, with a special introductory price of \$6,995 until the end of November. The monochrome XN5 has a 16" 1024 x 1024 screen and a single 68000 processor with independent graphics co-processor, with up to 4.5Mb memory: no price given. Both have an Ethernet TCP/IP interface and RS-232C host ports.

PRIME AGREES TO LEVERAGED BUYOUT BY J H WHITNEY

Last week Prime Computer Inc finally produced its white knight, the venture capital firm of J H Whitney & Co, which has organised DR Holdings Inc to launch a \$21.50 a share tender offer for 79% of Prime's shares fully diluted, proposing the exchange the balance for \$22 principal amount of 15.5% senior subordinated debentures (junk bonds) of DR Holdings due 2001, paying interest in more paper for the first five and a half years. Shearson Lehman Hutton Holdings Inc is committed to providing \$460m of senior subordinated bridge financing and Whitney and Shearson have committed \$200m of equity and junior subordinated debt, while Chemical Bank and First National Bank of Boston have committed to provide a total of \$600m of senior debt financing. Prime's board has approved the merger, but apart from the price, it is hard to see how the bid improves on the one from MAI Basic Four since it still leaves the surviving company crippled with debt and with few assets that can be sold as a going concern. And later on in the week, MAI Basic Four extended its previously announced cash tender offer for all outstanding Prime Computer shares until midnight this Thursday: 9m of Prime's 79m shares outstanding had been tendered and not withdrawn under the \$19.50 a share offer.

INSTRUCTION SET TAKES ADDAMAX TO EUROPE

UK Unix pioneers The Instruction Set have announced an agreement with Addamax Corp, making it the sole European agent for the Addamax C2 and B1st trusted Unix products. Anne Peter, director of technology services at The Instruction Set, claimed that the product was chosen after detailed evaluation of a number of secure products. "No other product on the market at the moment - or in the near future - looks likely to achieve Addamax's level of quality and completeness", said Peter. The contract is exclusive and has no fixed term. The Instruction Set is currently involved in "a number of major European Secure Unix projects, porting and modifying Secure Unix products as required" - it said it could not reveal the work taking place.

WANG SET TO MOVE OFFICE SOFTWARE TO UNIX

Wang Laboratories Inc has belatedly instigated a development effort to convert its principle assets - its Word Processing, Wang Office and Image software - to run under Unix as part of the move to make all of its products available to the generality of computer users rather than as now, confining them to Wang users.

WENDIN OFFERS MULTI-USER MS-DOS WITH VMS/UNIX INTERFACES

Veteran MS-DOS users blench at expressions like "highly compatible" with respect to operating systems that are designed to run MS-DOS applications, because they usually find that their favourite programs are the very ones that fall outside the scope of the compatibility. But Stongline Inc, Mountain View, California will soon be touting Wendin-DOS 2.5, "a multi-user, multi-tasking operating system" from the Spokane, Washington-based Wendin Inc that is claimed to be "highly compatible with PC-DOS and MS-DOS applications"; Strongline is also taking on PCVMS version 2.5, described as a self-bootable, multitasking, multi-user operating system that provides a VAX/VMS-style environment for MS-DOS machines, running "most" MS-DOS programs on the main console and including Wendin's Application Developer's Kit in the \$140 price; PCNX 2.5 offers the same facilities with a Unix-style user interface.

CHIPS & TECH HAS BUILDING BLOCKS FOR 80486

The new Peak family of AT bus chip sets from San Jose-based Chips & Technologies Inc is designed to support the fastest 80386 microprocessors currently available, future 80386 speed upgrades, and 80486-based microcomputer systems. There are currently two three-chip sets, with a common cache-based architecture, individually optimised to maximize 80386 or 80486 system performance. The Peak/386 supports 20MHz, 25MHz, 33MHz, and 40MHz 80386-based systems and also supports 80486 microprocessors, while the Peak/486 is optimised for the 80486 and can be used with chips having clock speeds of 25MHz, 33MHz and 40MHz, and the sets enable customers to do complete 80386 or 80486 motherboards with just 19 components plus memory. The architecture features an integrated cache/DRAM controller with up to 128Kb of fast Static RAM cache, can handle 256K-bit, 1M-bit or 4M-bit dynamics configured as up to 128Mb of main memory, and is optimised for OS/2. The Peak/386 also supports 80387 or Weitek 3167 maths co-processors. The Peak/486 offers a secondary cache of up to 128Kb to supplement the 80486 8Kb on-chip cache. The Peak/386 set consists of 82C311 CPU/cache/DRAM controller, the 82C315 bus controller, and the 82C316 peripheral controller. The Peak/486 consists of the 82C312 CPU/cache/DRAM controller, the 82C315 bus controller, and the 82C316 peripheral controller. They come in 160-pin plastic flat packs, and Peak/386 samples will be available in July with Peak/486 samples following in January next year. In quantities of 1,000-up the Peak/386 will cost \$160 and the Peak/486 will be \$180. Chips & Technologies Inc has also come out with what it claims is the first single chip solution for graphics cards compatible with IBM's 8514/A graphics standard. The 82C480 graphics processor is accompanied by an interface driver that provides compatibility with the 8514/A Adaptor, so that programs bypassing the adaptor interface and writing directly to the registers, such as Windows and Presentation Manager software, will run. The company also offers a register specification document, something that IBM has never released, giving software developers the flexibility of optimising software performance by also writing directly to the registers. The 82C480 also offers AT bus as well as Micro Channel support where IBM's original is for the Micro Channel, and an 8514/A-compatible graphics sub-system can be built with just 22 chips. The 82C480 graphics processor is packaged in a 160-pin plastic flat pack and samples in September at \$99 for 100-up.

FIVE NEW MACs IN APPLE PIPELINE

There are at least five new Macintosh computers in the announcement pipeline at Apple Computer Inc, according to MacWeek. The five go from John Sculley's promised "under- \$1,000" Macintosh to a 33MHz workstation via the lap-top. running. The customised version of Excelerator also will enable users to import CSP/AD definitions into its design dictionary with a built-in EtherTalk adaptor and direct memory access capabilities, a low-cost, 16MHz 68000-based Mac, and the long-awaited 16MHz 68000-based portable. The report says that the next-generation Macintosh IIs, aimed at the Unix workstation market, will start appearing in January, 1990, but the portable, which had been expected to be at the August MacWorld in Boston, now won't be ready until September or October because of problems with the machine's power supply and battery.

US NAVY SETS NEW RULES TO END IBM BIAS

The US Navy has reacted to the criticism from the industry and from the US General Accounting Office that its tenders were drawn up in a way that favoured IBM by adopting new procurement rules. The changes are intended "to provide all vendors with equal access to information concerning current needs and planned growth" in the Navy's computer operations. There is to be more scrutiny of major contracts by Navy top brass, creation of a new office to provide independent technical review of procurement plans, and the Navy's existing competition advocate general is now to play a more active role.

STRATUS COMPUTER GOES TO TECHNOLOGY CONCEPTS FOR DECNET

Stratus Computer Inc, Marlboro, Massachusetts, which early on did a full implementation of Systems Network Architecture to enable its machines to co-exist with IBM hosts, has now added an implementation of the DECnet communications software that will enable its XA2000 fault-tolerant supermicros to communicate with DEC VAX hosts. It particularly looks for a growth in business as a result from the manufacturing sector because of the growing demand there for fault-tolerant plant control systems and the widespread presence of DECnet local area networks in factories. Rather than reinvent the wheel, Stratus has gone to Technology Concepts Inc for the new DNS/2000 software, which is a version of the Sudbury, Massachusetts Bell Atlantic Corp subsidiary's existing DECnet-compatible CommUnity networking product, the Stratus implementation being done by New York-based system software developer Incotel Inc. Incotel rather than Stratus is to distribute the software, which will be available in September at prices ranging from \$17,500 on Stratus' XA2000 Models 50 and 70 to \$45,000 on the Models 150 and 160. Stratus will handle marketing jointly with Incotel, and the software will be supported via Stratus' Customer Assistance Centres and Remote Service Network. Running under Stratus' VOS operating system, DNS/2000 will need the XA2000 systems to be attached to the local area network cable, which requires a Stratus Programmable Ethernet Adaptor, which is \$4,000.

DAISY TO PUT ITS SOFTWARE ONTO SOLBOURNE STATIONS

The fact the company builds its Unix workstations around the Sun Microsystems Inc Sparc processor means that Solbourne Computer Inc, Longmont, Colorado can pick up all the software written for Sun workstations, and in a major step in that direction it has signed with Daisy-Cadnetix Inc, Mountain View, California for the latter to make its electronic design automation software available for use on Solbourne stations during the third quarter.

Unix in Japan

Canon Inc is currently doing only \$136m a year in computers so its decision to invest \$100m in NeXT Inc is a very substantial commitment indeed, but is seen in Tokyo in part as a means of ensuring that NeXT remains true to its magneto-optical erasable disk drives and its laser printer engines: as well as Japan, where it will be available in September, Canon will market the NeXT Computer System in South Korea, Hong Kong and Taiwan, at the pricey equivalent of \$13,500, and will aim it at computer-aided instruction and development applications; Canon hopes to have a Japanese language version out in a year.

Sony Corp may not have sold that many of its News workstations anywhere yet, but the installed base will start rising rapidly soon - albeit in a captive market - as the company starts putting together a giant computer-aided design network linking 20,000 of the things throughout its engineering and design divisions as part of a Design Revolution Project which is planned to be complete by 1994: the company has been testing networked design systems for two years and will use the network to share technical data on TV sets, video recorders, audio equipment and chips.

Sony Microsystems Co has signed Cadence Design Systems, San Jose, California to offer its electronic computer-aided engineering software tools for use on Sony's NEWS Unix workstations: under the agreement, Cadence will retain responsibility for licensing, distribution and support of its products, and Sony itself will be a major user of the software.

AT&T Unix Software Operation Pacific reports that the Unix International Inc Work Group has begun consideration of the changes required to the Open Look user interface to meet Japanese and international requirements: the Open Look specification have been undergoing review by 50 Japanese organisations since last September, and the draft internationalisation and localisation specification was prepared by AT&T Co, Fujitsu Ltd, Fuji Xerox Corp, Nippon Sun Microsystems and Toshiba Corp; the draft specification will be considered by the Working Group which consists of 20 companies, including NEC Corp and Oki Electric Industrial Co; the new draft includes additional specifications for Japanese fonts and icons, vertical writing, Japanese input methods, systems messages in Japanese and application installation commands.

And AT&T Unix Software Operation Pacific is to hold the fourth Unix System Software Technology Seminar in Tokyo on July 20 and 21: AT&Ters will speak about next-generation operating systems and seminars will address new technologies to be implemented in Unix System V Release 4.0 such as security functions, real-time facilities such as operation, administration and maintenance technology and impact of Open Systems Interconnection.

DELL UNIX LAUNCHES MARK COMPANY'S "SECOND PHASE"

Celebrating the second anniversary of its entry into the UK marketplace this month, Dell Computer Corporation Ltd took the opportunity of catching up on US product announcements, reviewing its progress so far, and, with the help of whizzkid founder Michael Dell, revealing a little about the company's future directions. The new products included the two new 80386-based systems - Models 310 and 325 - launched at the UniForum Unix trade show in San Francisco last March (UX No 220), and the more recently introduced Model 316 80386SX machine (UX No 226), along with graphics controllers and terminals. The machines mark Dell's entry into the Unix market, and run a Dell enhanced version of Unix System V/386 Release 3.2 from Interactive Systems Corp - Dell now counts itself amongst the Unix experts following the defection from IBM of AIX/Unix experts Glenn Henry and Charles Sauer - but also run enhanced versions of OS/2 and MS-DOS. Prices in the UK range from around £4,000 for an entry-level SX configuration up to £10,000 for a 16 user Model 325 with operating system, 8Mb RAM, 320Mb hard disk, VGA monotor, keyboard and intelligent I/O card. Comparable configurations from Compaq and IBM could cost up to 50% more, claimed the company.

The new announcements mark the second phase of the company's development, according to UK managing director Martin Slagter. The first phase established Dell's technical credentials in the PC marketplace, a task more easily accomplished than the controversial "direct relationship" marketing strategy, pigeonholed by many observers as mail-order marketing. However, Slagter maintains that the approach has been the key to Dell's success: "many people have brought from us because they would rather receive service and support from Dell than from a dealer", he said. Dell achieved a turnover of \$258m last year, and recently reported its best ever first quarter of \$87.5m, up 86% from the same period last year. According to Michael Dell, the company is on target to overall growth rates of 65% next year, which will take it up to a turnover of around \$400m. UK sales currently contribute around 15% of total revenues, and total non-US sales around 22%. The temporary stumble towards the end of last year that sent stock prices tumbling was a result of "temporarily excess inventory, which we have now worked down", said Dell. Phase two of the company's development is now underway, and means an increased focus on high performance PCs for advanced business, engineering and scientific applications. And although the direct marketing and manufacturing to order policy will remain, Dell is now recruiting a network of value-added resellers that will use the Dell hardware as a platform for their own vertical solutions - particularly important for Unix sales.

As for future Dell products, Michael Dell promised that his company would be "one of the earliest players in the i486 market - we already have machines working in the labs, and will be ready as soon as Intel can ship parts". Dell said that "ten patents around the new i486 technology have already been filed", and was very sceptical about IBM's approach of putting an i486 processor in a machine primarily designed to run the 80386. He also refused to acknowledge any performance advantages from the Micro Channel Architecture, but said that Dell would ship both MCA and EISA machines if it saw evidence of any customer demand. Currently spending \$20m a year on research and development, Dell also has multi-processing and parallel processing projects under wraps, and anticipates that it will be ready with further announcements when the i486 machine is released. The company is also looking at Intel's i860 processor for parallel processing under Unix, and as a co-processor under OS/2. Other future developments include the adoption of the OSF/Motif graphical user interface, and an 80386 laptop.

MISYS INVESTS IN ANOTHER UNIX HOUSE

With every acquisition, Stratford-upon-Avon computer systems and services boutique is coming closer to the critical mass that will enable it to buy just about any company in the UK computer market. Last week's contribution to the process was acquisition of Unix house Team Systems Group Ltd for £10m, satisfied by 2.49m new Misys shares at 402 pence; 25% were immediately placed by Albert E Sharp, but the vendors have agreed to hang on to the balance for at least two years. Based in South-West London, Team was founded in 1983 and now employs over 100 people. For the year to September 1988, it reported per-tax profit up 92% at £760,000, having seen a steady increase in profits right from its first year of trading, when it recorded £57,000. Turnover last fiscal rose 12.7% to £6.1m. The company's computer systems division develops Unix accounting and database applications with its largest base in the construction industry and also sells peripherals. The Office Products Division sells communications, word processing and other office software, and the Customer Services Division does hardware maintenance and software support. The acquisition builds on Misys' May move for Unix house TIS.

APRICOT SIGMEX WINS HARRIS DEAL

Apricot Computers' Sigmex subsidiary has signed a strategic alliance with Harris Controls, a division of Harris Corp, Fort Lauderdale, Florida. The companies will jointly market the Harris M9000 human interface for SCADA/EMS, Harris' control interface for electrical transmission and energy management systems, which will run on the Sigmex AS 800 range of graphics workstations, and should be of interest to the growing market for energy management systems in the UK, West Germany and the Netherlands, where Apricot Sigmex has wholly-owned subsidiaries. Running on the AS 8600 workstation range, the interface provides an information display system that "maximises an operators' ability to identify and react swiftly to the high volumes of data generated by electrical transmission systems".

HP UK ADDS DISTRIBUTORS FOR LOW-END HP 9000 SERIES 800s

Hewlett Packard Ltd in the UK has introduced a new distribution strategy for its low-end HP 9000 Series 800 machines by appointing two Authorised Computer Resellers to act as distributors. They are Perrin Systems Ltd of Barnsley, South Yorkshire, and Protek of Central London. The move coincides with HP's launch of the low-end Series 800 Model 815S (see front page) which brings the UK entry-level price down to £11,500 for the base system, or £23,000 for a fully bundled system. Both companies already distribute HP's workstation line, and will be appointing their own networks of value added resellers. Protek has already signed a deal to supply HP 9000 systems to The Accounting House Group, previously an Altos supplier.

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DEC is thought to be readying its long-expected symmetrical multi-processing version of Ultrix for release by the end of this year: VMS has long been capable of supporting symmetrical multi-processing.

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The need for such an operating system will be intensified after the company's major series of announcements scheduled for July 11th: the expected low-end DECstation 2100 (UX No 235) is likely to be accompanied by a series of multi-processors including Ultrix servers that will include support and storage management software for optical juke boxes.

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And as for IBM, more details are filtering through about the new generation RT, probable due out in the autumn: according to PC Week, the machines are expected to feature a higher speed MCA bus and will be rated at between 12 and 15 Mips, boosted to up to 35 Mips by year-end, and an Intel i860-based "Wizard board" for high resolution graphics (as demonstrated at UniForum in March) will be available.

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The hardware should be accompanied by a raft of AIX software that is expected to run on both Risc and PS/2 AIX machines; applications should include some ported over from Next Inc hardware, aided by the availability of Objective C from Stepstone, the NextStep user interface, and Mach messaging facilities added to AIX: it appears that IBM will target the NextStep interface to "trueblue" customers and the education and scientific market, leaving OSF/Motif for heterogeneous computing sites and to those wanting Presentation Manager-like style - but NextStep users won't be able to take advantage of X-Windows, as IBM has implemented the interface directly on top of Display Postscript.

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Concerned that AT&T Co's very unsticky 22.35% of Ing C Olivetti SpA could end up in unfriendly hands, Carlo de Benedetti, whose CIR holding company owns 22.28% is expected to seek to buy the AT&T holding, and would then likely shop a minority stake in Olivetti around other computer companies, likely European, with cross-shareholdings between future partners a probability.

Recognition Equipment Inc, Dallas now has definitive agreement to buy the image processing software developed by bankrupt Plexus Computer Inc of San Jose, California: terms which must be approved by the bankruptcy court, were not disclosed.

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Bull SA has renewed its OEM agreement with Convergent Technologies Inc under which it sells CTOS workstations as the Questar 400 family, and the new pact could run out to as much as \$100m for the Unisys Corp unit over its five-year term.

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Hewlett-Packard Co plans to retain all but 100 employees who held corporate positions at the the former Apollo Computer Inc's Chelmsford, Mass., headquarters facility, but that of the 500 headquarters employees, about 150 people hold positions that are not normally needed in a product division, and it looks to to place about 50 of them elsewhere within the company; those who can't be placed will leave with a minimum of three months' salary and other benefits; it says it is making progress integrating marketing, research and development, and field sales and service operations in other aspects of the Apollo consolidation, and expects the process to be completed in about six months.

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Intergraph has announced three new ports to its Clipper workstations: WordPerfect now runs on these Unix based systems, as does CLM Systems Inc's Civil Engineering Automation Library and the American Association of State Highway and Transportation Officials' Interactive Graphics Roadway Design System: the company also announced an Ada compiler developed by the University of York's York Software arm at the recent European Unix User Show.

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Valid Logic Systems Inc has signed to become an industry remarketer of IBM's RT and PS/2 Model 80 under the AIX version of Unix: it will offer its full line of electronic design automation software on them.

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Correction: a fully populated NCube 2 from NCube Corp is rated at up to 27 GFLOPS at peak (UX No 237).

Motorola Inc says its 88000 RISC is now in full volume production at speeds of 20MHz and 25MHz, and it rates the latter at 21 MIPS, which it reckons makes it the highest-performance microprocessor available in volume, with higher clock speeds on the way: it also says new benchmarks show that the 25MHz part delivers 48,387 dhrystones and 25,000 Kwhetstones; the 20MHz 88100 is \$494 and the 88200 at \$619 in unit quantities, the 25MHz 88100 is \$697, the 88200, \$875 [quantity one. Intensifying its "catch 'em young, you've got 'em for life" strategy in the education market, IBM has reduced prices to schools and colleges of the PS/2 and RT families, by introducing a "best price" system for each product regardless of the number bought, the best prices typically being 40% below list - and it has cut US National Education Prices for several products including five PS/2 models and five printers by between 3% and 10%.

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/IBGraphic Software Systems Inc/IP of Beaverton, Oregon has a new version of its PC-Xview DOS-based X-Windows terminal emulator; release 1.1 now supports 3Com and Western Digital Ethernet boards as well as the originally supported Excelan board - multiple boards are supported through device drive software developed by FTP Software Inc: price is \$295 or \$425 with the FTP software.

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And /BLocus Computing Corp/IP, which has recently set up UK offices in Aylesbury, Bucks, is releasing its Integrator's Platform range of software to the UK, including PC-Interface and the Xsight for Unix 386-based PCs.

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HEWLETT PROMISES POSIX COMPLIANT MPE

Hewlett-Packard Co is proceeding apace with its open systems strategy and the next step will be to offer a Posix-compliant version of its proprietary MPE operating system on the 32-bit RISC-based models of its HP3000 business computer line, following DEC which is working on a Posix version of VMS. Hewlett is promising that users will be able to run MPE and Posix concurrently, allowing access to both general purpose Posix compliant software alongside existing MPE software designed for high performance transaction processing. The first step will be to provide developers with a Posix shell and the Open Software Foundation Motif user interface to enable them to create versions of their applications for the HP3000. Separately, the company confirmed that it has stopped selling the original HP9000 Model 840S Unix RISC machine in a move towards phasing out the original TTL versions of its Precision Architecture in favour of newer implementations of the CPU fabricated in NMOS and CMOS.

REAL WORLD LAUNCHES "FIRST" i860 SUPERCOMPUTER

UK parallel processing specialist Real World Graphics has abandoned its Motorola 88000-based Reality and Super Reality graphics supercomputers, announced last October (UX No 202) in favour of new versions using Intel Corp's i860 processor - claimed to be the first to use the one million transistor part in a commercial product, according to the company. Very late delivery of the 88000's external cache chips is thought to be one reason for the change, necessitating several redesigns over the 18 months product development cycle, according to one source, and the company found that it had to parallelise more 88000s than originally expected. The changeover was "very simple", said marketing manager Norman Garland, as all graphics functions are implemented in software. Hertford-based Real World has now introduced its Reality single board VME system (which can be used in multiple configurations) for availability this month, but in September promises the new version of its Super Reality model, a parallel processor with geometry, rendering channels and frame buffers on separate boards. Both systems are designed for multi-channel display configurations for use in simulation systems. Performance from a fully populated Super Reality with up to 80 i860s should be around 1000 MFlops, said Garland. And Real World says it has hidden the parallelism from the applications program by using proprietary hardware and software technology, allowing both geometry and rendering functions to be programmed "in an essentially sequential fashion using C, Fortran or Pascal." The VME board Reality product, which can be hosted within a workstation, has two i860 processors with 4 or 16Mb DRAM and a 1024 x 1024 frame buffer with four overlay planes. Super Reality consists of both Geometry and Rendering boards, each with four i860 processors providing "several hundred Mips and MFlops". Up to 20 boards can be used in a single system, which can be configured as a terminal product with standard interfaces, as a self contained workstation with local disks and networking, or anywhere between. There are a full set of graphics subroutines based on Phigs+, and Software System's Multigen package for the production and editing of real-time 3D databases and models is also available. Prices in the UK start at £18,000 for Reality, and £25,000 for a single board Super Reality, but the company has also set up US distribution through Simulation Technologies Inc of Boston and Philadelphia, as well as European distribution through CFE of Paris. Three year old Real World was set up by Graham Rowan, who pioneered the use of PC graphics cards through his IO Research company in the early 1980s. Stratus Computer, which committed itself to the Motorola 88000 in April 1988, similarly changed stream in favour of the i860 a year later (UX No 224).

...BUT APPLE MAY PICK 88000 FOR SUPER MACS

But Apple Computer Inc may turn out to be a late coup in Motorola's efforts to establish its Risc developments, with rumours that Apple's Risc evaluation team, headed by Ridge Computer co-founder John Sell, may have opted for the 88000 in its quest for an engine to drive a new range of systems aimed at the high-end workstation market. Apple, which is said to have combed the field for Risc processors, including the more unfashionable options such as Advanced Micro Devices' 29000 and Acorn Computers' ARM chip (UX No 204), will probably opt for the 88000 because of closer backward compatibility with its current Motorola-68000 based lines.

PEACEMAKER X/OPEN SEES TRUCE IN UNIX WARS

X/Open Group Ltd has been quietly pouring oil on troubled Unix waters ever since the schism that led to the creation of the rival Open Software Foundation and Unix International camps emerged, and as suggested in UX No 237 is on the brink of a breakthrough that could limit the damage threatened by two rival Unix definitions fighting it out in the market. X/Open is believed to have persuaded Unix International and the Open Software Foundation to agree a common application programming interface for their rival user interfaces, Open Look and OSF/Motif. While this would not resolve the problem that end-users who had trained on the one would likely be baffled when faced with the other, it would mean that developers would be able to create a single version of their applications that would work with both user interfaces. Portability should otherwise not be a problem because both versions of Unix will conform to the X/Open Common Applications Environment and System V Interface Definition.

CONTROL DATA TO SELL SILICON GRAPHICS STAKE?

Question marks have been raised over the future of Silicon Graphics Inc should the 20% stake held by Control Data Corp fall into hostile hands: CDC has been divesting its investments where possible, and although it could release the shares onto the market by making a secondary prospectus issue it would likely get a better price by selling to a single buyer that had designs on Mountain View company. It could also pass the shares on to a company that would be supportive of Silicon Graphics, and Bull SA of France has been mentioned in this context. Shrugging off any worries on that count, Silicon Graphics is moving to consolidate its rapid expansion in Europe and the International Division has added new subsidiaries in Belgium and Norway, and new offices in France and the UK. The International Division currently accounts for around a third of the company's business.

SILICON COMPILER SYSTEMS TO BUY DESCARTES FOR ASIC CODE

Integrated circuit design software developer Silicon Compiler Systems, San Jose, California is to acquire Descartes Automation Systems Inc of nearby Santa Clara, which specialises in layout products for applications-specific integrated circuits. Silicon Compiler is looking to add advanced gate array and cell-based layout technology and products from Descartes to be in a position to enable its customers to handle the layout of complex circuits with improved speed and better chip densities. Descartes' ReneGA is described as a next generation layout system designed to handle sea-of-gates designs in excess of 300,000 gates, and its advanced database also provides for rapid turnaround. It runs on workstations from Sun Microsystems, Apollo Computer and DEC and on IBM and Cray Research mainframes. Terms were not given.

LEARMONTH'S SSADM IS TO BE INTEGRATED WITH INGRES

Database developer Relational Technology Inc boosted its UK computer-aided software engineering strategy yesterday with an agreement with Learmonth and Burchett Management Systems Plc to develop an integrated version of Ingres and the Learmonth Auto-Mate Plus product. The deal will enable Ingres to support the SSADM Structured Systems and Design Methodology, widely used in the UK where it is a now mandatory requirement for Government computer departments. Relational will integrate Auto-Mate with the Ingres data dictionary, so users can carry out the analysis, logical and physical design of systems development under SSADM and transfer it to the Ingres data dictionary to create a physical data schema to integrate the database with application and end-user software tools. Auto-Mate runs on MS-DOS micros and will normally be linked to an Ingres host system such as a DEC VAX or Unix system through DECnet or TCP/IP. It should be ready in October. Relational also supports Cadre Technologies Inc's Teamwork toolkit for those using Yourdon methodology.

APPLE TO DEVELOP RIVAL ADOBE PRODUCTS, SELLS SHARES

Apple Computer Inc wants to sell part or all of another of its investments, the 16.4%, 3.42m shares, it holds in Adobe Systems Inc, which it bought in November 1984 for about \$2.5m - against a current market price of \$91m. As well as cashing in on an excellent investment, Apple says it sees this as an appropriate time to sell its Adobe shares because Apple's current development directions are diverging from those of the PostScript developer - Apple says it is developing technologies that are competitive with those of Adobe, namely font software, which is planned to be included in the next major release of Apple's Macintosh System Software - MacOS. Apple also says it is developing its own alternative interpreter for the PostScript page description language used in some models of its LaserWriter printers. It expects the new products to come out during the middle two quarters of next year, but intends to continue to support the Adobe interpreter and related technologies while customers request them. Apple will be selling the shares to Morgan Stanley & Co and Hambrecht & Quist Inc, and the two firms will resell them in a secondary public offering.

Unix in Japan

As of July 1st, the former research institute of one of Japan's leading personal computer software houses, Japan Soft Bank, changed its identity from The Soft Bank Research Institute to Structured Research Institute following a management buyout - something almost unheard of in Japan - by its president: as well as continuing its current business of developing Unix system software, the new SRI will team up with two US software companies, Interactive Systems Corp, Santa Monica, and Phoenix Technologies Ltd, Norwood, Massachusetts, to develop Japanese versions of the VP/ix Unix and Phoenix's BIOS for building IBM-compatible personal computers; the new company will also develop user interface software for communications and screen displays under Unix, and half of the company's prospective revenues are expected to come from Unix over the current financial year.

Fujitsu Ltd and AT&T Co are to work together to develop a Japanese version of Open Look, engineers from both groups doing the work at Fujitsu's Kawasaki plant near Tokyo, with the prototype version to be completed by November: the two companies are also working together to add international support, beginning with Japanese language features, to Open Look, with the aim of making it easier for developers to supply Open Look applications that they can be tailored to any language or location; and to enable Open Look to display Japanese text and accept input in Japanese.

Nichimen Data Systems is putting together a comprehensive portfolio of artificial intelligence products: it will market the ART Automated Reasoning Tool from Inference Corp, Los Angeles in the versions for the Hewlett-Packard HP9000 Model 300 and the Apollo Computer Domain 3000 and 4000 series, and will also take on Symbolics Inc's MacIvory co-processor board for the Apple Computer Inc Macintosh; Nichimen will also offer Neural Works Professional II from Neuralware Inc of Pennsylvania, which has been converted to run on the NEC 9801 series, IBM AT, and Sun Microsystems workstations; another product to be sold is Designer pack Version 1.0, which can be used to convert neural network data into C code, as a tool for building applications; it's \$4,500 for MS-DOS, \$13,300 for SunOS.

NCR Corp, rather reluctantly in the Unix International camp - it never wanted the schism in the first place - is to offer both user interfaces for Unix, Open Look and OSF/Motif, at least in Japan, saying that it has had requests for both from its customers, who are predominantly in the finance sector. In another switch to appease US trade warriors, according to Japan's Kyodo news agency, the government will no longer accept discount rates that can run as high as 80% to 90% on Japanese-made supercomputers offered for public sector contracts - but that doesn't mean that the likes of Cray Research Inc will be able to win any business by bidding at list - the government believes that allowable discounts of up to 50% will enable US companies to compete on equal terms with local firms.

Although the market for workstations is forecast to grow by 60% this year, it is still tiny by US and European terms, with only 33,000 sold last year with a value of \$965m including applications software - and for once, US companies led by Sun Microsystems and Apollo Computer are taking the lion's share with only Sony Corp successfully waving the flag for the home team, although Fujitsu Ltd, NEC Corp, Toshiba Corp and Hitachi Ltd all now have serious designs on the market.

SEQUENT SIGNS SECURE UNIX PACT

Sequent Computer Systems Inc has an agreement with Addamax Corp to develop high level security for Sequent's Symmetry line of parallel processors, which should allow the company to achieve a B1 security rating as specified by the Department of Defense Orange Book. Under the agreement, Sequent has licensed Addamax's B1st Trusted Unix conversion kit to develop the secure systems capability for Dynix, Sequent's implementation of Unix for its multiple Intel 80386-based line of systems. Addamax provides source code, automated test suites, configuration management tools, documentation and engineering assistance during the development of the security features - and will also provide support for Sequent during the necessary US Government certification process at the NSA's National Computer Security Center. Addamax, from Champaign in Illinois, markets both the B1st Trusted Systems Kit and the B1st Trusted Network Architecture kit: in Europe it recently announced that London's The Instruction Set would be exclusive agents (UX No 238).

...AND WORKS WITH RTI ON DATABASE PERFORMANCE

Sequent is also working with Relational Technology Inc in a bid to boost performance of the Ingres database on Sequent hardware. The two companies have a joint development agreement which aims to achieve a ten-fold improvement in relational database query performance, by providing a "Parallel Database Query" facility to allow the processing of database queries to be spread over multiple processors. During the two year project, regular releases of the enhanced Ingres product for Symmetry will be delivered. Initial work will concentrate on the application of multiple processors to select data from database files, moving on to focus on applying multi-processing to perform joint operations that currently have to be run on a single processor. "Until now, database performance activity has focused on the short reads and writes of on-line transaction processing", said Mark Wells of Relational Technology. "Attention to parallel query technology will return considerable benefits". Early tests indicated a best case performance improvement up to 100 times over conventional query processing, said the company.

TEXAS, PHOENIX "TO TEAM ON CHIP+BIOS SUNALIKE SPARC KITS"

Phoenix Technologies Inc and Texas Instruments Inc are reportedly close to an agreement that will make available all the necessary chips and software to enable manufacturers to build true clones of Sun Microsystems Inc workstation built around the Sparc microprocessor. The move follows Sparc International's move to second source Sun hardware and systems software at Uniforum last March (UX No 221). Texas, one of the string of companies that have signed to fabricate versions of the Sparc, would offer the chip sets and Phoenix would offer firmware and software kits for Unix similar to the ROM BIOS kits that it supplies to builders of IBM-compatible personal computers. According to Computer Systems News, Phoenix reckons that its ROM BIOS is used in more than 70% of the estimated 10m clones of the IBM Personal in use worldwide. Under the proposed agreement, on which the two companies declined to comment, it is believed that Texas and Phoenix - which has licences for the SunOS Unix so that manufacturers do not have to run the risk of showing their hand to Sun by licensing the software direct - would design motherboards and other building block hardware and market them jointly to people wanting to build Sunlike workstations, with the majority of manufacturers likely to be in the Far East, where Sun was last year encouraging companies to build low-end workstations around the Sparc. Phoenix would also offer its OpenPC software emulation of the MS-DOS environment for Unix machines so that the workstations could run the enormous base of MS-DOS software. Phoenix is expected to make major OEM customers of its MS-DOS ROM BIOS its first target for the kits.

DELL WEIGHS FOUR RISCs FOR ITS PLUNGE INTO UNIX

With three former staffers from IBM's Austin, Texas Unix development base on board, Dell Computer Corp is very serious indeed about its plunge into Unix (UX No 238), and is reviewing four RISC chips and considering doing its own multiprocessing adaptations to Unix. This emerged at a Silicon Valley Roundtable in San Francisco last week, reports Microbytes Daily. The session was fronted by Glenn Henry, former IBM Fellow who announced himself as one of the main developers of the System/38 and the RT, who introduced the other two IBMers, Charles Sauer, a specialist in Unix, and Dale Reynolds, a business systems architecture specialist. The company wants to do original work in multi-tasking and multi-processing, graphical interfaces, and application-specific integrated circuits. The four RISCs under review for Dell's high-end system are the Motorola 88000, the Intel 80860, the Cypress version of the Sparc processor, and the MIPS R2000/R3000 processors - but Henry is worried that there are too many RISC chips to choose from and wants to be sure of adopting the one that has the biggest base of available applications. As well as working on an 80486 machine, Dell is also considering a parallel multiple 80386 architecture to retain compatibility with the existing software base on single-processor systems - but while that would need a parallel processing version of Unix, Henry claimed Dell has its own capabilities to "do serious modifications to Unix. We're capable of adapting Unix to multiprocessing," he said, adding that the company was considering the promised multi-processing version of the Mach kernel from Carnegie Mellon University, which is also wanted by NeXT Inc for a future multi-processor. And as reported, Dell is also preparing a lap-top computer for launch when it reckons it has got the thing right. While 95% of its business is currently with 80386 and 80286 machines running MS-DOS, the diversifying Austin company is looking to get 20% of future business from Unix machines.

WANG IN TALKS WITH BANKERS

Wang Laboratories Inc is in a worse financial state than observers had suspected, and it is having to negotiate with its banks to replace existing revolving credit pacts for about \$300m. Wang will report a big loss on declining sales: fourth quarter turnover is seen at \$750m to \$775m against \$823m last year.

OLIVETTI REVEALS ITS GIANT \$340m RABOBANK UNIX PACT

Ing C Olivetti & Co SpA was finally able to announce a monster order from the Rabobank Nederland Dutch cooperative bank that it has been dying to tell the world about since Carlo de Benedetti dropped hints on it to shareholders last month. The agreement, valued at \$340m, is the biggest single contract ever won by Olivetti, and a breakthrough for its new LSX-3000 family of Unix minis and micros, involving about 2,000 of them, and over 25,000 personal computer workstations. The agreement, won in competition with NCR Corp, makes Olivetti sole supplier of distributed information systems for all of Rabo's affiliated banks and agencies. Work starts next year with completion in 1997.

Unix in Europe

EUROPEAN CONSORTIUM WORKS ON 1000 MIP WORKSTATION

A European consortium funded by the European Economic Community has been formed "to design and build a general purpose technical workstation aimed at meeting the needs of engineers and designers in the next decade". The workstation, which aims to be "100 times more powerful than today's workstations", says it will produce a 1000 Mip system by the mid-1990s - it will be a multi-function technical station with a three dimensional user interface and multi-processor architecture. Partners in the Consortium are a mixture of academic and industrial research organisations, including lead partner Kontron Elektronik of Munich, with Dutch Unix experts Associated Computer Experts (ACE) bv of Amsterdam, French electronics company Caption of Rennes, British Aerospace Systems and Equipment of Bracknell, and three University's; Tuebingen in Germany and the the UK's University of Sussex and Queen Mary College in London. Overall architecture of the workstation - codenamed Spirit - will be a small scale multi-processor design based on a very high speed bus with cache consistency and shared as well as local memory. It will use "leading industry-standard high performance processors, a dedicated fast artificial intelligence processor and high performance graphics", suitable for real-time interactive 3D capability. The architecture will be modular for flexible configuration requirements. The software base will include "industry standard Unix, augmented with an object-oriented environment and AI languages, particularly Prolog, integrated with computer network facilities". System software will include an operating system kernel "specially designed for multi-processing and distributed working". Project director is Professor J G Zabolitzky of Kontron. Queen Mary College, which will work on the 3D graphics software, and recently took delivery of an AT&T Pixel Machine supercomputer, supplied by Computer General Ltd of Chipping Norton in Oxfordshire.

RAPID RECALL MOVES INTO 80386 BOARDS, SYSTEMS

Signalling its entry into the microcomputer market, Rapid Recall Ltd has signed a distributorship deal with Intel UK covering 33MHz, 20MHz and 16MHz versions of the company's 80386 motherboards and systems. Rapid Recall believes that manufacturers will increasingly move to integrating from board- rather than chip-level up; initial targets will be members of Rapid's "Insignia" systems OEM programme. Stressing the flexibility of the offering, Rapid chief Jim White said that a range of peripherals, together with Santa Cruz Operation's Xenix operating system could be configured with the board, if required. He was also quick to play up the company's support and technical services, claiming a key advantage over the current market's numerous "weak players". Services include a support hotline, and a technical support engineer to field sales staff ratio of 1.6 to 1 respectively. Both sides appeared unwilling to disclose the origins of the deal, which builds on a number of existing franchise agreements between the two companies. However, Rapid Recall's recent acquisition by the French distributor, Metrologic SA, was deemed to be "a factor". Intel has a twoyear old, lucrative agreement with Metrologic, covering identical 80386 products on the continent. A Rapid spokesman indicated that the firm is aiming to generate £625,000 worth of sales by December, rising to £1.5m by next June. The figure recouped by Intel is put at some 60%, but varies upon additional OEM requirements.

VISTEC ACQUIRES LEVEL V DISTRIBUTION FOR UP TO £2m

Fresh from its unsuccessful bid for DDT Plc, the Vistec Group Plc, Belper, Derbyshire has instead decided to branch into the Unix market with a bid for Level V Distribution Ltd, a distributor specialising in microcomputer Unix systems integration and Unix network products and services. The offer values Level 5 at £2m, of which an initial payment of £300,000 is being made through the issue of 1.2m new ordinary shares valued at 25.5 pence each. The rest of the payment will be made on the basis of Level 5's pre-tax profit performance in the financial year ending June 30 1990. Level 5 turned in pre-tax profit of £80,699 on a turnover of £798,676 in the financial year to June 30 1989. Vistec believes that the acquisition will expand its sales in the UK corporate and government sectors, as well as opening up large new accounts and enhancing its position as a supplier of computer aided design systems and services. Vistec, which has been turned inside out since it emerged from the shell of F&H Group, reports pre-tax profits of £1.2m on sales of £11.9m for the five months to April 30. Vistec has also bought out the earn-out agreement on its O1 Computers Group Ltd, paying £65,000 now to buy itself out of a commitment that could have cost it £750,000 in shares over time.

VERITY MOVES IN TO EUROPE WITH TEXT RETRIEVAL FOR UNIX

Mountain View, California-based Verity Inc has opened its first European sales and support office in London, and appointed distributors for its enhanced information retrieval system, Topic 2.0. The system runs under DEC's VAX/VMS, and under Unix on Sun Microsystems, Pyramid Technology and MIPS Computer Systems Inc machines, and under MS-DOS and supports all major networks. Verity plans to release Mac/OS, OS/2 and X Window versions in the next six to 18 months. The product is written in an object orientated query language, as opposed to structured query language, and lists the database under topics and sub-topics which the user defines and prioritises. Verity claims that this enables the user to retrieve information both in conceptual terms and in order of importance, and that the hierarchy can be changed over time as the user requires. Topic 2.0 supports real time systems, has hypertext facilities which retrieve text and images, and a topic by example query builder, which essentially adds to the system's intelligence. Verity Inc was established last year as a spin off from Advanced Decision Systems which supplies artificial intelligence systems to the US government. It has received a total of \$9.4m in venture funding from a number of companies including US Venture Partners, Grotech Management, and Hambrecht & Quist. In the US it includes Chase Manhattan and the US Air Force in its client base and has now established a relationship with three European distributors - Sherington Software Ltd of Redbourn, Hertfordshire, Net Support BV in Holland, and Belgian BEM SA. The company is targeting Topic 2.0 at large commercial organisations and government bodies, particularly those that are in process of majoring on Unix, and pricing on the stand-alone personal computer version starts at £500.

DDC DEVELOPS ADA SYMBOLIC DEBUGGER FOR SWEDISH DEFENCE

DDC International of Denmark has signed a major new Ada contract with the Swedish Defence (FMV). The contract covers the development of a Symbolic Ada Debugger for Sun03 workstations, to be delivered by the end of the year. DDC recently completed work for the Swedish Defence on a Native Ada Compiler system for Sun-3 and 386i workstations (UX No 205), and signed its first Ada contract with FMV back in 1984.

MEIKO MAKES TRANSPUTER BOARDS FOR SUNS ACCESSIBLE TO ALL

The Bristol-based company Meiko Scientific Ltd has recently made a stand via product launches (UX No 238) to tell the world that parallel processing is no longer a technical curiosity. The products in question are its In-Sun family of Transputer-based Computing Surface Boards, and its new set of CS Tools for developing portable parallel applications in Fortran or C. The MK200 board has four 10 MIPS processors, each with up to 12Mb of memory; the MK201 is an add-in board for Sun-3 and Sun-4 workstations with eight five-VAX-MIPS application processors, each with up to 8Mb of memory; the MK202 is also an add-in board with 16 five-VAX-MIPS application processors, each with up to 2Mb of memory; while the MK203 provides up to four users with from four to 16 T800 user processors. Up to four of each of these boards in any configuration can be inserted into a single workstation. Originally, IBM MS-DOS microfronted Meiko technology but by moving to Sun workstations Meiko says it is going upmarket in a bid to deliver to the wider commercial market. The In-Sun Computing Surface family can be slotted into individual Sun workstations or put into servers for sharing resources over a network. For example, the Sun-3/260 server can take four or five boards giving it up to 64 processors and increasing its computational power by up to two orders of magnitude. Sun machines can be upgraded to supercomputer performance by buying the boards (for a starting price of £8,500) or the user can buy a complete turnkey system (with a starting price of £33,000) from Meiko, which is one of Sun's largest OEM customers in Europe. Probably the most interesting part of this product announcement, however, was the unveiling of the CS Tools, which enable straightforward programming techniques to be used to develop applications in the parallel processing environment, as all the boards have ANSI Fortran 77 and C compilers. Furthermore, parallelism is embodied in the tools which can be used by teams of developers on a network to write parallel applications. The Meiko software environment also comes complete with dbxtool symbolic debugging for run-time proying of finished applications. Meiko believes its parallel processing environment is now ideal for commercial use in areas such as dealing room systems and claims that parallelism (not necessarily tied to Transputer capability) will enable the company to grow as big as Sun or DEC. Indeed, Meiko's co-founder Miles Chesney ended his presentation with the appeal: "don't regard us as British - we don't intend to fail." That's the kind of spirit we like.

OSF, UI AND X/OPEN SUPPORT US USER GROUP SURVEY

The Open Software Foundation, Unix International, and X/Open are amongst the latest recruits signed up to help US Unix user group /usr/group with its "Strategies for Open Systems" study of the US domestic Unix market (UX No 228), being carried out in conjunction with DMR Group Inc of Boston, Massachusetts. Said to be the largest ever study, the \$1.5m programme will investigate many aspects of open systems, including technology; the growing market; user requirements; customer attitudes and knowledge. It will also examine various issues regarding the planning and implementation of open systems, producing user-oriented tools and models to help organizations evaluate opportunities, select vendors and integrate open systems into a technology architecture. The Open Software Foundation, UNIX International and X/Open have each joined, and are encouraging their members to join as well. So far, 20 companies have become charter subscribers to the programme, which should be completed by May 1990.

SHERPA BRINGS ENGINEERING SOFTWARE TO EUROPE

US engineering data management company Sherpa Corp has established its European headquarters at Bracknell in Berkshire. The privately-held company was founded in 1980, backed by several US venture capital firms, and the major European investor is Londonbased Abingworth Ltd. According to Dataquest, the engineering data management market is set to grow from £13m in 1986 to £281m by 1990. Sherpa plans to address this with its engineering tool DMS, the Design Management System. John Moore, director of European Operations, believes that DMS is unique in its field, largely because of its heterogenous nature. It can be networked over IBM, Hewlett-Packard, Sun Microsystems, DEC and Apollo Computer workstations, running under Unix and VMS. Moore also claims that unlike other systems, DMS not only addresses the needs of single departments, but integrates data from the design process through to the manufacturing stage. This real-time management enables design teams to have current status information about their project, thus preventing duplication and incompatible alterations. It also facilitates easier and more cost effective upgrades and maintenance. In the US, Sherpa numbers Rockwell International, Ford Aerospace and Hughes Radar in its client list. It claims that they have benefited enormously, both in design time and money, from the software. The company offers a Quickstart service which allows customers to install DMS on a small-scale, to then evaluate it and buy user licences as required. Quickstart costs around £40,000, and would normally take a minimum of two months to be up and running. Sherpa is aiming DMS at the computer, electronics, telecommunications and aerospace industries, and has sold licences to NCR in Scotland, and Philips in the Netherlands.

UK USER GROUP APPOINTS DIRECTOR, CHANGES SHOW PLANS

Signs are that UniForum UK, the new name for the UK's Unix user group previously known as /usr/group/UK, is getting serious: it has signed up its first full-time executive director in the shape of Roger Frampton from UK systems house Digitus. Frampton will carry through the UK's own large scale Unix marketing programme, carried out in conjunction with BIS Macintosh and backed by subscribers such as DEC, Hewlett-Packard, Data General, Data Logic, Texas Instruments, Kernel Technology, ICL, Oracle and Trafalgar House. UniForum UK is also working on a trading standards code of practice for UK firms involved in Unix. Ben Salama from Data Logic remains as Chairman of the group, and says that membership is now on track to reach 1,000 by year end. Meanwhile, UniForum UK has issued a letter to members stating that it has been unable to conclude a new arrangement with European Unix User Show organisers EMAP Exhibitions, and now plans to sponsor and support the rival Open Systems Show organised by Reed Exhibitions from November 1990. EMAP's plans to hold the show alongside its PC User Show at Olympia next year was said to be one of the main reasons for the switch. The first Open Systems Show will open at Olympia 2 in London's Kensington on the 1st of November this year, unfortunately timed to clash with Unix Expo in New York.

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ParcPlace Systems, of Mountain View California, has launched its Objectworks software development system for AT&T's C++ Release 2.0: the integrated set of object-oriented tools include an incremental compiler and linker, source level debugger and source code browsing, and will be available in late August for the Sun-3 workstation priced at \$2,495.

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The European Unix systems User Group is to hold its Autumn '89 conference and exhibition at the Vienna Wirtschaftsuniversitat between September 18 and 22nd: it will include a series of tutorials on such subjects as Unix network programming, RISC, The Andrew Toolkit and the future development of Berkeley Unix on the first two days, followed by a full three day technical programme.

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DEC UK has won a major workstation order from the computer laboratory at Cambridge University for 50 DECstation 3100s and three file servers: the University previously had MicroVAX and VAX-based systems.

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Sharp-eyed visitors to the recent Design Automation Show in the US may have spotted a number of desktop workstations without badges on the DEC stand and dotted around the show: according to Digital Review the machines were none other than the DECstation 2100, due out on July 11th this week and expected to compete with Sun's Sparcstation 1 (UX No 235).

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DEC is not the only organisation holding an event on July 11th: new developments from the Extended Industry Standard Architecture group of companies - including AST Research, Compaq, Epson, Hewlett-Packard, NEC, Olivetti, Tandy, Wyse and Zenith - are also expected on that day.

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TIS Limited, newly aggressive since its integration into the Mysis organisation back in May (UX No 231) has signed four Altos dealers who will add the MIPS Computer Systems range of Risc-based machines to their ranges: the four, Mytec of Birmingham, Systems Research of Manchester, London-based Whiterakes and Hemtech of Croydon in Surrey are likely to be joined by a further half dozen contracts currently under negotiation, and TIS says that it has also won a number of contracts to provide computer maintenance to large Altos sites.

Uniplex GmbH, the German sister company of the UK office automation software house, has been selected as the software supplier for the ADIS office automation pilot installation in the Berlin Senate alongside prime contractor Siemens: the Senate is expected to install 40,000 terminals over the next ten years, and the pilot will determine the final choice of applications software for the project, which specifies compliance to X-Open standards.

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Torch Technology Ltd of Cambridge has signed a contract with Addons Ltd, a Southampton-based computer distributor: Addons currently sells PCs to commercial and educational establishments through a network of 1,000 dealers, and will initially take £300,000 worth of Torch's Unix-based QS range, with more orders expected in the coming months.

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Compaq Computer is said to be working closely with Santa Cruz Operation and Corollary Inc concerning multiprocessor Unix (UX No 237), which it plans to use in a new generation of 386 and 486-based systems for use on local area networks and as database servers.

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Texas Instruments Inc has turned to Hewlett-Packard Co for terminals for its TI 1000 Series of Unix business computers. The OEM contract is valued at up to \$12m to Hewlett.

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The OS/3 or OS/2-386 version of OS/2 that makes use of the features of the 80386 will be available in early 1990, according to Microsoft Corp chairman Bill Gates: according to Microbytes Daily, he insisted that OS/2 for the 80386 will be a "simple transition" and that the current OS/2 will be fully "upwardly compatible" with the current version; conceding that there may be a few, very specialised OS/2 applications that require the 80386, he said that most software would be designed to run under either the 80286 or 80386 version.

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Data General Corp has gone to Phoenix Technologies Ltd for its OpenPC software co-processor that emulates the MS-DOS environment on non-Intel hardware under Unix: it has commissioned Phoenix to do a version of OpenPC for the Motorola 88000 RISC and plans to make it available on its 88000-based AViiON by year-end.

Scientists at the University of Massachusetts in Amherst, claim to have developed a computer that works 40 times faster than the fastest Cray Research Inc supercomputer but say that more research is needed to determine whether the box has widespread applications: the machine was built by a team of 22 physicists and engineers from Columbia University, Texas A&M University, the University of Guanajuato in Mexico and the Fermi National Accelerator Laboratory in Batavia, Illinois as well as the Massachusetts locals, to do high-speed calculations in particle physics.

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ICL has won a £200,000 order from Mid Southern Water for its Digital Mapping System which runs on Sun Microsystems' Unix workstations, and was jointly developed with Cambridge-based Alper Systems Ltd: the new contract comes at the end of a pilot scheme, and it is part of a five year plan to digitise all Ordnance Survey maps covering Mid Southern's 580 square mile area.

- 0 -

Fear stalks the streets of Cupertino these days as Apple Computer Inc employees fretfully try to recall whether they have ever passed on any company-confidential information and dream up ways to cover their tracks if they may have done: matters have been brought to a head by the emergence of the Prometheus League, which threatens to unleash the code of the Macintosh operating system on the world, but the climate of fear is claiming other victims, and Newsbytes reports that David Ramsey, author of Release 2.0 of MacPaint and a highly respected programmer, was fired by Apple after he disclosed future software directions at Apple on the Compuserve information network; Ramsey claims he didn't even know that the information was secret.

- 0 -

Informix Software Inc's Informix relational database and development tools will be supported on Concurrent Computer Corp's 6000 family of supermicros running the RTU 4.0 real-time implementation of Unix.

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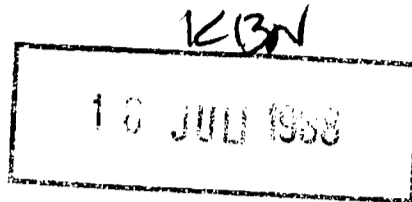
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DEC RECASTS VAX LINE LOWERS ENTRY-LEVEL RISC PRICE

DEC revealed its expected flurry of new products last week in one of its most important announcements for some time. Although the company chose to major - at least in the UK - on the complete recasting of its VAX minicomputer line, which sees all the 8000 models superseded, discontinued and priced out of the market, in the US, all the media attention was focussed on the new DECstation 2100 RISC workstation where the monochrome unit is priced from \$7,950 and an eight-plane colour system starts at \$11,450 - with the 10 MIPS stations available now. DEC also showed the seriousness with which it is building up a Risc line of products as an alternative to the VAX, with new mid-range Risc systems - the DECsystem 5400 and dual processor DECsystem 5800 - using the Mips R3000 chipset, equivalent to the top-end MicroVAX and low-end VAXstations, according to DEC. In the US, the new VAX 6000 Model 400s, which wipe out the shortlived 8800s and deliver 85% more power than the 6300s, start at \$257,000, and are also out now. With new announcements coming with increasing regularity, the company has revealed a constant stream of enhancements attenuating the traditional product cycle - a move that should pay off, provided it takes care of customers who bought the previous version just before the new one came out and obsoleted it.

ARIX TO BUY SUPER-68000 FIRM EDGCORE TECHNOLOGY

Arix Corp, shaping up as one of the survivors among the host of micro-based Unix systems manufacturers born in the early 1980s, plans to take a decisive leap upmarket with the acquisition of privately-held Edgcore Technology Inc, the Phoenix, Arizona company that has reimplemented the architecture of the Motorola 68000 family of microprocessors on gate array chip sets that deliver performance said to be around twice the performance of the as yet unannounced Motorola 68040. Arix, of Santa Clara, California is particularly interested in the OEM relationships Edgcore has with Hitachi Ltd, Philips International and Olivetti SpA. Edgcore, which had been "nearly profitable", according to Arix vice president of corporate development Robert Creager, will add around ten to twelve million dollars to Arix's turnover, predicted to reach around \$95m this year. Edgcore builds multiprocessor machines to support over 500 users under Unix and Pick around the chip sets. Arix is also planning to skip the 68030 in its own machines and upgrade straight to the machines with up to eight dual 68040 processor units next year, and is also working on developments using Sun's Sparc processor. Edgcore claims its Edgcore 2000 processor technology is six times faster than the 68030, and has a joint development agreement with Motorola: its next generation product is due in 1991.

UNISYS TO USE MOTOROLA 88000

Unisys Corp says it intends to use Motorola's 88000 Risc processor as the basis for future Unix hardware development from its San Jose, California-based Network Computing Group - previously the Convergent Inc side of the company. Reason for the choice, said Unisys, was the chip's architecture, the established Binary Compatible Standard, and the "technical match with the needs of NCG's new product line." Convergent Inc was an early member of the Motorola 88000 supporters group 88Open, and it is thought the choice was regulated by its established OEM business, which largely uses the Convergent Motorola 68000-based range. Although Unisys did not comment on the position of Sun's Sparc processor, it is understood that work on Sparc systems is continuing.

OPEN LOOK AND MOTIF

NOW AVAILABLE

Graphical user interfaces for Unix are at last generally obtainable, following announcements from both the Open Software Foundation and AT&T last week. The Open Look binary code for MS-DOS and Unix is now available from AT&T - although it is not being distributed through the European office. Open Look includes both the end user system and the underlying X toolkits. Meanwhile the Open Software Foundation has made available its first production copies of the rival OSF/Motif, allowing companies offering the product as part of their systems software - such as Dell - to begin shipments. Details, page 2.

IBM JAPAN HAS PARALLEL LISP FOR NEW RT

IBM Japan claims that it has developed a parallel processing version of Common Lisp for the forthcoming multiprocessor version of the RT with the second generation version of the Micro Channel - now generally expected to emerge in October. The language was developed at the company's Basic Research Laboratory in Tokyo and as well as enabling the high-speed processing of computer graphics and smoothing the operations of industrial robots, it is claimed to reduce the temporary suspension time needed by artificial intelligence languages to do garbage collection. Meanwhile, some observers are predicting that the new "RT", in a bid to be a serious challenge to the increasingly powerful workstations now on the market, will not retain compatibility with the current RT or 6150 range.

INTEL BUYS JUPITER FOR MULTI-PROTOCOL COMMS

Intel Corp is expanding in the data communications market with acquisition of 50-employee privately-held Waltham, Massachusetts company Jupiter Technology Inc on undisclosed terms. Jupiter Technology's key product is the System 1000 universal communications computer, which runs the company's proprietary Soflink real-time operating system, called Soflink that is described as being compatible with Unix System III and v7 and v6. Soflink is intended to manage all communications applications and protocols on the system and supports all system calls and features of the Unix kernel. Physical and electrical interfaces are handled by communications interface boards that support asynchronous, bisynchronous, SNA, HDLC, SDLC, and X25 protocols, as well as RS232C, RS422 and RS423, V.35, and IEEE 803 Ethernet physical interfaces. Prices for the System 1000 range from \$10,000 to \$120,000 according to protocol complexity. Jupiter will operate as Intel's subsidiary.

TERA COMPUTER FORMED TO DO WORLD'S TOP SUPERCOMPUTER

A new supercomputer company calling itself Tera Computer Co, has been established in Seattle, Washington with the aim of developing and delivering the most powerful supercomputer system available - in 1993. The company's secret is a proprietary parallel architecture that it believes will enable the system to "set new standards for computational performance". Tera is celebrating the accession to its board of Ken Kennedy, a specialist in supercomputer compilers and parallel software, to offer technical counsel and industry relations support.

X400 GROUP HOPES FOR ISO APPROVAL

The gateway specification approved by the 21 member X400 Application Program Interface Association, APIA, last month, is being presented to the International Standards Organisation for adoption as a formal standard. The association aims to come up with a link between proprietary electronic mail systems to the CCITT's X400 protocol. It hopes ISO backing for its first specification, based on a package from co-founders Retix Corp of Santa Monica, California, will offset IBM opposition to the project. Looking to expand X400 into areas other than electronic mail, Retix is developing a server for the Application Program Interface. The next task for the association is to develop a standard method of sending spreadsheets across X400 links, as part of efforts to use X400 as a means of swapping programmes between hardware from different vendors, and allowing users to develop their own user electronic mail and messaging interfaces.

SONY PICKS PARALLAX VIDEO BOARDS

Sony Microsystems Co, Palo Alto, has signed to use Santa Clara-based Parallax Graphics Inc's Viper series of high-performance colour graphic and videographic display controllers with its NEWS family of multiple 68030-based Unix workstations. Equipped with the optional Viper video input card, a VMEbus board that can be used with 32-, 16- or 18-bit microprocessors, the workstations will be able to be used in such multi-media applications as video production and computer-aided instruction. The Vipers include device drivers for the X Window System Version 11. Under the agreement, Parallax will provide its products directly to Sony end users and to resellers of the workstations, with Sony and Parallax cooperatively marketing Viper under Sony's Synergy marketing programme that covers the Synergy catalogue of products available for use with the NEWS. Parallax Graphics is an independent unit of Dynatech Corp.

CONTROL DATA DESPAIRS OF SELLING ETA SYSTEMS

Control Data Corp's hopes of keeping its ETA Systems supercomputer business alive by selling it to a new firm formed by CDC vice-president Lloyd Thorndyke look like being dashed. Thorndyke told Reuters that he had been unable to raise the necessary cash and plans to retire from Control Data. "The probability of success is approaching zero," he said, noting that many key people from the firm had now found work elsewhere, reducing the credibility of his efforts in the eyes of venture capitalists.

APRICOT BUYS LOGSYS FOR ITS SIGMEX SUBSIDIARY

Apricot Computers plc has acquired Woking, Surrey-based software house Logical Systems International, Logsys, a bespoke software, development consultancy and project management outfit that carries out most of its business in the public sector and defence markets, and has been involved in the giant Ministry of Defence CHOTS and Oasys projects. The acquisition gives Apricot exclusive UK rights to Expertware Inc's Configuration Management Facility project management software for large scale developments, and will provide additional system programming resources for its Apricot Sigmex graphics division, also working in the defence and energy management sectors. No financial details of the deal given.

FUJITSU SUPERCOMPUTER DISCOUNTED 50% FOR JAPAN

The Japanese government received a 50% discount from Fujitsu Ltd in its first contract for a supercomputer since the US formally branded Japan as unfair in supercomputer trade, according to the Asahi Shimbun. The National Astronomical Observatory signed a \$400,000 contract for the lease of two general-purpose mainframes and one supercomputer which together listed for \$1.07m; the supercomputer was discounted 50% and Fujitsu brought the overall discount to 60% by slashing the price of the accompanying machines and peripherals. In the past, discounts have been as much as 80%.

HEWLETT CUTS 386 VECTRA TAGS...

Hewlett-Packard Co has cut prices by up to \$1,300 on 80386-based models of the HP Vectra PC family to keep them competitive priced with comparable IBM and Compaq products. The 300Mb disk Vectra RS-25C 304e is cut 8.2% to \$14,399; the RS-25C Model 154e falls 6% to \$12,550; and the Model 150e and 100e are cut by \$750 each to \$10,150 and \$9,550. The company has also added hard diskless Vectra RS-25C Model 10e and Vectra RS-20C Model 10e models at \$7,350 and \$5,700 respectively.

...AND NCR SLASHES TOWERS

In the UK, NCR Corp has cut prices on its Tower family of Unix supermicros by between 20% and 25%, with the 4Mb 32/450 with 380Mb disk and 16 ports falling 25% to £17,000. The 32/650 models and the 32/825s are reduced by 20% and the top-end 32/850s are reduced by about 25%.

OPEN SOFTWARE FOUNDATION SHIPS MOTIF

The Open Software Foundation has announced general availability of its Motif user interface for Unix systems - and other operating systems that support the X Window system - and Dell Computer Corp has been shipping with version 1.5 of its Unix implementation since last week. The Foundation also announced improved pricing and licensing terms for Motif. Source code licences are available for \$1,000 per unit, and binary licences are from \$40 down to just \$10 if you buy enough copies - but vendors need to buy a binary licence for each copy of Motif sold in conjunction with an operating system environment, although to encourage rapid and widespread acceptance, no licence is required for Motif-based applications. The core components of Motif include an extensible user interface toolkit, a stable, tested applications programming interface, a presentation description language and compiler, a window manager, and a style guide. Licensing of Motif to non-members of the Foundation begins on Friday, and the final version will be available the following Friday. The Foundation is particularly proud of the fact that the thing is available only 12 months after it issued its Request For Technology for it.

CANON PREPARES ITS OWN WORKSTATIONS FOLLOWING NeXT DEAL

Canon Inc has disconcerting news for Steve Jobs: it sees its \$100m investment for a 16.67% stake in NeXT Inc as a holding action while it marshals its resources to develop its own proprietary workstations. This emerged from an interview with Canon president Keizo Yamaji conducted by Reuters Tokyo correspondent Linda Sieg. According to Mr Yamaji, Canon is looking for the NeXT Computer System to buy it a foothold in the fast-growing workstation market until Canon can come up with a product of its own. And ultimately, Canon wants to have its own computers installed in its ambitious worldwide communications network. "Workstations are becoming able to do the work of mainframe computers so we see them as developing a large market and playing a major role in office automation," Mr Yamaji said. "But Canon cannot yet develop computers using original technology. Until we can, we will use products from the outside." Not that Canon has designs on ripping off the technology of the NeXT Computer System: the agreement it has signed with Steve Jobs' company specifically excludes any technology transfer, and the machines will go out wearing the NeXT logo. But Canon does get exclusive marketing rights to the machine for Asia. Canon already markets Hewlett-Packard minicomputers in Japan under its own name, and Apple Computer Inc Macintoshes under the Apple name. Canon's moves are part of a strategy to evolve from a manufacturer of stand-alone office automation equipment through a maker of peripherals to a marketer, and later maker of computer and telecommunications systems, and a provider of information network services. The company feels driven to this diversification strategy because its mature technology office products hold out the prospect of only very slow growth. But there is still life in the company's first major diversification, laser printers, and it has high hopes for its new bubble jet printer technology.

UNISYS TO MERGE CTOS, BTOS IN A POSIX-COMPLIANT RELEASE

Unisys Corp is hoping to make Convergent's CTOS/BTOS operating system more attractive to developers and OEM customers by merging the variants, adding Posix compliance and publishing a standard specification to turn it into an "open standard". According to Unisys, the user base for Intel-based CTOS hardware and software, developed in the early 1980s by Convergent Inc and subsequently taken on by Burroughs as BTOS, now numbers up to one million users worldwide, and the company says that now is the time to establish a single standard. CTOS is popular because of its multi-user, multi-tasking capabilities that includes built-in networking for distributed processing - the hardware is modular, and can be expanded by plugging in new system modules using the X Bus. The move may have been spurred on in part by Bull SA, which now sells CTOS systems in France under another variant, Starsys, and is thought to have plans to expand the operation to the rest of Europe and the US. All other variants of CTOS including TNOS and Hero will also be incorporated into the new merged version, which will be a superset of existing products, and Unisys hopes to be beta testing the Posix-compliant version by year-end. It also plans to add a standardised development environment to the system, including a set of Unix-compliant utilities. Unisys also added 20 new software products for CTOS, including enhancements to its OFIS office automation software such as new spreadsheet and mail facilities, and added a series of communications products including TCP/IP, SNA, and X25 and X21 facilities.

AT&T STAKE IN OLIVETTI TO SET OFF EUROPEAN RESTRUCTURING

The simmering talks on radical realignment of the European computer industry are boiling up, and there are now strong indications from Milan that AT&T Co is close to agreement on the sale of its 22.3% holding in Ing C Olivetti & Co SpA, which is currently valued at some \$727m. Chairman Carlo de Benedetti is expected to buy back the shares, paying part in cash, part with a 15% stake in his Cie Industriale Riunite industrial holding company, which also holds 22.3% of Olivetti. The holding company is then expected to sell some of the AT&T shares on to another European partner, and according to the *Wall Street Journal*, the current favourite is Siemens AG, although STC Plc and Bull SA are also in the frame. Olivetti is majoring on Unix these days and is currently a member of Unix International, while Siemens and Bull are both members of its bitter rival, the Open Software Foundation, so an alliance with either would point up the absurdity of the schism in the Unix world. A 4.3% rise in Olivetti's share price this week, not justified by fundamentals, fuels speculation that the deal will come soon.

...AS EUROPEAN CONSORTIUM "PREPARES NIXDORF MOVE"

Sources close to Nixdorf Computer AG say that the long-forecast realignment in the European computer industry is likely to start with a consortium move on the Paderborner, and that it could happen in the next couple of months. The name that is ringing the loudest bell is that of Philips NV, which has a substantial part of its computer operations in West Germany, but Siemens AG and Ing C Olivetti SpA could well be involved, while Bull SA and ICL should not be ruled out. The likelihood would be that consortium members would take stakes of about 10% apiece in the company, which is suffering most in its home West German market, and paints a gloomier picture with each report.

INTEL UNVEILS ITS CHIP SET FOR BUILDING EISA BUS MACHINES

Intel Corp has unveiled its two-chip set that implements the 32-bit Extended Industry Standard Architecture bus. The set comprises the 82358 EISA bus controller and 82357 integrated system peripheral. There's also an 82352 EISA bus buffer and 82355 interface chip for add-in boards. The integrated system peripheral integrates direct memory access control, timer-counter, interrupt control, bus arbitration and DRAM refresh functions, with 33Mb per second direct memory access transfer rate. The bus controller interfaces with the 8-bit PC and 16-bit AT buses, the 32-bit EISA bus and the host processor, and works with the 80386 and 80486. The bus buffer offers a higher integration for the system board, and native add-in cards can be made using the bus master interface controller. The parts are in 1.5 micron CHMOS III; the bus controller and integrated system peripheral are available now in at £72.27 and £87.60 for 1,000-up. Samples of the master interface controller are also available at £25.55; the bus buffer samples in September at £13.69 for 1,000 up.

NCD ADDS MORE POWERFUL X-STATION

Network Computing Devices has moved to avoid a squeeze that might see X-Terminal manufacturers being caught between the rising performance of PCs and falling cost of Unix workstations, with a much needed boost to the performance and size of its X-Terminals, introducing a new 19 inch screen model - the NCD19 - a size used by most popular workstations. It offers a resolution of 1280 by 1024 pixels compared to the NCD16's 1024 by 1024, and performance is ramped up with the use of a 15MHz 68020 processor, as opposed to the 68000, coming with 2Mb memory which can be extended up to 8Mb. The combination of desktop managers, communications, and room to run applications means that users realistically need at least 2Mb for all these tasks. Like the NCD16 launched back in January, (UX No 215), with which it is fully compatible, the NCD19 can simultaneously access multiple hosts running Unix, VMS or Ultrix, supports Ethernet with TCP/IP or optional DECnet protocols, and works with a range of graphical interfaces including Motif, Open Look and Xview. Available now, prices start at \$3,750. NCD says it has now shipped more than 1,000 of its display stations, with Tektronix, Pyramid, Stellar and MIPS numbered amongst its OEM customers.

SCO SHIPS ITS FIRST UNIX OPERATING SYSTEM

The long awaited Unix System V/386 from the Santa Cruz Operation is finally with us now - the company has announced that first customer shipments are on their way. It is the first operating system licensed by AT&T to carry the Unix trademark, and has been waiting in the wings for some time after beta test delays earlier this year pushed back plans for a March launch. SCO Unix V/386, which is fully compatible with SCO Xenix System V, will also run on 80486 systems, and incorporates the National Computer Security Centre's C2 security level, the first 386 Unix system to receive such clearance. It is POSIX and X/Open conformant, and includes Acer Counterpoint's fast file system and AT&T's File System Switch, which allows transparent access to DOS, Xenix and Unix filesystems. SCO Unix System V/386 for 386 AT compatible systems is available now. Versions for PS/2 Models 55sx, 70 and 80, and Micro Channel Architecture 386 compatibles will be available in the third quarter, and Extended Industry Standard Architecture support, now being developed in conjunction with OEMs, will be available later this year. The two user version has a UK price tag of £525, and the unlimited multi-user version is £750. The corresponding development system environment will be available in the third quarter, priced at £875.

....STRIKES WORLDWIDE DEAL WITH NOKIA

Nokia Data Systems has been gearing up for a major push into the Unix market ever since it acquired the computer interests of Ericsson a few years back (UX No 175), and has now signed a worldwide agreement with the Santa Cruz Operation for its 80386-based entry-level S10 range. Nokia, which claims to have over 700,000 workstations installed throughout Europe, says it intends the S10 to qualify for X/Open Level 2 conformance. Nokia also offers the S20 range of Unix workstations, based on hardware from Sun Microsystems.

...AND SETS DEVELOPERS CONFERENCE FOR AUGUST

In other news, SCO is holding a conference for developers and resellers at the Santa Cruz site of the University of California between August 21 and 25. SCO Forum89 will include technical and marketing sessions, as well as product briefings and a day devoted to Open Desktop. Speakers include Jim Bell, chairman of X/Open; Larry Dooling, president of AT&T's Unix Software Operation; Larry Michels, president of SCO, and David Tory president, of the Open Software Foundation.

NOW MISYS ADDS ENTERPRISE TO BOLSTER DEC BUSINESS

Software and systems giant in the making Misys Plc has bagged another acquisition - this time it is strengthening its commitment to the DEC market where it already has a toe-hold with Coulson Heron Associates, a Digital Authorised Solution Provider, which has hitherto sat somewhat uncomfortably alone within the Misys empire. The acquisition this time is of Enterprise Systems Group Ltd based in Thames Ditton, Surrey which specialises in the sale of DEC computer systems in the manufacturing industry. The group has been bought for £1.6m in cash. Enterprise, which used to be a systems development company, has now geared up to become a sales and marketing company with such customers as Marley Building Products, Racal Electronics and Dowty International Systems. All of Enterprise's 40 staff will be retained and will remain for the time being at the Thames Ditton premises. Misys is saying that this acquisition is heading it in the right direction to reach its goal of becoming, among other things, the leading DEC Complementary Solutions Organisation in the UK. Misys was last heard beating the Unix drum when it acquired Altos VAR Team recently (UX No 238), and TIS Ltd and Mentor Systems Plc back in May (UX No 231).

SEMICONDUCTOR INDUSTRY GURU WARNS OF RECESSION

Despite the optimistic noises still coming out of the US Semiconductor Industry Association, US semiconductor companies are heading for another severe recession if an independent forecaster who claims to have called all the market turns correctly over the past eight years, is to be believed this time. Dr Moshe Handelsman, who claims that his model of the chip economy is used by many of the major players, reports that his figures show that integrated circuit backlogs have been decreasing fast during the first half of 1989, and that it has shrunk by more than 50% between December 1988 and May 1989. He reckons that the deterioration resembles the one in 1985, and warns that new orders will not support further increase in shipments. "Just the opposite," he says: "we forecast orders to decline through the second half of 1989, some of the decline will be augmented by recent shipments that will generate inventories among OEM customers and distributors." On the book-to-bill ratio, Handelsman is forecasting that it will be below the 1.0 mark, and closer to 0.9 than to 1.0. Handelsman reckons that he was the only one who predicted the strong upturn in 1987 and the market softness in the second half of 1988, and claims that over the past three years he has forecast turning-points in chip orders with accuracy of one month. His forecasts are based on mathematical models that are never modified retroactively. "Executives in the computer, the integrated circuit manufacturing and distribution, as well as the semiconductor equipment and materials industries, should start reacting to the turning-point in the business cycle," says the marketing research professor, noting that his forecast "is based on measurable economic factors that influence consumption of integrated circuits by end-equipment industries, and not on information from semiconductor industry executives."

DEC HEADS FOR 1990s WITH MORE RISC, FASTER VAXES AND NETWORK APPLICATION SUPPORT

The major focus of last week's announcements from DEC was surprisingly the extensions to its VAX line - as if it was making sure that the new additions to its RISC-based line, so crucial if DEC is to succeed in derailing the threat from Sun Microsystems, would not upstage the traditional products. DEC boasted that it has entirely replaced its MicroVAX line with new systems over the last 10 months, and now offers systems ranging in price from a new low-end system costing £5,000 up to the top-end MicroVAX 3900 costing £145,000 and supporting up to 150 users. The new low-end machine is the MicroVAX 3100, which replaces the MicroVAX 2000 launched back in April 1987. It is the first VAX system to have been designed and built in the UK, and the first major system to have been developed outside the US. Using the CVAX processor first used in the MicroVAX 3300 and 3400 systems, the machine boosts the performance of the MicroVAX 2000 by 2.5 times, includes 4Mb to 32Mb memory, up to 1.5Gb storage, and costs £4,930 with a 104Mb hard disk for the Model 10 or £6,000 for the Model 20 with a large enclosure for system expansion; it's out in 30 days.

8000s dead: all VAXes are now 6000s

And DEC has also expanded its mid-range VAXes with new VAX 6000 models. The Model 400 sits above the Model 310 (re-named from the VAX 6310), offering 85% more performance for a 30% increase in price. Using a CMOS CPU, the 400 family replaces the VAX 8800 Series, giving 16% more performance for a 60% reduction in cost - though example prices were not given. DEC also added a new entry-level VAX with the 6000 Model 210, which replaces the VAX 8250 and 8350 by giving a 2.5 times performance increase at a similar price. The VAX range, which now consists only of 6000 models - the 210, 310, 410 and 420 dual processor for VMS and Ultrix systems, and 430, 440, 450 and 460 multi-processors running VMS, is now claimed to span the performance of the IBM AS/400, 9370, 4381 and 3090 families at a better price-performance than IBM offers, in a single architecture.

Low-end DECstation 2100 costs £6,000

DEC is pushing on with new extensions to its new RISC-based line with the addition of a new entry-level workstation, the DECstation 2100, and two mid-range systems, the DECsystem 5400 and 5800. The DECstation 2100, using a 12.5MHz MIPS R2000 chip, delivers 10 MIPS performance and comes in below the DECstation 3100, launched back in January. For £6,265 DEC offers a monochrome unit with 8Mb memory and 15" monitor, and £9,000 buys an eight-plane colour system, both expandable to 24Mb and with up to two 104Mb internal disk drives - available this month. The DECsystem 5400 and 5800 use the newer MIPS Computer Systems R3000 processor and R30010 floating point unit running at 20MHz, and are intended as full multi-user or server systems: the 5400 is rated at 16 MIPS and has a 64Mb maximum memory capacity, from 400Mb to 2.4Gb disk storage (or 9.7Gb in a cabinet enclosure), is built around the Q-Bus, and starts at £42,000 with a four-user Ultrix licence - available in September. Whereas the 5400 systems are the RISC equivalents to the MicroVAX 3800 and 3900, the 5800 series are alternatives to the XMI-based VAX 6000 line and are rated at 18.7 MIPS or 36 MIPS for single or dual processor models, using 25MHz versions of the R3000 chip set. The single processor 5810 includes 32Mb memory and costs from £85,000 including a 16-user Ultrix licence, while the 5820 costs £149,000. The systems support up to 2.2Gb of disk capacity today, expandable to 115Gb with the next version of Ultrix, and are available within 90 days of order. DEC claimed the systems outperform comparable machines from Sun Microsystems and Hewlett-Packard.

Promises, promises on vectors, MP Unix

DEC "programme" announcements are generally taken to mean that the product will be available within a year, so don't be too keen to get hold of at least three of the items launched under that provision yesterday. First was the long-awaited symmetrical multi-processing version of Ultrix: the current version can be supported only on the 6000 series up to the dual processor 6000 Model 420, with further processor additions adding little to performance. The second programme announcement was for vector extensions to the VAX architecture. With 63 new instructions added, VAX 6000 Model 400 systems will be extended with up to two single-board vector processors that can be plugged into the system backplane. A Fortran compiler with automatic vectorisation, and a vector emulator and computer-aided software engineering tools will complete the environment, allowing DEC to gain access to numeric intensive scientific and technical applications. Finally in the official "vapourware" announcements was a new DECwindows intelligent terminal, expected out before the end of the year. It will have a high resolution screen, processor and memory to support the graphics portion of DECwindows applications based on the underlying X Server software.

Network Application Support for 1990s

Although not classed as a programme announcement, DEC's trumpet blowing of its Network Application Support as a heterogeneous network environment for distributed computing seems more than a little premature. Network Application Support, said DEC, would form the basis of its computing strategy for the 1990s as it moves away from timesharing to the client-server model. Admittedly DEC now has the first elements in place, namely DECwindows on VAX, RISC, MS-DOS and Macintosh hardware, Compound Document Services for sharing text and graphics between VMS and Ultrix, and Dictionary Services, DECforms and GKS and PHIGS for VMS and Ultrix, but it has yet to complete the basic Remote Procedure Call work it is currently developing with the combined Hewlett-Packard and Apollo, using Apollo's Network Computing System as a basis. Yesterday, DEC added three more elements: VAX/SQL Services for SQL database access from VMS, Ultrix or MS-DOS - including access to IBM's DB2, DECprint Services for printer interfaces, and CDA Data Conversion Services on VMS and Ultrix. DEC plans that application programming interfaces will be a superset of those chosen by the Open Software Foundation, which however are a long way from being decided, with the Foundation having only recently issued its Interoperability Request for Technology, to which DEC will be only one of those submitting technology.

unigram·x

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The Computer Systems arm of AT&T Co has finally confirmed its new agreement with Intel Corp on personal computers - industry sources insist that it has been buying 80386-based systems from Intel for some time: the announcement said it had signed with Intel for joint development of "personal computers designed to support AT&T's networked computing offerings" - all of which is not good news for AT&T's existing supplier of personal computers, Ing C Olivetti & Co SpA.

MCI Communications Corp is testing X400 connections with Internet, a Unix-based mail network that connects over 6,000 science and education networks in the United States, and the IBM Information Network.

Advanced Micro Devices Inc, AMD, has cut prices of its Am29000 32-bit RISC microprocessors by an average 11%; the AM29000 is available in 16MHz, 20MHz and 25MHz versions.

British Olivetti has added the 3B2/1000 Unix system from AT&T Co to its product range: the high-end model features 24MHz and 22MHz versions of the 32200 microprocessor: the multiprocessor box was launched by AT&T in March (UX No 223).

Automatix Inc has bought the Mechanical Advantage and X-pression products and licensed the Cost and Manufacturability Guide of Cognition Inc: the Bilerica, Massachusetts robotics company plans to integrate the products with its own AX4000 two- and three-dimensional drafting and design software, unbundle the software and sell it at a reasonable price, supporting it on low cost workstations such as the new Sun Sparcstation 1, and support the X.11 version of the X Window System - but Automatix needs to raise \$2m to \$3m in new equity.

Xerox Corp's plan to buy in about 11% of its shares outstanding should lift the uncertainty hanging over the company - but not necessarily in the manner Xerox would like: if there is a predator prowling out there waiting to pounce, the time to strike is immediately because the company will be significantly harder to acquire after the buy-in.

The supervisory board of Siemens AG has approved the proposed radical restructuring of the company that creates 15 smaller divisions out of the seven present ones, and reduces the layers of management to three from seven so as to make the Munich company more responsive to change.

The Nippon Semiconductor joint venture of LSI Logic Corp, Milpitas, California and Kawasaki Steel is to fabricate both the Sun Microsystems Sparc and the MIPS Computer Inc R2000 and R3000 RISC microprocessors for the Japanese market: Sparc fabrication began in May with the R-series chips set to follow any day now.

Alliant Computer Systems Corp has teamed up with MathWorks Inc of South Natick, Massachusetts for a parallel processing version of the Matlab software package for the Alliant FX-Series and Visualisation Series supercomputers: Matlab combines numerical analysis, matrix computation, signal processing and two dimensional and three dimensional graphics with an interface in which problems and solutions are expressed in standard math notation, enabling scientists and engineers to perform numeric computations for applied mathematics, signal processing, control system design and other applications; it's out now.

The Danish company DDC International A/S, and Ericsson Radar Electronics have announced that they are jointly developing a Motorola 68020 Ada Cross Compiler system hosted on VAX/VMS computers: the development effort is expected to be complete by the Spring of 1990.

Unisys Corp has signed Tech Data Corp to distribute its Unix machines in a contract that could be worth \$50m or more over two or three years, and marks Tech Data's first foray into the Unix market.

Xerox Corp plans to buy in up to 11% of its shares outstanding and establish an employee share ownership plan in a move seen as intended to make it tougher to acquire: the new plan will borrow \$785m to buy a new issue of Xerox Series B convertible preference shares to allocate over time to employees, and Xerox will use the cash it receives from the issue to launch a tender offer for its own shares, to be conducted as a Dutch auction at a maximum price of \$70 a share and a minimum of \$62, next month; the whole block of shares represented by the employee plan will be voted pro rata according to how employees vote, giving them a strong say in the future of the company; the money borrowed by the plan will be repayed over 15 years, in part with the interest Xerox will pay on the convertible preference shares.

Phoenix Technologies Ltd, which hinted at signs of trouble when it announced its reorganisation into three divisions last month and suggested that there might a short-term reduction in its workforce has now revealed the worst: the Norwood, Massachusetts company says that it expects to report a loss of between \$500,000 and \$1m for its fiscal third quarter to June 30, saying that the problem is not in any softness in sales of its ROM BIOS products for MS-DOS clonemakers, but lower-than-expected sales of its Soft-PC software coprocessor products which enable MS-DOS applications to run under Unix.

Altos Computer Systems says it will adopt the EISA bus in its next generation products, which will use the Intel i486 processor: Altos will also offer its 386 customers upgrade options to the i486, and expects to begin shipping early next year.

And Altos has been shipping single and dual processor models of its Motorola-based range using the 68030: in the UK the systems will run Pick and will be distributed by UCL.

Digital Research Inc of Monterey, California has announced that it is now shipping release 2.1 of its FlexOS multitasking operating system, which adds support for X/GEM, the multitasking graphics interface system that integrates the GEM graphics environment manager with X Window; the 32-bit protected-mode operating system runs on 80186, 80286 or 80386 processors and the new release also supports CGA, EGA, VGA and Hercules graphics adaptors.

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SILICON GRAPHICS HAS 8 PROCESSOR, 160 MIPS SERVER

Silicon Graphics last week launched its most powerful system to date, a new high-end multi-processor based on the MIPS R3000 Risc CPU and R3010 floating point unit, along with a new mid-range system, a low-end server, and enhancements to its Personal Iris ranges. The top-end Iris Power 4D/280 server uses eight processors running at 25MHz, and delivers 160 MIPS and 28 MFLOPS for a base price of \$172,000, according to the Mountain View, California-based company. It will be available in September. The mid-range 4D/210 has a single CPU and floating point unit for a computational performance of 20 MIPS and 3.3 MFLOPS, but also includes the Silicon Graphics GTX graphics subsystem, which can generate up to 100,00 independent polygons per second, said the company. Prices begin at \$95,000 for the workstation, or \$54,000 for the server: available immediately. Also included in the announcements was the 4D/25S, a 16 MIPS, 1.6 MFLOPS low-end server using the 20MHz chipset and costing just under \$13,000 with 8Mb memory, 170Mb SCSI disk, the Irix (Unix) operating system and an Ethernet interface. Meanwhile, Silicon Graphics is offering upgrades for the Personal Iris family to the 20MHz R3000 chipset, giving 60% more performance and a larger cache memory (32/64 Kbytes) for an extra \$5,000. It will now offer both R2000 and R3000-based Personal Iris systems, reducing the lower performance models by an average of 31%, lowering the entry price from \$18,000 to \$13,500. Turbo graphics options increase graphics performance by three times. New software includes the Voxellab volume rendering product, developed in conjunction with Fairfield, Iowa-based Vital Images Inc; and a bundling deal to include the Wavefront Personal Visualiser rendering software with all Iris 4D systems.

EVANS AND SUTHERLAND HAS 1600 MIPS SUPERCOMPUTER

Evans & Sutherland Computer Corp has overcome the chip problems at its two suppliers of custom parts that threatened its entry into the supercomputer business, (UX No 205), launching what it describes as the "first supercomputer to come out of Silicon Valley," the ES-1 "moderately" parallel supercomputer. The company had to put back the launch after problems with custom chips being fabricated by Control Data's VTC Inc and by VLSI Technology Inc, necessitating reinforcements from Hewlett-Packard Co and National Semiconductor to lend a hand. The ES-1 offers 1,600 MIPS and 1,600 MFLOPS of performance in a maximum configuration which has eight processor complexes, each consisting of up to 16 computational units, each unit claimed to deliver half the power of an IBM 3090-180 in scientific work. The scalar processing, virtual memory based machine has up to 2,048Mb of main memory and from 8.5Gb to 450Gb disk, and its parallel architecture allows multiple problems to be run at the same time. It runs the ESIX operating system, a full implementation of Berkeley Unix 4.3 with bolted on Mach features. The Mach system is an extension of BSD developed at Pittsburgh's Carnegie-Mellon University to support multiple processors. It comes with the Evans & Sutherland parallel programming environment - ESPRE - which enables users to build parallel applications or port existing programs, as well as 38 CAD and CAE software applications already residing on the ES-1. A two processor ES-1 system costs \$2.2m, rising to \$8m for an eight processor system, and it begins shipping this Autumn.

PYRAMID ADDS LOW-END MODELS OF ITS IN-HOUSE MISERVERS

Pyramid Technology Corp, Mountain View has reduced the entry-level cost of its mainstream MIServer range with two new models aimed at office and departmental use. The new systems include the Office MIServer, or MIS-2, with one or two of Pyramid's proprietary RISC processors, supporting up to 128 users with a performance of 14 or 28 MIPS, 64Mb memory and up to 8Mb of disk; and the Departmental MIServer, or MIS-4, which comes in one- to four-processor configurations and supports up to 512 users and has 128Mb memory and 64Gb disk storage. The systems feature a multiple bus architecture with high performance SCSI support on the low-end machine, and sit above the re-badged machines from MIPS Computer Systems which Pyramid is now offering for entry-level customers. Like the top-end Corporate MIServer range, which come with up to 12 processors for 1,000 plus users, the new systems use Pyramid's 40Mbytes-per-second Xtend bus for the input-output subsystem, and run the OSx 5.0 dual implementation of Unix System V and Berkeley 4.2 operating system. Prices start from \$78,000 for the MIS-2 and \$100,000 for the MIS-4: the two are available on 60 days' delivery.

AT&T ADDS INTEL BOXES

AT&T Co this week announced the first products from its OEM pact with the systems division of Intel Corp - four 80386 and 8386SX machines designed to be networked with mainframes, minis and other personal computers. AT&T also introduced several integrated and packaged servers using the new 6386-25 WGS and 6386-33 WGS Model S machines and covering local network, host communications, database and facsimile image servers. The new machines, ranging from the 80386SX model to a floor-standing 33MHz 80386 model, provide a "unique" remote management capability under Unix System V/386 3.2.2 for distributed networked applications. Prices range from \$3,000 to \$22,225 and the machines are planned to be available internationally in the first quarter of 1990. Canadian distribution will begin by the end of the year, but the UK will have to wait until first quarter, 1990, although how it will be sold is so far unclear. The high-end machines overlap with AT&T's 3B Series, which no longer appears to be the focus for AT&T's computer system strategy.

...SELLS STAKE IN OLIVETTI

AT&T Co and Ing C Olivetti & Co SpA announced only the first step in the realignment of their relationship last week when AT&T revealed that it was selling its 22.35%, \$735m stake in Olivetti and investing the proceeds in an 18% stake in Carlo De Benedetti's Compagnia Industriale Riunite pA diversified holding company. The effect nearly doubles Compagnia Industriale's Olivetti stake to about 40% without costing the company any money. De Benedetti denied that he had any intention of bringing in another European computer company as an investor in Olivetti, although he was open to commercial ventures. The move puts what was once a strategic alliance into purely a financial arrangement. AT&T will also incorporate Sun's OpenFonts scalable font technology into V.4.

...SHIPS MORE V.4 SOURCE

AT&T has shipped a second version of its System V Release 4 source code, including code for Unix System V/386 Release 4.0, to members of Unix International. It also says it will no longer require binary run-time licensing fees for copies of the Open Look graphical user interface, included on the source code tapes.

PICK TO MERGE WITH UNIX

Pick Systems, Irvine, California, looks as though it is set to get heavy in its Unix relationship - according to Steven Kruze a 12 to 18 month development programme is in place at the company, the aim of which is to provide seamless integration between Pick and a variety of operating systems, including the most popular flavours of Unix - at present Unix commands cannot be executed from within Pick, a user can only switch between them - first on the picking order is AIX, to be followed by Xenix, Unix System V and MS-DOS. The company has apparently had talks with the Santa Cruz Operation, and has taken away with them an SCO developers kit.

SUN GETS TOP MARKS FROM ACADEMIA

After carrying out an evaluation of workstation and server architecture, London's Interdisciplinary Research Centre, IRC, has opted for a Sun based computing strategy, and is spending an initial £500,000 out of a £1.3m grant covering the purchase of computer systems over the next five years. The IRC is made up of various departments from the Imperial College of Technology, with other input from University College London. Apollo, IBM, Hewlett-Packard, Sun and DEC systems were all initially considered in the evaluation, but the final decision became a straight choice between the Sun Sparcstation 1 and the DECstation 3100, one each of which were installed for a test period. The two are similarly configured with 8Mb of memory, but there are a number of differences between them. Although the Sun machine is theoretically 10-15% slower than the DEC, it is roughly 10-20% cheaper according to the list price, it has an audio channel and can take a small 3.5" floppy drive which can read and write IBM-PC floppies. The IRC found the Sparcstation to be slightly more expandable than the DEC machine, having 3 slots for add-in cards - those currently available being a graphic accelerator, 2nd Ethernet controller and four serial lines. As well as looking at the two company's own performance figures for the machines, the IRC also conducted its own benchmarks running execution, compilation and problem solving tests on the two systems, and its own MicroVAX II, running VMS with 5Mb of memory.

Two stage execution benchmark, the first part being a long tree-traversing integer calculation, the second, the solving of the associated linear program:

System	Results (sec)	x MicroVAX II
Sparcstation 1	39	15.1
Decstation 3100	39	15.1
MicroVAX II VMS	589	1.0

Benchmark compiling and linking the associated source files for the above program - 5,337 lines of code - for each workstation one run was made at the default optimisation level, and one at the highest:

System	Results (sec)	x MicroVAX II
Sparcstation 1 highest	186	1.0
Sparcstation 1 default	70	2.7
Decstation 3100 highest	170	1.1
Decstation 3100 default	43	4.3
MicroVAX II VMS	187	1.0

Benchmark consisting of a large finite-element solver, the program is run twice with two different ways of calculating derivatives - the VAXStation 2000 is deemed to be equivalent to a MicroVAX II:

System	Results (sec)	x MicroVAX II
Sparcstation 1	30.7	11.9
Decstation 3100	21.1	17.3
IBM 6150 (f77)	154	2.4
Vaxstation 2000 VMS	365	1.0

System	Results (sec)	x MicroVAX II
Sparcstation 1	9.5	9.4
Decstation 3100	7.4	12.0
IBM 6150 (f77)	37	2.4
Vaxstation 2000 VMS	89	1.0

Based upon these and other findings, the IRC is buying 29 Sun Sparcstations, two Sun 4/390 servers, one DECserver, seven DECstations, a MicroVAX 3400, some PCs, Apple Macintoshes and other peripherals and software. Approval for the acquisitions took 18 months, but the delay meant that the workstations finally purchased are actually four to five times more powerful than those originally applied for by the IRC due to advances in workstation technology. Existing DEC systems and a Sun-3 network are to be sold - the IRC regards the support of both Sun-3 and Sun-4 systems as too problematic. Phase two, and the rest of the spending, will take place over the next couple of years.

* And Sun has also won another academic deal - with Southampton University's Department of Aeronautics and Astronautics, which has opted to buy 14 Sparcstation 1s and a Sparcserver 4/390 for £147,000.

SUN TRANSITION TO MORE GROWTH "MAY SEE MANAGEMENT CHANGES"

With the prospect of a first ever quarterly loss on a fall in sales, austerity rules at Sun Microsystems Inc, which to avoid lay-offs is cutting back on travel, phone calls and client entertainment, and a delay in completion of the new assembly plant in Linlithgow, Scotland. And last week the company's recent troubles were highlighted in a New York Times article, quoting the widely held belief that Sun needs a strengthened management structure in place before it embarks on its next round of growth. Trouble first surfaced for Sun following the launch of the SparcStation 1 and four other major systems launches back in April (UX No 227) - too early according to many analysts and observers, including Bernie Lacroute, executive vice president of products and technology at Sun, who is rumoured to have left following a row with founder and chief executive Scott McNealey over the launch. Much of the blame for the lower earnings, which will be reported next month, was put down to the problems of upgrading Sun's internal data processing system (UX No 234) - ironically running on hardware from rival Hewlett-Packard, which has just leapfrogged Sun's number one position in the workstation market through its acquisition of Apollo Computer Inc. But according to the New York Times, the crisis will accelerate the company's transition from adolescent "seat of the pants" style management towards a more structured and disciplined adult management style. McNealey, quoted in the article, refuted comparisons to Apple's Steve Jobs and John Sculley, and pointed to DEC, Wang and Hewlett-Packard as examples of companies that made it big with their original founders still in place at the top. But with a strong new product line now in place, many see such changes as an inevitable result of Sun's explosive growth, expected to continue after two to three quarters of recovery.

ASHTON-TATE PROMISES dBASE**UNDER UNIX WITH HOST OF APPLICATIONS**

Ashton-Tate Corp is in a bind as the market moves away from low-end personal computer database management systems. The Torrance, California company is still a heavy-weight in software company terms, but it needs to take decisive action to avoid going into a decline - and the rumour mill has been churning with gossip of a hostile bid for the company for months. But Ashton-Tate does have a new game plan to secure its future - and that of dBase as a live and vibrant product: it wants to create a version that will become the development environment for an army of Unix systems developers. It has been working on versions of dBase for DEC's VAX/VMS and Ultrix operating systems for many months, but recognises that the battle for Unix relational databases is largely lost and won - Oracle Corp is now a \$583m a year company after all, and has left Ashton-Tate in its dust. The Ashton-Tate plan, according to *Computerworld*, is therefore to turn dBase into a development system adhering to the client-server model. It wants to get the development environment up under Unix System V.3 and V.4, Santa Cruz Operation's Xenix, BSD Unix 4.2 and IBM's AIX. Basis of the strategy will be the forthcoming dBase IV 1.1 release, due to ship later this quarter - and the concept becomes less startling when one learns that dBase development is done largely under Unix and the finished product transferred to MS-DOS. Key benefit for users will be the possibility of transferring the enormous base of dBase applications over to Unix - especially as many of them have grown to the point where they are not really suitable to run under MS-DOS any more.

**MULTIFLOW IN \$30m DEAL
WITH C ITOH UNIT FOR JAPAN**

Branford, Connecticut-based Multiflow Computer Inc, the builder of very long instruction word "departmental super-computers" that has been looking for additional finance to secure its future, has received a welcome boost from C Itoh Techno-Science Co Ltd, Tokyo, which has signed a \$30m agreement to handle sales of the Trace computer line and to provide post-sales hardware and software technical support in Japan. The pact runs for three years and is exclusive. Key benefit claimed for the Trace CPUs is that they do not require programmers to re-write application code. Applications up include mechanical computer-aided-design, signal and image processing, finite element analysis, computational fluid dynamics, computational chemistry, plasma physics, and seismic surveying, and the firm's Trace Scheduling compacting compilers are claimed to combine high performance with ease of use. Multiflow's previous attempt to raise capital through a merger with Adage Inc fell through at the last minute (UX No 232).

**ADVANCED MICRO FORMS
CLUB TO PROMOTE FDDI**

Advanced Micro Devices Inc, Sunnyvale, California is mobilising local area network product developers and vendors to join its new Advanced Networking Group, which has the mission to promote acceptance and implementation of the new, high-speed Fibre Distributed Data Interface for 100Mbit-per-second local area networks. There are 36 charter in the Advanced Networking Group including main-frame, workstation, board and network equipment manufacturers and software vendors that are working on FDDI standard kit.

**BBN ADVANCED FOLLOWS BUTTERFLY
WITH 504-CPU 88000 TC2000**

Bolt Beranek & Newman Inc, already using the part in an SNA communications product, has constructed a parallel processor around the Motorola 88000 RISC microprocessor that will come in above its 680X0-based Butterfly machines. Cambridge, Massachusetts-based BBN Advanced Computers claims that the new TC2000 system is the industry's fastest computer based on a commercially available microprocessor, and rates the thing at 9.576 VAX MIPS in maximum configuration - individual 88100s are rated at 19 VAX MIPS. The TC2000 comes with from eight to 504 processors to give a performance range of 152 MIPS to 9,576 MIPS, and 160 MFLOPS and 104 MegaWhetstones to 10,080 MFLOPS and 6,552 MWhetstones fully configured. Prices start at \$320,000 with eight processors, and the first shipment, of a 32-CPU model, will be to the European Centre for Research and Advanced Training in Scientific Computation, Toulouse.

**...AND METIER'S ARTEMIS
TAKES BBN COMMERCIAL**

Plunging parallel processing four-square into the commercial arena, Metier Management Systems Ltd, the British project management software specialist currently owned by Lockheed Corp, but up for sale, is to make its Artemis 8000 project management system available on the BBN parallel processor. Metier sees the TC2000 as a cost-effective platform with the computational power, memory and input-output capacity needed for handling very complex project-management applications. In construction management, it says, Artemis has been used by the US Bureau of Reclamation to manage over 50 supply and construction contracts for the Central Arizona Project to deliver water from the Colorado River to Phoenix and Tucson. The system involves over 24 users interacting with 40 separate databases of up to 20,000 records each and the Bureau claims the system has saved it \$30m so far on scheduling construction of a pump-generator plant. The TC2000 runs Berkeley Unix 4.3 for software development concurrently with the pSOS+m kernel from Software Components Group Inc for multi-tasking execution. All the processors can share memory over the third-generation Butterfly switch at 38MHz per processor, and a software-controlled clustering option enables users to designate processor groups to run programs under either operating system simultaneously; there is also an Xtra X Window System-based programming environment has multiprocessing tools for development and to do performance analysis.

**...AS METIER PROMISES
MORE UNIX VERSIONS**

Metier is also looking at Unix platforms for its Artemis 7000 project management software, launched for the DEC VAX nine months ago, and said to have grossed over \$4m in sales since then. The Unix version has been developed at the company's Ipswich-based research and development unit, and the first version is for Unisys 5000/85 and 5000/95 systems. Further releases are being planned for HP-UX, Xenix, SunOS, Ultrix and AIX, allowing Metier to run on HP, Sun, DEC and IBM Unix-based hardware. Based on Metier's Artemis 4GL, Artemis 7000 gives project, contract or manufacturing order information, with functions for planning and scheduling, cost control and resource management.

IBM ADDS RT MAINFRAME CONNECTIVITY, NEW MONITOR FOR RT

With new generation RT's expected to be unveiled in October, but possibly not delivered until March of 1990 (see back page) it is hard to believe that IBM will come out with an offering competitive in either price or performance with the great strides being taken by Sun and DEC, and the expected salvo from Hewlett-Packard once it can get its merged Apollo-HP line out. IBM's record of upgrading the RT has not been exactly blistering, with major additions to the range in February 1987 (UX No 117) and July 1988 (UX No 189). Nevertheless, the company continues to announce minor products for use with the RT, notably release 2.4 of Data Communication Service for 370-type mainframes, designed to facilitate integration among different Computer-Aided Design and Manufacturing applications. It provides data communications and consolidated design file database for CAD/CAM applications and the new release adds support - at last - via TCP/IP for the RT, as well as improving user control over the saving of data in SQL/DS tables, providing shared screen support for up to four concurrent sessions on one screen with Interactive System Productivity Facility, and VM shared segment operation. Supported under MVS/SP, MVS/XA and VM/SP, it costs a one-time \$5,975 on a baby 9370 to \$29,790 on a 3090-600S, or \$1,685 and \$617 a month on any 370, and is planned to be available on September 29 in the US. In other news, IBM added a new 23" colour display for the RT, and also for the 5080 Graphics System, providing large-screen, high-resolution colour on a raster scan analogue display that can put up both 1,024 by 1,024 and 1,280 by 1,024 pixels, the options being user-selectable. It costs a daunting \$6,500 and is out at the end of the month.

...AND ADDS ALIS OFFICE SOFTWARE

Giving up altogether the pretence that it is nothing but a technical workstation, IBM has adopted version 2.0 of the Alis office automation system software from Applix Inc, Westborough, Massachusetts for the RT. Alis offers multi-font word processing that integrates text, spreadsheets, graphics, and database information into a compound document; networking facilities to provide electronic mail, diary management and shared filing; and a graphics editor that combines freestyle drawing with the ability to create business graphics.

ACCEL8 OFFERS VMS EMULATION ON DECSTATIONS

VMS emulation on DEC's Ultrix based RISC architecture is now available from Denver, Colorado based firm Accel8 via its VMS Transparency Software package. The software comes with a command interpreter called Dcl8, providing VMS commands for Unix users, and Edt8, a text editor functionally equivalent to the VMS EDT editor, which includes entity based and Gold-Key editing. Libr8 is similar to the VMS Run-Time Library and System Service - claimed to enable quick porting of applications from VMS to Unix. Also included is the Accel8 Network Suite, providing common remote functions through connectivity to a network, and Transl8, a conversion application for all text and binary data, allowing access to data between VAX and Unix systems. Rather than defeating the object of installing Unix based systems, the company says VMS Transparency Software is aimed at corporations which want to take advantage of the high performance of DECstations and integrate them with existing VAX systems, without the need for widespread retraining in Unix. The VMS emulation package is already available on Sun Microsystems, Silicon Graphics and MIPS Computer Systems Unix platforms - no prices given.

HEWLETT WEIGHS LICENSING PA RISC TO HITACHI, VLSI

Hewlett-Packard Co is seriously looking at putting the next generation of its Precision Architecture into the RISC stakes in competition with Sun Microsystems' Sparc, MIPS Computer's R series and the Motorola 88000 and Intel 80860. According to Electronic News, Hewlett has been negotiating with Hitachi Ltd and VLSI Technology Inc to fabricate the next generation processor for the merchant market, but - unlike Sun, which has been pushing the Sparc like mad, does not want to put a lot of effort behind the part itself, preferring to leave that to the two chip shops. The new generation Precision Architecture part has been dubbed PA Plus, and it will add some features cannibalised from Apollo Computer Inc's Prism RISC design used in the Domain 10000 workstation, notably multiprocessing support. No-one at Hewlett was able to confirm or refute the story, and it is clearly not yet a done deal. The two would-be licensees are keen that Hewlett offer substantial systems support to customers for the new PA Plus chips, but the Cupertino company is thought to be leery about giving too much support to firms that might simply try to produce clones of its own machines. They would also expect Hewlett, which currently makes all its RISC processors itself, to take at least some of its requirement from the two second sources. Hewlett itself hopes to be in volume production of the new RISC - described as a superset of its Precision Architecture - during the first quarter of next year.

CONCURRENT OFFERS VISUAL AID TO PARALLEL FORTRAN VII

The Masscomp side of the Concurrent Computer Corp house yesterday introduced "the industry's first visual programming environment" for converting and tuning real-time Fortran VII programs for optimum performance on parallel processors. Called E/SP, for Environment for Sequential-to-Parallel processing uses interprocedural dependence analysis and methods that seek parallelism both inside and outside loops, and displays its internal structure in graphical form on a workstation screen so that a programmer can transform a sequential program to parallel form and then enhance the application for optimum real-time performance. E/SP for the Tinton Falls, New Jersey company's 5000 and 6000 families will cost from \$17,500, and the thing is due to go into beta test in the autumn. It also reportedly runs under Unix on the forthcoming Micro3200 machines.

DU PONT, FUJI TO BUY CROSFIELD

De la Rue Co Plc is to sell its troubled Crosfield Group subsidiary - apart from the Press Controls business - to Du Pont Co and Fuji Photo Film Co for £235m. The businesses being retained turn over about £20m and have been consistently profitable. For Du Pont, the deal expands its presence in the UK graphics market, which it entered when it acquired benchMark Technologies Ltd of Kingston last year, now known as Du Pont Pixel (UX No 213) - Crosfield is thought to have been a customer of benchMark's, and has its own Motorola-based family of high performance workstations (UX No 172). For Fuji, which has been working hard to diversify from its core photographic film business - it is now in floppy disk media - the move takes it into a field related to its core business, colour imaging. The sale is conditional on both shareholder and regulatory approval - both here in the UK and internationally: shareholders will meet on August 3. The two will hold approximately equal shares, and Crosfield is expected to be run by its own management.

SCAN-OPTICS HAS INTEGRATED DATA IMAGE SYSTEM FOR PICK

Integrated image and data processing systems is one of those elusive market areas in computing that promises much but appears to produce little: Wang and IBM are amongst those making noises, and Plexus Computers failed to make its mark with the much hyped Extended Data Processing System: it ended up filing Chapter 11, and is now in the throws of being acquired by Recognition Equipment Inc (UX No 235). The latest attempt to combine digital image processing with traditional data processing comes from scanning system specialists Scan-Optics of Irvine, California. Formed back in 1968, Scan-Optics has recently gone through a change of identity following its acquisition of the Pertec Computer Corporation in February 1987: it added Pertec's 68000-based Pick and Unix machines into its range, and set about modernising and integrating its product lines. Spurred on by senior management changes that resulted in Basic Four Corporation founder Philip C Davy taking charge as president, chief operating officer and director, Scan-Optics moved away from its primary focus on data entry and page reading systems to concentrate on the new SabreView image processing system, launched at the end of June in California, and last week at the IT in Local Government Show at Blackpool in the UK. The Scan-Optics system consists of a 386-based image control processor front-ended by a Pick micro, either from Scan-Optics (the updated Pertec hardware) or from another manufacturer. Pick applications and data can be quickly modified to access image data on the image control processor through an interface driver and Pick Basic imaging library, and Scan-Optics also includes an image file manager, network server and device driver software on the image control processor, supporting laser printers, faxes, scanners, and image processing stations or MS-DOS PCs connected up to the Ethernet-based network. Scanned images are compressed, assigned an identifier, and called up through standard Pick procedures to be displayed on the 19" or 15" image display stations alongside text. Systems will support up to 24 users and have from 100Mb to 600Mb of disk storage attached to the image control processor. Prices should be in the \$100,000 to \$170,000 price bracket, with shipments beginning next month. A Unix version is a likely prospect in the future, but initially Scan-Optics sees an opportunity in the Pick marketplace, where numerous suitable applications (police, insurance, medical, garage spares shops etc) are widely available. It is currently looking for VARs and software houses to take on the product.

15 SOFTWARE COMPANIES PORT TO DG'S AVIION

Data General says it has secured agreements from fifteen software developers to port products over to the Motorola 88000-based Aviion workstation range. The agreements include joint marketing agreements with five database and fourth generation language companies: Oracle Corp, Cybertek Software Inc, Informix Software Inc, Progress Software Corp and Relational Technology Inc. Other products include the MCBA Classic accounting package, Mathematica from Wolfram Research Inc, and various system software tools and languages, including the SoftPC DOS emulation software from Phoenix Technologies Ltd.

SABER TOOL SPEEDS X PROGRAM DEVELOPMENT

Saber Software Inc of Cambridge, Massachusetts, claims that its Saber-C language programming environment will speed up the development of X Window applications as well as improving the quality of the results. Saber-C has a C interpreter, program checker, dynamic linker, code and data browsers, extensible debugger and graphical user interface, and sits within the Unix development toolkit. A programmer might have open the main interaction window, edit windows, an I/O window for terminal-based input and output for the code under development, a data browsing window displaying complex data structures and their interrelationships, and a cross-reference browser for a view into the function call graph of the program. An X program can also create its own windows on the screen. The tool will load files and libraries into the environment three times faster than the standard C compiler according to Saber, and an incremental linker then re-links only modified modules - particularly useful with X applications, as any toolkits and the Xlib library itself do not need to be re-linked each time a change is made. The debugger has also been customised to detect errors specific to X application and SunView development. Saber-C runs on Sun-3, Sun-4 and DEC VAX computers running Ultrix or BSD Unix, and can be used with ASCII terminals, Suntools or X Windows, with a recommended memory of 8Mb. Product literature includes an endorsement from DEC's Charles Haynes, who apparently used Saber-C to help in the development of the X11 toolkit, of which he was principal architect.

CONCURRENT'S SUPERCOMPUTING SOLUTIONS SHIPS FIRST 64-BIT CAPPs

The first scientific supercomputer out of Concurrent Computer Corp's Supercomputing Solutions Inc new 50-50 joint venture with General Microelectronics Corp is due out in January. The Capps machine is described as a 32-node 64-bit parallel supercomputer rated at 800MFLOPS and will be offered with C and Fortran compilers as well as assembler. The machine was developed and is manufactured by General Microelectronics, but will be marketed by the San Diego joint venture. Two eight-node production models have already been shipped to Northrop Corp for computational fluid dynamics work, and a third has been accepted by TRW Inc. Capps is pitched at structure testing, computational chemistry, electromagnetic analysis and large scale simulation. The contribution of Concurrent Computer Corp to the new Supercomputing Solutions Inc, which was formed in March (UX No 222) is its Navier-Stokes supercomputer, which was conceived at Princeton University. Once development work on that is complete, the new firm will be in the same position as was Cray Research Inc until it decided to spin Seymour and the Cray-3 out into a separate company, having two competing lines of supercomputers to market and support, although the general adoption of Unix in the supercomputing world alleviates that problem.

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Although it is aggressively pushing on with higher performance hardware and lower prices, and uses the binary compatible Mips R2000 and R3000 chipset throughout its workstation and server products (see front page), Silicon Graphics' OEM business does not appear to be doing as well as the company would like: OEM sales have reportedly declined to around 20% of income, due mostly to the problems at its two biggest OEMs, Prime Computer Inc and Control Data Corp, although the big hope now is the recently signed Nixdorf agreement, already the subject of substantial sales of Personal Iris workstations according to a company spokesman.

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The **88open Consortium**, Wilsonville, Oregon, which now consists of some 51 supporters of Motorola's 88000 Risc chipset, has appointed its first European Director, responsible for strategic marketing decisions in Western Europe: Martin Ward, ex Zilog UK and EMS Ltd, will work from London to foster 88000 development programs, expand membership, and work with independent software vendors to increase the chip's application software base.

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IBM's plans this October could include the debut of a diskless AIX workstation for under \$3,000 as part of its Project Rios announcements: these will include five new Risc workstations and one other offering so far undecided, according to Computer Reseller News - but the big disappointment could be delivery dates of March 1990 on the products.

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But as already hinted (UX No 238), a major part of the announcement will concern IBM's AIX software platform, with AIX 3.0 running on all IBM Unix platforms, and possibly including a subset of DOS and OS/2 running under AIX: more and more rumours appear to be confirming the suspicion that the new machines will not be compatible with the current RTs, and AIX 3.0 is unlikely to run on the older machines.

- 0 -

High Wickham, Buckinghamshire based PC manufacturer **Victor Technology** has denied rumours circulating in the computer press that is about to release an i486 machine: Victor, set up by Sweden's Datatronik AB as a European manufacturing venture, says it is to reveal a new machine in January next year, with a minor launch scheduled for this Autumn, but says neither will involve the i486.

Ex Sun Microsystems top-executive Bernie J Lacroute (see page two) has taken his place as a partner in the entrepreneurial Palo Alto, California-based company **Kliener, Perkins, Caufield and Byers**: other notables who have ended up at the company include Andy Heller, ex IBM AIX guru, and Floyd Kuamme, the former president of National Advanced Systems, and one of the original founders of National Semiconductor.

- 0 -

Paris based Unix software house **Telnos** plans to turn its attentions across the channel to the UK, after recently completing a deal with ICL France for its office automation applications. A deal with ICL UK is on the cards for the beginning of next year, and the company also says it will be supplying some of its software to the Ministry of Defence as part of the Corporate Headquarters Office Technology System, known as CHOTS.

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...i586, i686, i786 ? - not content with all the hullabaloo created by the launch i486 and i860, Intel Corp is already bragging about the i586, expected around 1992, with four million transistors, as well as a monster 100 million transistor, 2,000 MIPS processor for the year 2000: according to Claude Leglise, Intel's marketing manager for the i860, Intel expects to be shipping around 600,000 i486s next year, up from a projected shipment forecast of 300,000.

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The SAS Institute's data management, analysis and presentation software - SAS System - has been ported to DEC's new RISC based Ultrix platform and the new VAX 6000 Model 400, DECwindows versions of which will be available for both: the Ultrix offering is set to be on the shelf by the middle of next year, and the VAX 6000 Model 400 version will be out when the machine begins shipping later this year - the software will also include support for DEC's vector processor which is under development for the Model 400 when it arrives.

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Paul Ely, former head of Convergent Inc who carried on to take charge of the Unisys Network Computing Group in San Jose after the merger of the two companies last year, has resigned, and will be replaced by Unisys veteran Cyril Yansuni.

According to Allan Mack of the UK's **Frontline Distribution Ltd's** Power Products Division, Unix sales already represent 10% of the company's profit only nine months after moving into the Unix marketplace: Frontline was previously known as First Software.

- 0 -

One selling point for the Extended Industry Standard Bus chip set is that according to Intel Corp, it will add no more than \$50 to \$100 to the cost of building an AT bus machine, and since it takes all the existing AT add-on boards, low-end users wouldn't know the difference.

- 0 -

Some fairly radical restructuring is in the wind at **Apricot Computers Plc** following the arrival from Nixdorf Computer UK of Mike Hart as joint managing director, and the departure of Brian Androlia, who was head of direct sales: Simon Hunt, who is co-managing director, is in charge of indirect sales, but has a financial background and is expected to move over to become finance chief as part of an effort by Hart to tighten up the current loose structure of the Birmingham company, in particular bringing direct and indirect sales closer.

- 0 -

Lotus Development Corp needs a major new base on which to build its sales, and **Sun Microsystems** needs business applications for its Unix machines, especially the ones based on the Sparc RISC with the Open Look user interface: accordingly, the two have signed a joint development and marketing agreement under which Lotus will develop application for all three Sun lines, as well as for other peoples' Sparc machines.

CONTACTS

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CONCURRENT WITHDRAWS FROM SUPERCOMPUTER PROJECT GENERAL MICROELECTRONICS BECOMES SUPERCOMPUTING SOLUTIONS INC

Only a week after it elaborated on its plans for a new 64-bit parallel supercomputer as part of the joint Supercomputing Solutions Inc venture announced last March with General Microelectronics Corp (UX Nos 241, 222), Concurrent Computer has abruptly decided to pull out. General Microelectronics, a neighbour of Concurrent's in San Diego, California, is to buy all of Concurrent's shares in the company, and is changing its name to Supercomputing Solutions Inc. Meanwhile, Concurrent is to receive 150,000 shares of General Microelectronics common stock in return for its contributed technology and previous investments in the project. Princeton University's Navier-Stokes parallel processing supercomputer is to be the basis of the 800 MFLOPS Capps machine due out in January, the first fruits of the joint venture. The Navier-Stokes supercomputer, and a commercial version of it known as the Advanced Dynamic Architecture Machine - ADAM - was previously licensed by Concurrent from Princeton - a licence now goes to General Microelectronics. General Microelectronics says it has hired nine Concurrent employees to form the basis of a new division working on the project, located near the University. Quite why Concurrent has pulled the plug on the project is unclear, although it may have been getting out of its depth. Concurrent's chairman, James Sims, said the company wants to concentrate on its core business of real time computer systems. The withdrawal of Concurrent is certainly a financial blow to the programme, but General Microelectronics hopes that the move will draw in more external funding.

AT&T "STILL TO DECIDE" ON RISC CHIP FOR 3B2s

Despite its early support of Sun Microsystems' SPARC processor way back in October 1987 (UX No 151), AT&T is keeping its options open over which RISC chip will be used for the new generation of 3B computer systems expected to appear over the next two years. AT&T spokesman Barry Campbell said that the future direction of the 3B line would move towards high performance transaction processing using RISC. Low-end 3B systems, including the 3B2 310, 400, and 500 models would gradually be phased out, due to overlap with the new 80386-based 6386 networking systems launched last week (UX No 241). "Although we are committed to the Sparc, we are not saying that we will use only one RISC technology - we are looking at all RISC offerings." Rumours that AT&T had been evaluating Motorola's 88000 processor began surfacing last October (UX No 200) but were denied by AT&T. Meanwhile, plans for international distribution of the new hardware, sourced through an OEM deal with Intel Corp has yet to be revealed. Canada should see machines by the end of the year, but the UK will have to wait until the 1st quarter of next year. Olivetti in the UK, which currently has a direct supply deal with the US for 3B hardware, would not comment on its future plans, other than to say it would not be taking the 6386 range.

FUJITSU LAUNCHES BOARDS USING SPARC CHIPS, INTERACTIVE'S SunOS

Fujitsu Microelectronics Inc Advanced Products Division in Santa Clara, California has gone to Eastman Kodak Co's Interactive Systems Corp in Santa Monica, California for its implementation of the SunOS Unix to be marketed with a new Fujitsu S-25 Sparc VME board set. The Fujitsu S-25 Sparc board set will support both the Fujitsu S-20 and S-25 versions of the processor, claimed to deliver 12 to 15 MIPS. The Fujitsu unit supplies the Integer Unit and the Memory Management Unit as well as the EtherStar Ethernet controller, and the board set will also use the Weitek Corp 3170 Floating Point Processor and support Sun's graphics frame buffer. The S-25 board set will be configured with 8Mb of memory, but will support up to 16Mb. The software will be licensed direct by Interactive. Texas Instruments has a similar deal with Phoenix Technology (UX No 221).

DEC HAS ANOTHER GO AT FAULT-TOLERANCE

DEC has flirted several times with fault-tolerant configurations of its minicomputers - the first was the original PDP-11/74 that was announced but never shipped (the number was later purloined for a single processor that became a high-end mainstay) - and the company is preparing to try again with a fault-tolerant VAX configuration. According to Electronic News, it goes by the code-name Cirrus, is a little surprisingly based on the 3.8 MIPS VAX 6300 processor, but will be a simple redundant system with just two processors, running under either VMS or Ultrix. The paper says it may be introduced in October with the Aridus CPUs.

HP SEALS RISC PACT WITH HITACHI

Hewlett-Packard Co has now hammered out its agreement with Hitachi Ltd under which the two will jointly develop a new version of Hewlett's RISC Precision Architecture and Hitachi will transfer its CMOS technology to fabricate the set to Hewlett as well as offering the RISC on the merchant market. Hitachi will also build its own systems around the chip, offering them with the Open Software Foundation implementation of Unix. Hewlett plans to licence the design to a handful of other companies, and VLSI Technology Inc is one suggested name.

MICROSOFT, HP WIN COURT ROUND OVER APPLE

The copyright infringement lawsuit brought by Apple Computer against Microsoft Corp and Hewlett-Packard Co over the Windows, Presentation Manager and New-Wave screen user interfaces took a potentially decisive turn against Apple last week when Judge William Schwarzer ruled that only overlapping windows and the way icons are positioned and moved across the screen were not included in the licence agreement between Apple and Microsoft in 1985. The judge does not believe that the remaining issues are serious enough to put before a jury, since it is not at all clear that Apple had any copyright claim on the concept of overlapping windows, because there is evidence to favour the Microsoft claim that windows were already in the public domain at the time Apple introduced the product. Xerox Corp certainly had the technology before Apple and Microsoft is now expected to ask the for a summary judgement. Apple is still expecting to win on the issue of overlapping windows, which it claims is the crux of the lawsuit.

INTERGRAPH AND EDS COLLABORATE ON TP MULTI-PROCESSOR

Intergraph Corp, Huntsville, Alabama is to manufacture a high-performance multiprocessor for transaction processing and database management that has been designed by Electronic Data Systems Corp, the companies announced yesterday. The multiprocessor uses Intergraph's second generation Clipper C300 RISC microprocessor, and is being designed to use up to 256 processors, although initial production units will use eight processors, for estimated throughput of 112 MIPS. The machine will outperform conventional back-end databases many times by interfacing the Clippers to very-high-speed solid state memory rather than disk for secondary storage. Operating system and primary data management software were also done by EDS.

MAI NOW BIDS FOR PRIMOS BUSINESS ONLY

Tustin, California-based MAI Basic Four Inc may finally have made Prime Computer Inc an offer it can't refuse. MAI is now offering to buy only Prime's minicomputer business, for \$450m cash and \$150m in payment-in-kind debentures. The offer covers the proprietary 50 Series minis, the Primos operating system and directly related software, and looks like the answer to a maiden minimaker's prayer, getting it out of the proprietary mini business at a time when it has emphatically gone ex-growth, and enable it to accelerate the transition to industry standards and Unix that Prime wants to make anyway. However the downside is that Prime would not be left with a lot of cash to invest, because MAI's offer presupposes that Prime would use the \$450m to buy in some of its shares at \$22.50 a share, thus making MAI's offer an improvement with regard to value to shareholders over the \$21.50-a-share offer by J H Whitney & Co that Prime has accepted, and that each Prime share not bought in would receive a distribution of \$3.50. Prime would be left with its leasing business and a large portfolio of computer-aided design software, and would have a breathing space to decide whether it should build its own Unix machines on which to run it, or buy all its hardware OEM. Prime responded to the offer by claiming the Whitney offer was "economically superior" to MAI's. But its announcement later in the week of expected net losses of around \$19 for the second quarter (compared with \$7.2m profit last time) led to the Whitney bankers demanding that it arrange substantial additional financing for its own bid, because the company's poor performance puts in doubt its ability to generate enough cash flow to service the enormous burden of debt it will bear after the Whitney buyout. Whitney says it is negotiating with the banks and with "a major financial institution" for additional finance to bolster its bid.

MOTOROLA SAMPLES 33MHz, 28 MIPS VERSION OF THE 88000

Motorola Inc's Microprocessor Products unit says that is now sampling 33MHz versions of the 88000 RISC, and claims that the new part delivers 28 MIPS. Fabricated in 1.2 micron CMOS, the 33MHz 88100 microprocessor is sampling at \$894 in single quantities and the 33MHz 88200 cache and memory manager is \$1,171. The company gave no date for volume shipments of the parts.

UNISYS REVEALS PLANS FOR 88000 SYSTEMS

After revelations about its chip choice a couple of weeks ago, (UX No 240), it is now understood that Unisys Corp's San Jose, California based Network Computing Group - previously the Convergent Inc side of the company - is to use Motorola's 88000 RISC chip in a new generation of multi-user departmental servers from hosting 25 to 250 users, and priced between \$25,000 and \$250,000. It gives a big boost to Motorola's efforts in the RISC stakes - Data General Corp was Motorola's biggest 88000 user to date. According to John Chen, general manager of RISC platforms at Unisys, the 88000 was chosen both for its architecture and for business reasons, and will be used as the basis for a series of multi-user high-end products optimised for on-line transaction processing and fault-tolerant marketplace. Regarding Sparc development, Chen said it "had not been chosen for this particular product line. We are still looking at it seriously, and if we come up with a suitable product we will use it". Chen indicated that such a product would be "in the workstation direction". He said that there was a move within Unisys to rationalise product lines around chips offering a binary compatible range. The Unisys 6000 Series includes Convergent 80386-based systems at the low-end and Sequent multi-processors using the same chip for high performance systems. Chen said the 88000 is suitable for multi-processing configurations, but that Unisys would be adding its own support for parallel processing. Chen said that a separate programme was also underway to upgrade the current Convergent 68000-based ranged sold mostly to OEMs and VARs, particularly in Europe - but that did not preclude Convergent customers from upgrading to the new range, expected to appear "within a twelve to eighteen months time frame". In the US, Unisys is now in the final stages of merging its value added reseller contracts to include both Unisys and Convergent VARs.

SOLBOURNE LAUNCHES INTO EUROPE

As expected (UX No 232), Solbourne Computer Inc has made its first move into Europe with the establishment of a UK subsidiary operation based in Swindon, Wiltshire. The new office will provide sales, marketing and support capabilities for the UK, Benelux and Scandinavia. Solbourne will sell its range of Sun-4 compatible workstations, including multi-processors and rated at between 9.5 and 30 MIPS, running the SunOS operating system and C compiler, Sun-View and X11/NeWS windowing, the Pixrects graphics library, NFS, and PHoenix DOS. Solbourne will use a combination of market channels, including direct sales, distributors, independent software vendors and OEMs. Northern European general manager is Barrie Murray-Upton, previously European vice president of Cadnetix. Like the US operation, Solbourne will offer a one year on-site warranty included in the price, which start at around £20,000.

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IBM OFFERS ORACLE 6 FOR AIX UNIX ON THE PS/2

IBM has announced that Oracle Corp's Oracle Version 6 relational database was now available under AIX Unix on the PS/2, with enhancements over the version originally announced. The transaction processing option includes a new concurrency control mechanism, the Row Lock Manager, with row level locking and row level multi-versioning. SQL*DBA, included in the database, is an interactive administration and performance analysis utility that can be used to manage local and remote nodes. AIX PS/2 1.1 one-to 16-user option, is required to support more than two Oracle users, and SQL*Plus, SQL*Forms, SQL*Menu and SQL*Net Transmission Control Protocol/Internet Protocol are separately charged. Oracle costs a one-time \$2,000 for one user, \$1,000 more to add up to seven users, \$3,000 more to go from nine to 16 users (that's \$6,000 for nine users or more). SQL*Plus on the same basis is \$500, \$250 and \$750; SQL*Forms, \$600, \$300 and \$900; SQL*Menu \$300, \$150 and \$450; SQL*Net TCP/IP \$700, \$350 and \$1,050; Pro*C is \$300, \$150 and \$450; and Pro*Fortran is \$300, \$150 and \$450. Oracle 6 for AIX PS/2 shipped yesterday.

HEWLETT CONFIRMS PLANS TO LICENSE ITS PRECISION RISC

Hewlett-Packard Co has this week confirmed that it plans to license its Precision Architecture RISC design to other manufacturers, but hints that only a limited number of companies will get licences. It has not yet formally confirmed that Hitachi Ltd and possibly VLSI Technology will be licensed to fabricate versions of its next generation RISC (UX No 241) but that announcement is expected shortly. Hitachi does not at present have any 32-bit microprocessors that have a market outside Japan.

COMPUTER CONSOLES RENAMED ICL NORTH AMERICA BUSINESS SYSTEMS

The computer division of Computer Consoles Inc, headquartered in Irvine, California was this week integrated fully into the ICL worldwide empire and renamed ICL North America, Business Systems. ICL claims that STC's acquisition of Computer Consoles at the turn of the year (UX No 209) brought together that company's expertise at turning Unix into the office-integration solution with ICL's focus on setting international computer standards, and its technical and financial strengths as an international supplier of information systems. The newly-named company is particularly proud of the new Officepower 5.0 with PowerWindows, which began shipping last month, and is claimed to be the first available Windows-based office automation package for cooperative processing among disparate personal computers and minicomputers. An Open Officepower strategy is aimed at integrating multiple vendors' microcomputers, workstations and minicomputers in Officepower. The Communications Systems division - the telephony side of Computer Consoles, stays in Rochester, New York and reports to STC Telecommunications. There's no word on the Waltham, Massachusetts former headquarters. OfficePower 5.0 prices start at \$1,995 for a four user version, with the PowerWindows option an extra \$650.

UNIX IN JAPAN

Canon Inc's \$100m investment in NeXT Inc was just the beginning for the company, which has now established a massive new sales network to distribute the Unix-based workstations in the Far East: the direct sales division will be staffed by 100 salespeople, system and maintenance engineers to ensure a smooth product launch in September, and the company is investing another \$13.8m sending Canon engineers to the US to be trained at NeXT, to translate the NeXT manuals into Japanese, to learn enough to train for Japanese software houses and end-users, and to finance a NeXT showroom in Tokyo; the first wave of some 60 Canon engineers trained at NeXT's Fremont, California plant, have already returned to Japan and will lead the effort and Japanese versions of the applications, operating system, and documentation, are due to be ready a year after the launch, in September, 1990.

But however much Steve Jobs would like that, Canon Inc doesn't want to put Apple Computer Inc's nose out of joint and will also increase its Macintosh marketing force and increase to 100 the number of retail outlets featuring Apple machines from the present 35; it is also sponsoring a Japanese branch of the Apple Developer Programme society that exchanges information between software houses; seeking the support of additional software vendors for the Macintosh is also on the agenda, and Canon looks for all these measures will up Apple sales 60% to \$110m a year.

The CI Techno Science subsidiary of the giant trading house C Itoh & Co is to develop financial dealing systems in conjunction with Sun Microsystems and outside software houses: its new Financial Engineering Systems division starts out with a staff of 10 people; CI Techno Science also sponsored a Sun Applications Fair in Tokyo on July 11 and 12, which involved a number of foreign companies already active in the Japanese market, such as Thorn EMI Software Sciences and Reuters Holdings Plc, and others such as Intersec Research Corp, which although active in marketing performance analysis systems to Japanese fund managers, has not yet introduced its InterAccount system onto the Japanese market.

In addition to asking Japanese manufacturers to please limit their generous discounts on supercomputers for public sector contracts to no more than 50% against the 80% that has been common, the government is stepping up its allocation of supercomputers two to three fold for fiscal 1991, and it is asking US companies - in other words Cray Research Inc to please bid for all 10 orders up for grabs; dissidents argue that Japanese supercomputers are so expensive that an 80% discount is needed to put them onto a price-performance curve that aligns with that of Cray Research. Concurrent Computer Corp is promising a multi-processor RISC-based machine within three years, it was announced in Tokyo; the Tinton Falls, New Jersey company looks for revenues of around \$25m from Japan this year, with between 10% and 20% coming from its agreement with Nippon Steel Corp - a project team drawn from Concurrent and Nippon Steel engineers has been formed to deciding the future direction of the MassComp product line in Japan.

FORMULA ONE: STEVE HUI'S EVEREX PICKS SILVERSTONE TO DISPLAY GO-FASTER STRIPES

Steve Hui, founder, president and chief executive of Everex Systems Inc, Fremont, California has big ambitions for his six-year-old company: he wants it to climb to third place in the league of world personal computer manufacturers behind IBM and Apple Computer, relegating Compaq Computer to fourth place and allowing Tandy Corp, which he rates strongly, to come in at fifth. Hui - say it Hoy, but call him Steve, he much prefers it - was over for the UK launch of the Step 386/33 machine, which, appropriately given the go-faster stripes on the company's logo, was held at the British Grand Prix at Silverstone recently.

In between the combined roars of the Honda and Ferrari engines and of the crowd as Nigel Mansell maintained a hot pursuit of Alan Prost's Marlboro McLaren for the entire 65 laps, Hui pronounced his company philosophy and his ambitions, to which, he says, he has dedicated his life. He hails from mainland China, and arrived in the US via Hong Kong, and a mechanical engineering degree from the University of Texas at Austin, followed by a spell studying electronics and computer science at the University of California at Berkeley set him up for a career that started at Amdahl Corp. He moved on to Storage Technology Corp's ambitious but ultimately doomed venture to design a high-end IBMulator in CMOS, and when the development team was broken up, he decided that the time had come to fulfil his destiny and in 1983 founded Everex Systems as an integrator of boards and peripheral subsystems for MS-DOS micro-computers.

Notable Departure

The building of the company's own AT-alikes followed, and an 80486 is promised to follow the Step 386 family. Most notable departure is the company's decision to go to Opus Systems Inc for Motorola 88000 boards that plug into the Step machines as back-end processors (UX No 218), and Hui sees the combination as an ideal development system for software authors wanting to write applications for the 88000 under Unix. Indeed Hui's eyes light up at the mention of Unix, and he says that while it represents a tiny proportion of the company's business at present - for the nine months to the end of April it did \$14.6m net - up 93% - on sales up 49% at \$280m, and looks for between \$370m and \$400m for the year to July - all the company's software research and development is going into the Unix arena - its first offering was the real/stable Enix implementation of Unix System V.3 for its 80386 machines (UX No 168) And the effort is not inconsiderable: the company's entire Los Angeles operation is given over to it, a software development centre will open in Singapore shortly, and a Canadian development base is in the plan for Vancouver. Manufacturing is done at the company's Fremont headquarters and in Hong Kong.

Chinese Tradition

And that early base in the Crown Colony takes Steve Hui back close to his origins, and highlights the influences that have guided his philosophy for the company. His mission at Everex is to combine the Chinese tradition of the family firm, where everyone chips in and lends a hand without seeking to pull rank in pursuit of the common good - working seven days a week, 7am to 1am, as Everex was recently when orders swamped its available inventory - with the dedication to excellence of the Japanese company, and the entrepreneurial drive of the US venture capital start up.

A typically Japanese attitude to short term fluctuations came when the Wall Street market crashed only weeks after Everex had gone public in 1987 at the market's peak. The first Hui knew about it was when the company's anxious brokers called to ask for comment; business was fine as far as Hui was concerned, so the market was an irrelevance and quickly to be forgotten. The company philosophy he characterises as horizontal, with all employees involved in decision making where appropriate.

Corporate Driving Position

But Hui's corporate role model is a very conservative - and highly successful - one, namely Hewlett-Packard Co. To be as successful - and successful in a similar manner, as Hewlett is another of his aims for Everex. At close to \$400m a year, the company has clearly not yet reached the critical mass that provides a platform from which a computer company can consolidate, expand and diversify with the certainty that it will still be around in five years - but Everex is growing very fast and is already pulling ahead of a large crowd that includes many players several years its senior. And a year from now, if things go to plan, things will look better still, with the current target sales of between \$500m and \$600m. Where is that growth to come from?

European Potential

Hui sees enormous potential in Europe, and that is not surprising since sales outside the US account for just 8% of the total. It has chosen the UK - its offices are in Colindale, London NW - as the springboard for an assault on the continent and fiscal 1990 to July has been marked out as the year of international expansion. Everex machines marked the first venture by Softsel UK Ltd into computer distribution - it now also handles Zenith Data Systems machines - but the selection of the Everex machines represented a nice entre into the UK market for Steve Hui's company. Key selling point of the Step 386/33 is the company's proprietary Advanced Memory Management Architecture with large static memory cache, which is claimed to enable the sporty 33MHz machine to race away at 8.3 MIPS and outperform the other 80386-based machines, a claim that will no doubt be hotly contested. Processor prices in the UK start at £3,500 with 1Mb memory and 64Kb cache, and an 8Mb CPU with 128Kb cache is £5,900. When it comes to the plunge into Unix, all is to play for but clearly the company's future depends crucially on its success.

UNIX IN THE UK

BULL AIMS AT IT RENAISSANCE FOR NATIONAL HEALTH SERVICE?

A new partnership between Bull HN Information Systems Ltd and the London based management consultancy group Deloitte Haskins & Sells, says it can help bring the UK's National Health Service out of what Mark Leaning of the Clinical Operational Research Unit at University College London has dubbed "the dark age in information technology." The partnership is offering two new software solutions claimed to address all the information requirements of the UK's health authorities, in the light of the government's recent White Paper on the future of the health service - "Working for Patients". On the basis of the paper and other research, Bull reckons that the healthcare sector will be the largest single buyer of information technology in the UK over the next few years.

Canadian Software

On offer is the RME Resource Management Environment and HIS Healthcare Information System, based on products from Canada, New Brunswick based software house Eversoft Ltd. They are already used extensively across Canada, and run under both Unix and Pick. The business end of the two packages combine an Oracle database with Case management software - CAMMS - and a fourth generation language. The RME package is intended to integrate of all of a hospital's disparate management, administration and resource allocation processes, its clinical and medical systems and related community based services - such as general practices - within one information system, designed to support the day to day operational needs of the organisation. The HIS software is designed primarily to address the special requirements of the clinical and medical sectors - Leaning says that the NHS desperately needs systems "which handle clinical data - at the point where data is collected - and integrated with other hospital systems."

Advanced Informatics in Medicine

At present regional health authorities have a whole range of systems installed, the white paper emphasises that new NHS computer purchases should be based upon non-proprietary equipment, using standards such as Unix and Open Systems Interconnection protocols. As well as enabling authorities to exchange data and improve resource and management control on a national scale, it should also allow the dissemination of expert information from research centres to sites all around the country - such as the recently publicised national schemes for the testing and monitoring of breast and cervical cancer in women. It is also hoped that the development of health service computing will bring closer cooperation with the European Economic Community's Advanced Informatics in Medicine project, known as AIM. Bull says that it is to sell the software on to new computer equipment health authorities will be buying on the strength of the white paper recommendations - and all the better if it is Bull equipment - though there is scant information on where the money for an already beleaguered National Health Service is to come from.

BSI HAS C VALIDATION SUITE

The British Standards Institution, which already has a Pascal Validation Service, is leading a project to develop the framework for a service which will validate C language translators against the requirements of the ISO/ANSI standard for C. The basis is a compiler validation suite from Plum Hall Inc, Cardiff, New Jersey, a training and consultancy firm specialising in C. Prices for the suite range from £1,500 to £6,000 depending on the system, and is configurable to test any compiler, from K&R and System V, up to the current draft of the ANSI C standard. The BSI is the sole European distributor for the suite, and furthermore says it will launch a Posix conformance testing service as soon as suitable test tools are available. BSI says it is currently beta-testing the NIST Posix conformance test suite, (PCTS), and intends to obtain accreditation as a testing laboratory for Posix FIPS 151.

...WARNS THAT ANSI C STANDARD WILL BE LATE

And BSI claims that companies eagerly awaiting the publication of the ANSI C standard are likely to be disappointed because an appeal has been made to ANSI to reject the current C draft on the grounds that it is damaging to embedded system programmers. As appeals processes within standards bodies take a considerable time to complete, formal publication of the standard is now not expected until December at the earliest - event though the current draft - X3J11/88-158 - is unlikely to be modified. As far as C++ is concerned, proposals for its standardisation have been put forward by Denmark and the USA, but BSI thinks it unlikely that this process will be carried out by the ANSI C committee, and is pushing for an international effort from the start. BSI would like to hear from anyone interested in participating in the C++ standardisation effort - contact Neil Martin, UK 908 220908 ext 2797.

MET OFFICE SWAPS ETA FOR CRAY

Control Data's decision to discontinue its ETA supercomputing business, (UX No 227), is set to have ramifications for weather forecasting in the UK. The four processor ETA 10 system installed at the Meteorological Office's Bracknell headquarters last June is to be removed from the site as soon as is practical. Control Data is to supply a comparable eight processor Cray YMP 832 system in its place - through its recently signed marketing agreement with Cray Research - which will be delivered early next year. In the meantime, weather forecasting will continue on the existing Control Data Cyber 205 Supercomputer which is to receive a £1m upgrade, including a quadrupling of its memory and doubling of the vector pipe facility, extending its useful life at the Met Office until 1991 when the Cray machine should come into service. Whilst the Met Office has to pay out for the upgrade, the more expensive Cray YMP is to be supplied at no extra cost via the Control Data/Cray deal. The weathermen reckon the upgrade should boost the Cyber's power by about 75%, and whilst it is being carried out, forecasting will run on one of the four processors on the ETA 10 machine - said to be comparable to the performance of the Cyber machine. The system is currently front-ended by an IBM mainframe, as most of the supercomputer's workload is concerned with the batch processing of data from the many collection points, but there will be a move to Unix workstations over time. The changes mean that there will be delays in the Met Office's plans for new forecasting models - the Cray will be its first Unix venture - though the process is to be accelerated as much as possible. The new model is to offer improved forecasting, with data collection being performed at a 75km resolution - doubling the present 150km model - which requires a tenfold increase in computing power and the need for much better communications and portability standards. The objective is to integrate global long range forecasting with local day to day weather predictions, as well as offering very short period forecasting of only a few hours ahead, which will incorporate recommendations emanating from the report on the "great storm" back in October 1987.

TOPS SUPPORTS APPLE'S NEW NETWORK KIT

The TOPS Division of Sun Microsystems Inc in Alameda, California started out as a player in the Apple Macintosh networking market, and despite its new parentage, remains true to its calling. It has announced that it sees the forthcoming Macintosh System 7.0 version of the MacOS operating software as a splendid opportuno to support users of advanced applications in local area networks, and has promised to develop local networking products that are fully compatible with, and that build upon, System 7.0. TOPS users, whether working in homogeneous Macintosh-only networks or in mixed-vendor networks, will be able to tap System 7.0's extended filing features, printing mechanisms, communication capabilities and other groupware-oriented functions, the company promises. TOPS also says that it will be supporting Apple's new AppleTalk 2.0 and TokenTalk. With AppleTalk 2.0, the previous 254-node limit on TOPS local area networks has been extended, giving users greater flexibility in configuring their network, and opens up the benefits of logical zone assignments, which enable multiple zones to be created on a single network - by group activity rather than by location - and are implemented in AppleTalk 2.0. And TokenTalk means that TOPS users will be able to take advantage of the high data rates, high bandwidth usage and fault isolation of IBM's Token-Ring Network. In addition, the company suggests, many buildings are today being equipped with Token-Ring-compatible wiring. "As the number of Macintoshes in corporate America burgeons, so does the need for TOPS users to connect into Token-Ring," declares Rich Shapero, vice president and general manager of the TOPS Division confidently.

DEC MULLS COMBINED VMS+UNIX ON RISC FOR MID-1990s

Having recognised at the eleventh hour that proprietary hardware and software architectures are a rapidly wasting asset, DEC is moving as fast as it can to recast its product strategy to eliminate the price disparity between its proprietary VMS machines and the much cheaper Unix RISC machines. President Ken Olsen has confirmed that the company is considering major changes to the VAX line that could see it recast as a RISC-based family by the mid-1990s, reports Electronic News. Advanced research and development work has begun on the proposed project, and the company is looking at the feasibility both of reimplementing VMS for a RISC architecture and combining VMS and the Ultrix Unix into a single operating system. Such a move would be following closely in the footsteps of Hewlett-Packard Co, but the Cupertino company has a five-year head-start on DEC. Any merger of the operating systems would be a very long-term goal because VMS and Ultrix machines can already operate in an integrated network, and Ultrix runs on both the VAX and MIPS Computer Systems Inc RISC architectures. Moreover DEC has promised to implement compliance with the Posix low-level Unix standard in VMS. Having cancelled its own Prism RISC project that would have supported VMS, DEC is now likely to adopt the forthcoming 64-bit version of MIPS Computer Systems Inc's R-series family for any merged RISC system. In the meantime, beyond the Aridus CPU, a project code-named Centaurus aims to result in a top-end VAX in Gallium Arsenide capable of delivering 100 to 150 MIPS.

NIXDORF AND THE UNEMPLOYED:

\$19.6m FOR 738 UNIX TARGONS IN SPAIN

Nixdorf Computer AG's Spanish subsidiary has taken a leaf out of its parent's book in winning a contract for a daunting 738 Targon 31 Model 5 and Model 15 Unix micros to the Spanish Government's Central Unemployment Office. The contract, which is valued at \$19.6m, awaits a report from CIABSI, the Interministerial Commission for the Acquisition of Information Technology Systems, before it can go ahead, but no snags are foreseen. The Ministry of Employment has confirmed that the equipment will be used to computerise the National Institute of Unemployment and the Instituto Social de la Marina. The contract is part of the Ministry's ambitious computer project to create a single database for use in managing information within both its Employment and Social Security Departments. So far this year, with the present contract, as well as a previous one to computerise the National Institute of Social Security, the Ministry has invested around \$25m in the system, making it one of the biggest investment programmes in the Spanish public sector this year. The Targon machines can support from several dozen terminals to about a hundred.

...AS NIXDORF OFFERS MAJOR UPGRADES FOR ITS TARGON/31, TARGON/35 FAMILIES

Nixdorf Computer AG has launched a series of new Targon machines, including two Motorola-based Targon/31 systems and two top-end Targon/35s. The Targon/31s use Motorola's 68030 processor, and include the 32-user Model 15, with 8Mb to 24Mb memory, and the 64-user Model 45, which has up to three 68030s, including 16Mb global memory and up to 8Mb on each CPU. Total storage is 1.4Gb using new disk options of 182Mb, 384Mb and 702Mb, and Nixdorf offers the option of 155Mb tape streamer or 2.2Gb videotape back-up systems. Systems include a dedicated input-output processor and optional 68882 maths coprocessor. The Targon/35s, based on hardware bought in from Pyramid Technology Inc, include the Models 60 and 70, with from one to four processors and up to 64Mb memory, rated at 48 MIPS for top-end configurations. The machines have a 256Kb data and instruction cache. Launched in Germany, equivalent US prices start at \$20,000 for a /31 Model 15 with 8Mb memory, 182Mb disk and four ports. A 16-port Targon/35 Model 60 with 16Mb memory and 380Mb disk costs around \$100,000, while a four processor 64-port /35 Model 70 costs \$350,000 with 64Mb of memory and 1.1Gb disk storage.

ADVANCED LOGIC CLAIMS MCA 80486

BOX WILL OUTPERFORM IBM'S BY 37%

Intel Corp's 80486 is still new enough that there is mileage to be had from announcing plans for the chip, and Advanced Logic Research Inc of Irvine, California is ready with a Micro Channel 80486 PowerCache 4 with a proprietary 128Kb red and write-back cache claimed to outperform IBM's PS/2 80486 upgrade by 37%. Out in September, it will be \$10,000 with 2Mb CPU and 1.44Mb floppy disk.

TELESOFT ADA HOUSE ACQUIRED BY SWEDISH PHONE COMPANY

Telesoft Inc of San Diego is to be acquired by Televerket, the Swedish telephone company, which already owns TeleLogic AB of Stockholm and has 29% of TeleSoft through its TeleInvest subsidiary. Telesoft specialises in Ada compilers, tools and professional services, and is said to be the largest Ada house in the world. TeleLogic is a software consultancy specialising in applications development for the telecommunications industry. Telesoft values itself at \$40m, and says the companies had combined sales of \$48m last year and look for \$60m this year. TeleInvest is to retain a majority interest in the new TeleSoft AB, and is seeking to place a minority through Skandinaviska Enskilda Banken, with Paine-Webber Development Corp of New York also holding a minority interest.

ARIX'S EDGCORE TOUTS ITS E2000 BOARD SET - SELLS TO HITACHI

Edgcore Technology Inc, which this week announced its OEM agreement to supply its OEM Motorola 680X0-compatible E2000 board sets to Hitachi Ltd (UX No 240) - noteworthy not least because Hitachi was the official Japanese second source for the 68000 but was chopped off at the 68020 generation - says that the architecture of the E2000, while employing several RISC features, apparently has a far superior performance in commercial multi-user environments than RISCs, while retaining Motorola 680X0 compatibility. The single processor rates at 18 to 20 VAX MIPS with an average instruction time of 1.2 clock cycles per instruction at the processor level. The external input-output bandwidth is 60Mbps, with multiple input-output channels - VMEbus is standard, but alternatives can be adapted - and main memory goes to 1Gb. No terms for the Hitachi deal were revealed. The Scottsdale, Arizona company has agreed to be acquired by Arix Corp.

PROFIT SLUMP AT CRAY TO FORCE PRICE CUTS

Cray Research Inc's second quarter figures - profits slumping 77% on sales down 4.5% - were considerably worse than the company had expected. In May the company said it expected turnover to grow 10% this year despite a weak performance in the first quarter; it attributed its changed outlook to "competitive and economic conditions" as well as delays in getting contracts signed for systems that are to be installed this year, and as a result, earnings "will continue to be under pressure" and it will "be a challenge" to match the \$3.53 a share it did in the second half of last year. Problems cited include a reduction in gross margins due to higher trade-in allowances and scrapping rather than reselling of older systems returned off lease or taken as trade-ins, plus costs associated with the Cray-3 project, due to be spun off. Elaborating, Cray said the slowing US economy has delayed both government and commercial orders for supercomputers, and the dearth of business has increased competition from IBM with the Vector Facility on the 3090s, and from Convex Computer Corp: Cray president Marcello Gumicio also told the Wall Street Journal that the company was under increasing internal pressure to tow down and mix it with the likes of Convex by coming out with - lower margin - machines in the \$2m to \$2.5m price bracket, against a present base price of \$5m. The depressing outlook sliced \$2.25 off the Cray share price which fell to \$41.875.

• Meanwhile, Convex Corp is not doing badly, with first quarter sales up 48% and \$53m in the bank: indeed the Richardson, Texas company is doing so well that venture capitalist L J Sevin reckons it's time to take a back seat, and has ceded his post of chairman to president and chief executive Robert Paluck, although he remains a director and investor.

BOS PROSPERS FOLLOWING UNIX MOVE

The UK's Misys Plc first ventured into the Unix market in February, when its BOS Software Ltd subsidiary launched its Apex operating system. BOS is now billed as a Unix-based business software solutions company, and has much pleasure in reporting 3,000 new users and a turnover up by 41% in the past financial year. Since BOS was acquired by Misys in June 1988, it has added two new products to its Global 2000 business applications range: Organiser and Reporter. The first of these has a diary, notepad and electronic mail function, while the latter compiles reports using a data dictionary and editor and can reference up to 10 files, as well as sorting files to vary the sequence of reports. Both products are modular, integrating with others in the Global range and both run under the BOS and Apex operating systems. The company is continuing to expand its user base and over the past year has added 630 international user sites including a chain of pharmacies in the Netherlands, 60 systems in Denmark, business software in West Germany, and sales of products into the US, Australia, Hong Kong and Singapore. All of which bodes well for Misys' annual results which are expected shortly.

DULL YEAR ON SOFT US BUSINESS FOR DEC

DEC saw net profits plunge 22% to \$313.2m in its fiscal fourth quarter to June 30, on turnover that slowed to a sluggish 4.5% growth rate, taking total business for the year to \$12,700m, definitely a disappointing out-turn compared with the optimism this time last year. Commenting on the figures, DEC says that overseas markets saw double-digit growth in the quarter as a result of new hardware, software and service offerings, coupled with a strengthened sales and marketing organisation, but that - in contrast to IBM's report for the same period, which saw double-digit US growth, "business conditions in the US are still somewhat slow, with fourth quarter revenues similar to those of the same period a year ago, but up from the prior quarter. Both discretionary spending and capital spending plans are being adjusted to reflect current market conditions," the company says, adding "With lacklustre conditions in the US, and the strengthened dollar depressing overseas results when translated into US currency, we remain cautious entering the traditional low-volume September quarter.

STEVE JOBS ADDS MARKETING CHIEF POST AT NEXT

Already chairman and chief executive at Palo Alto-based NeXT Computer Inc, Steve Jobs has shunted co-founder Dan'l Lewin aside into a lesser post as one of two sales directors and has added the post of marketing director himself, aiming for no more than a six-month stint to ensure a perfect launch for the computer. The NeXT operating system should be ready by September.

TIS TO SUPPLY

"LARGEST MAC UNIX NETWORK IN UK"

TIS Ltd, the Bourne-End, Buckinghamshire based Unix systems supplier that was bought by the Misys group back in May, (UX No 231), has won what it believes to be the largest UK order to date for Apple Macintoshes networked via Unix servers, from the London based building design consultancy YRM Partnership. The order, worth around £850,000, comprises five MIPS Computers M/120 server systems, 90 Apple Macintosh II cxs and other peripherals. In all, the network will support 150 devices, including YRM's existing PCs using uShare software based on Unix V.3, TCP/IP and Ethernet, supporting an Informix database, and Microsoft Word and Excel packages for word processing and spreadsheet analysis. Software for desktop publishing and project management has yet to be chosen. The final decision to go for a Unix solution was made after a two week trial between the TIS offering and an IBM PS/2 network. As far as the building design sector and information technology is concerned, most attention has been focused on systems for computer aided design and draughting - CADD - and less on the management of construction projects. However the market for building design services has become more international recently, with large multi-disciplinary firms offering a 'one stop' shop approach, covering services in architecture, planning, services engineering, interior design, civil and structural engineering and project management.

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Language Processors Inc, Framlingham, Massachusetts, has unveiled a version of its Fortran compiler to run on Sun Microsystems Inc's 386i workstation - the compiler now runs on the complete range of Sun hardware - it costs \$1,000 on the 386i, and is available now.

X.desktop developers, IXI Ltd of Cambridge, has taken the plunge into the Unix schism and joined the Open Software Foundation, though the company emphasised that it is "not siding with any camp in the Unix wars," and plans to join OSF rivals Unix International in the near future. Development work is continuing to offer X.desktop on the various strains of Unix International's Open Look graphical user interface, which is already available for IBM/OSF Motif. In addition one of IXI's technical engineers, Andrew McGowan, has been appointed Chairman of the OSF's Desktop Manager Working Committee. The OSF is not expected to decide on its choice of a desktop manager until towards the end of the year. In addition nine new members of the OSF are due to be announced this week.

The Cornell University graduate student, Robert Tappan, blamed for the virus that brought down up to 6,000 Sun Microsystems and DEC computers on the giant Arpanet research network back last November, has been indicted on a felony computer crime charge, and faces a possible five-year sentence and a \$250,000 fine if convicted; he could also be required to pay restitution to universities and military bases whose computers were hit.

DDC International, Lyngby, Denmark, has a new Symbolic Ada Debugger for Intel 80386 based workstations running Unix System V. It enables program execution to be monitored at Ada source text level and at machine code level. It has a window orientated user interface with a command language, and the company says that the debugger now completes its Native Ada Compiler System for 80386 workstations.

In other Ada news, Alslys Ltd, Henley-on-Thames, Oxfordshire, is set to release its Ada Tune tool with the next major release of its Ada compilers later this year. The package allows users greater scope in analysis and testing of program execution and will run under the same window based interface as its other Ada products. It will be offered as an optional extra on its other compiler suites - first on the range of Motorola 68000 based Unix workstations, then on Intel 80386 and DCS machines.

Unhappy that word of Sinclair Research Ltd's challenging 250 MIPS universal emulator RISC chip come out prematurely (UX No 237) Sir Clive Sinclair is even more unhappy that the whole thing had been attributed to Chris Shelton: it was all his own idea he told PC Dealer.

Microway (Europe) Ltd of Kingston-upon-Thames, Surrey has a new maths co-processor which is object code and plug compatible with the 80287, but includes 387 instructions and enhancements: the 2C87, from Integrated Information Technology, comes either as a single chip or a daughterboard with chip and crystal oscillator running at 20MHz; the 2C87 10MHz version costs £200, and the 20MHz daughterboard is £265.

Ardent Computer Corp, Sunnyvale, California reduced by up to 30% the prices of its current Titan family of graphics supercomputers in a prelude to the introduction this autumn of a broad new line of systems: the Titan, originally \$79,000, is now some 39% cheaper at \$55,300.

Financial results spattered in red ink last week included a loss of \$19.8m for Ashton-Tate Corp in its second quarter, \$23.1m of losses for Data General Corp's third quarter, and a whopping \$497.3m second quarter loss from Control Data Corp after its mammoth write-offs and charges.

Oki Electric Industry Co has joined the Intel Corp-led team developing a multiprocessor Unix for the 80386 and 80486 and the 80860: the other companies in the development effort are AT&T Co's Unix Software Operation, Ing C Olivetti & Co, Unisys Corp's Convergent Technologies division, and Prime Computer Inc; members get beta versions by year-end.

Manchester-based Logitek Plc is to acquire the Advansys group of companies for just over £10m with irrevocable acceptances received for nearly 83% of the capital - the companies within the Advansys group are probably better known than the holding company itself and they include the accounting software house CSM, the hardware and software distributor CSM Systems, and Novell distributor Azlan.

Cray Research Inc has revealed that it signed a patent cross licence agreement with Hitachi Ltd in May at Hitachi's request, but no transfers of technology are involved in the pact, Cray noted. Cray already has patent cross licence agreements with IBM and Convex Computer Corp.

Herzaliya, Israel-based Scitex Corp has told De La Rue Co Ltd that it is prepared to pay £255m to £265m for Crosfield Electronics, topping the £235m agreed offer made by Du Pont Co and Fuji Photo Film Co; Scitex and other interests of its chairman, Robert Maxwell, hold some 22% of the shares of De La Rue Co.

Advanced Micro Devices Inc's 37-strong Fibre Distributed Data Interface club (UX No 241) includes Hewlett-Packard Co, AT&T Co, Du Pont de Nemours & Co, Prime Computer Inc, Sun Microsystems Inc, Unisys Corp and Wang Laboratories Inc

Commodore International Ltd has sharply scaled back its forecast for its fiscal fourth quarter to June 30, and having said in late June that it would at best achieve a modest profit on falling sales, now says that it will report a loss of as much as \$12m on sales down 15%: the West Chester, Pennsylvania company does 75% of its business outside the US, and says that business declined in the major markets of West Germany and Australia as well as the US as its Commodore 64 and 128D machines fade away; on a positive note, it says that the long-promised 68030 board that enables the Amiga to run Unix will be announced this quarter - no word on when it will ship - and that an 80386SX-based AT-alike is planned.

Intel Corp's 80486 is still new enough that there is mileage to be had from announcing plans for the chip, and Advanced Logic Research Inc of Irvine, California is ready with a Micro Channel 80486 PowerCache 4 with a proprietary 128Kb red and write-back cache claimed to outperform IBM's PS/2 80486 upgrade by 37%: out in September, it will be \$10,000 with 2Mb CPU and 1.44Mb floppy disk.

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McDONNELL COMPUTER BUSINESS TO BECOME A UK QUOTED COMPANY

The proposed sale of its 1,500-employee, San Jose-based Tymnet business to British Telecommunications Plc for \$355m announced last week turned out to be only the first stage in a major reorganisation and downsizing of McDonnell Douglas Corp's \$1,200m-a-year information business. The next day, the company revealed details of its plans to float its computer systems business on the London Stock Exchange. The business, structured around the former Microdata Pick systems business, has annual sales of about \$400m, but is much more successful in the UK than it is in the US; it will however include the US business. Last year, the UK accounted for 53% of the £180m or so total business, making it just shy of £100m, the rest of Europe chipped in 27%, North America was a mere 12% or \$36m, which means that it has shrunk enormously since McDonnell took over Microdata Corp; the Far East made up the balance. Retaining the the McDonnell Douglas name, the new company plans to float a proportion of its shares early next year, but has not retained an investment banker or broker yet; McDonnell will retain an unspecified minority stake. All manufacturing for the world market will be done at the Hemel Hempstead, UK base, and the new company - under managing director Jeremy Causley - projects turnover of \$455m - £275m, which will make it the second-biggest British computer manufacturer after ICL. The one major business that is being retained is the St Louis-based computer-aided design, solids modelling and manufacturing Systems Integration business, which does about \$300m a year. The new UK-based company will market the Systems Integration products outside North America, as the exclusive distributor. In common with most Pick vendors, McDonnell Douglas is reportedly working on a Pick/Unix implementation.

OSF PREPARES NEW REQUEST FOR TECHNOLOGY

A new Request for Technology is being prepared by the Open Software Foundation for issue in September, and will seek to establish a standard means of integrating different databases running on a network. The object is to provide a common technology to allow access to any database on the network by using a client-server architecture to specify a standard interface for applications. Although IBM's Structured Query Language would be an obvious basis for the technology, the eventual product would need extensions to enable access to both non SQL and non-Unix databases. A number of database vendors and hardware manufacturers, including Intergraph Corp, have been working towards support for multiple databases. Meanwhile, the OSF is currently evaluating the responses to its Multiprocessing RFT, and is preparing an additional request for Secure Systems technology. New members - see page 5.

ELXSI ABANDONS 6400 HARDWARE MANUFACTURE, FIRES OVER 50%
Elxsi Corp, San Jose, has given up on its 64-bit minisupercomputers, aborting the development programme for its 6460 processor and putting the rest of the hardware business onto a care-and-maintenance basis. Over half the workforce is being laid off as the company cuts back to a software business. However the future of Elxsi's UK sales and service division based in Walton-on-Thames is not thought to be under threat. In the US, the company is retaining a software development group in the hope of being able to capitalise on its extensive experience in running multiple operating systems, including its own proprietary Embos software, in a single computing environment. The group will explore converting Elxsi's operating system software to an "industry-standard" machine that will protect its customers' investments in application software. A key feature of the Elxsi operating environment is a VMS shell option that gives a familiar look and feel to DEC VAX users. Apart from the software, the company's activities will be centered on its on-going customer support and maintenance business and manufacturing of additional Model 6000 Unix machines, and 6400 Systems to meet the requirements of existing customers - 100 are currently installed. Manufacturing for support of customer needs will be provided by Elxsi's Singapore-based affiliate, the Tata-Elxsi joint venture among Elxsi, India's Tata Group of companies and the government of Singapore. Tata-Elxsi maintains an inventory of key components for Elxsi systems and has manufacturing rights for Elxsi products, and manufacturing in San Jose will end. The company's turnover is currently running at \$5m a year and the company, originally rescued when it was bought by Trilogy Ltd, which had cash but no products, has run out of cash again and is seeking additional finance. Elxsi warns of a substantial net operating loss on \$2.8m sales for the June 30 period.

ANOTHER SUN LOSS THIS QUARTER?

Warning that a return to profit in the current quarter cannot be guaranteed, Sun Microsystems Inc also shocked its followers by updating its warning for the fiscal fourth quarter to June 30. It said it will definitely report a loss, in the \$20m to \$26m range - indicating profits of 72 to 78 cents a share for the full year, down from 89 cents last year. Sales for the quarter will be \$425m to \$435m, 16% to 19% ahead of the 1988 quarter. On the upside, the year-end orders and backlogs were at record levels.

VISUAL TECHNOLOGY FILES FOR CHAPTER 11, BUT READIES NEW X TERMINALS

Its really a case of out of the frying pan and into the fire for Visual Technology Inc, Lowell, Massachusetts. Long established as makers of DEC and IBM compatible systems, the company has voluntarily filed for Chapter 11 bankruptcy in the US courts on losses of \$6.2m in 1988, but intends to come out revamped as a "viable X-Windows company," according to president Mark Whitman, with a family of new X Terminal Display stations waiting in the wings. By the mid-eighties the company had lost and borrowed around \$70m on the development of IBM compatible products. San Francisco based venture capitalist outfit Hambrecht and Quist were called in in 1986 to do a turnaround job on the company's business, ploughing in \$12.25m over the next two years, but it wasn't enough to keep Visual Technology above water. The funding group has agreed to invest another \$5m in Visual Technology between now and October 15 when the case goes to court - Whitman foresees no obstacles to the plan being approved - but it is conditional on a complete reorganisation in the company. The DEC and IBM side of the firm is to be de-emphasised, although existing customers will continue to be supported, and there are four new X terminals to be released over the coming few months. The new 19" monochrome X terminal, with between 1Mb and 4Mb memory begins shipping this week. Claimed to deliver six times the speed of the existing 640 X Display station it costs \$2,695, and the firm has extended its OEM agreement with Kubota Computer Ltd, which has already signed up for previous X Display products, (UX No 209). A 15" monochrome version will be out in October, priced at \$1,595, along with a high performance 68020 based X Terminal. Colour version are currently under development and will go into production in the fourth quarter.

UK NEWS

GEC SIEMENS' 270 PENCE A SHARE BID FOR PLESSEY "IS FINAL"

Having got the nod from the Department of Trade & Industry last Wednesday, GEC Siemens Plc wasted no time in making a new bid for Plessey Co Plc, cheekily coming in with a 270 pence a share offer sixpence shy of the Plessey price in the market immediately ahead of the bid. Lord Weinstock insisted that the offer was final, and that even if a counterbidder were to offer more, GEC Siemens would not raise its price. The market took this very badly and Plessey's share price immediately slumped tenpence to 266p. The offer, which values Plessey at about £2,000m, is backed up by arguments that Plessey is too small to prosper on its own, and that the acquisitions it has made in the past three years have significantly weakened its balance sheet. In the new carve-up of Plessey, GEC Plc will own 60%, Siemens AG 40% of GEC Plessey Telecommunications Ltd, and GEC will have management control. Plessey's naval systems and electronics businesses outside North America will be wholly-owned by GEC. Its radar and defence systems businesses, including military communications and the related Australian activities will be wholly-owned by Siemens, but the UK cryptography operations will be transferred to GEC. In North America, GEC will get Sippican Inc and Leigh Instruments Ltd, and will hold 75% of Plessey Electronic Systems Corp, which was acquired by Plessey from Singer Co, with GEC holding 25%. The semiconductor business will be equally owned and present management retained, but Siemens will have management control.

MISYS ALREADY TRANSFORMED SINCE FISCAL YEAR-END, MORE ACQUISITIONS PLANNED

In terms of market capitalisation Misys Plc is rapidly gaining a position from which to bite the heels of the big UK software houses such as SD-Scicon, Hoskyns and Logica. They are respectively valued at £171m, £188m and £212m, while Misys currently stands at £137m. This is quite a feat when one considers that Misys had a market capitalisation of approximately £8m when it came to the Unlisted Securities Market as recently 1987. What is more, the figures for the year to May 31 1989 show no signs of the bubble bursting in the near future with pre-tax profit up 163% at around £6m on turnover up 216% to a little under £27m. Company chairman Kevin Lomax has more than kept his promise to shareholders with earnings per share up 59% to just under 24 pence - he believes the company's success should be judged from its attainment or otherwise of a 30% annual growth in this figure. At present the Misys group operates in four divisions with a total turnover figure of nearly 75m: Financial Services contributing 14% of turnover, Business Systems 34%, Computer Solutions 27% and Open Systems 25%. Evidently, these recent acquisitions have skewed the company away from a reliance on financial services as its core business which produced 40% of its annual turnover to May 31, before the Open Systems Division was built up through the acquisition of TIS, Mentor and Team. As for the future, Lomax hinted that the next acquisitions to be announced will probably be in the IBM and DEC area, Unix will remain an area in which the potential for acquisitions will be gauged, as will that of the Pick sector, where there are plenty of solid companies that are now finding the going tough and may fare better under the Misys wing. Future acquisitions will remain small, purely because, says Lomax, there are no attractive large companies out there at present. All acquisitions will be made in the UK with international expansion waiting till Misys reaches £25m annual profit, when the US will be scrutinised for likely buys. Lomax added that "further good progress" would be made this year, but did express concern about the state of the UK economy.

FPS ADDS WORKSTATIONS AND SERVERS

The Bracknell, Berkshire based division of FPS Computing - the Beaverton, Oregon company still much better known as Floating Point Systems Inc - has added some new models to its range of lower end departmental computers running Unix V.3. The Models 300X and 300SX servers start at £92,000 for a basic configuration with 32Mb of memory expandable up to 128Mb. Using FPS' multi-processor architecture the 300X offers 25 MIPS and 80 MFLOPS. The 300SX has a scalar accelerator option which boosts performance to 35 MIPS and 100 MFLPOS. The 350X and 350SX workstations, which start at £109,000, offer improved graphics capability - animation of up to 30 frames per second - with PHIGS+ 3D, GKS and the FPS Application Visualisation System. These dual display systems can be configured simultaneously with a high resolution graphics display and a video monitor. Both the Model 300 and 350 series come with TCP/IP, NFS and Ethernet, and can be connected to the FPS 500 mid-range supercomputer as a front-end.

SYFA DATA UPGRADES ITS EXISTING UNIX RANGE AND PROMISES MORE

SyFA Data Systems Plc of Watford has added new models to the SX range of Unix micros it launched back in February. The new machines include an entry-level desktop system using a single board 68030 computer from Motorola Computer Systems, running at 16MHz or 20MHz; a mid-range SX60/04 workgroup system; and an extended SX62XP, which increases the power of the standard SX60 by up to 70% through the use of dual 68030 processors. SyFA also extended the disk storage capacity of its mid-range SX62/46 system up to 2.7Gb, and revealed its plans for future top-end products, which include the Motorola 88000-based SX80 RISC systems, using multiple 88100 processors running at 20MHz or 25MHz, rated at between 17 and 60 MIPS - these are due by the end of the year. And for mid-1990, SyFA will introduce a new 68040-based SX70 range, including a dual processor model. Prices for the upgraded models start at £6,500 for the desktop machine, rising to £69,500 for the basic dual-processor SX62XP.

UNISYS GOES TO HYTEC FOR CONNECTIVITY

Unisys Corp is adding ICL Series 39 mainframe communications options to its U5000 and U6000 series Unix machines through a deal with Oxford-based Hytec Information Systems Ltd. The two companies are near to completing a project to integrate Hytec's Sonnet standardised open network to the Unisys range, allowing full terminal access and file transfer between the Unix boxes and ICL's Series 39 and 2900 mainframes running OSLAN. Logica Plc is acting as consultant to the project, which should be completed by the end of August. Sonnet will be integrated to the Unisys Open Systems Interconnection Transport layer via X.25 for wide area networks, or Ethernet for local area networks. In addition to Unisys, Hytec has four other major manufacturers signed up for Sonnet, but won't name the others.

KODE SLIMS TO COMPUTERS, CIRCUIT BOARDS

The printed circuit board manufacturer and hardware distribution and maintenance company Kode International Plc of Swindon, Wiltshire appears to still be undergoing rationalisation. It simultaneously reported the sale of the defence electro-mechanical components subsidiary Moore Reed to Control Techniques Plc and an interim pre-tax loss of £227,000 on a turnover struggling to reach £16m. Control Techniques is to pay Kode nearly £4m for Moore Reed, a sum which will be used to reduce Kode's borrowings. The group will now focus solely on its computer and printed circuit board businesses. Distributor Kode Computers did not perform well in the six months as a result of a weak market and fluctuating exchange rate but orders are now being received for the new Icon Unix systems. The third party maintenance business is expected to pick up in the future. Kode's only glimmer of light right now is its Kam Circuits printed circuit boards arm, which continues to trade profitably, and is moving in to the high volume market with its Far East joint venture.

DDL PREPARES UNIX FAX PROTOTYPE FOR SCO FORUM PREVIEW

They say it takes two to tango and two to make a market in the computer industry. Two competitors, that is. If that is the case, then the Unix facsimile market should get real at last during the Santa Cruz Operation's SCO Forum '89, which opens in Santa Cruz, California, on August. That's when Driver Design Labs (DDL), a West Vancouver, British Columbia, Canada, Unix Systems software house, will join the Unix fax fray against the market's sole player, Certifax Business Communications. DDL's fax prototype, temporarily dubbed "Fax for Unix," consists of fax driver software that works with either internal or external fax modems to offer Group III fax transmission capabilities. "Fax for Unix" aims to deliver high-end fax functions to Unix systems, and includes such sophisticated features as auto routing, auto copying, and intelligent and least-cost dialing. It will also support the popular graphics interfaces, such as OSF/Motif and the SCO Open Desktop, as well as its own menu-driven front-end, plus the leading Unix network protocols - TCP/IP and NFS amongst others. DDL sources say Fax for Unix takes full advantage of Unix's multiuser, multitasking capabilities, with full background tasking, auto dispatching, and simultaneous support for multiple fax modems - up to eight modems and 256 telephone lines, among other features. Now the rub - DDL sees itself as a strictly development house, with no home-grown marketing skills. Indeed, the firm currently is looking for two companies to pick up the product and run with it on a private label basis. One for the "low-end," meaning 286/386 based PCs, and the other for "high-end" Unix systems, which apparently means everything else, from Sun workstations on up. It's a good bet, observers say, that DDL's laid-back host for the week, SCO itself, is in the running for exclusive low-end rights. "Fax for Unix" makes a perfect match with SCO's marketing focus on the 286/386 PC platforms they say. No word on who might pick up the product for marketing to the high end.

REAL TIME LynxOS GETS POSIX STAMP

Lynx Real-Time Systems' LynxOS real time operating system has now passed the IEEE's Posix standards for the Unix operating system, as well as the US government's Federal Information Processing - FIPS-151 - standard, giving a boost to the fortunes of the Campbell, California based real time specialists. Plans were first mooted last summer, (UX No 186), and in addition LynxOS is now compatible with AT&T's 386 Unix at the binary level, which means it can run a range of shrink wrapped software including Informix, WordPerfect, QCalc, Masterplan, as well as Fortran, Pascal and BASIC compilers. Development work included a complete rewriting for what is claimed to be the only fully compatible real time version of Unix - it has no AT&T code - and is also compatible at source level with Berkeley 4.3.

US NAVY HAS REAL TIME SunOS

It seems that Sun Microsystems has now shipped a real time version its SunOS operating system to the US Navy. However it is not due for shipment to commercial customers until AT&T comes out with Unix V.4 this autumn - the Navy contract is part of a \$115m project to supply the Navy with ship board micros.

WANG IN VIOLATION OF CREDIT PACTS AFTER \$375m LOSS

Raising doubts that Wang Laboratories Inc will be able to renegotiate its loans with its bankers without a lot more pain - its net worth is now below the level required for its revolving credit agreements - the company last week announced a fourth quarter loss substantially wider than expected at \$375m - and something over \$111m of that came from operations, write-downs and provisions making up \$264m pre-tax. Turnover for the quarter fell 4.7% to \$784m. The \$234m restructuring charges includes lay-off costs, costs associated with realignment of its US sales service and administrative support and plant closings, and adjustments to the asset values of business activities now outside the company's newly-defined core businesses - financial services, government, manufacturing, professional services, and image. Increasing the pressure on the Lowell, Massachusetts company, its bankers have given the company a waiver of only until August 10 before they call in their loans. The company ended the year with 28,300 employees, against 31,516 at March 31, and more job cuts are planned for the first half of this fiscal, 375 of them at the Puerto Rico factory.

...BUT PLANS 80486 UNIX PUSH FOR YEAR END

Wang Laboratories Inc has shunned RISC technology and settled on the new Intel 80486 as the basis of its belated plunge into Unix, Computer Systems News reports. The company plans to build a family of 80486 workstations that can be integrated with its proprietary VS business computers, and in multi-vendor open architecture networks. The product line is to include systems, servers, dumb asynchronous terminals and X Window workstations. Wang has joined both Unix International and the Open Software Foundation, and plans to mix and match from the various standards available, going for Posix compliance, the AT&T System V Interface Definition, some System V.3 extensions, the X/Open Co Ltd Common Application Environment and the X Window System. It does plan to incorporate the Open Software Foundation's Motif user interface on X Window workstations for graphic applications such as image processing, and desktop publishing and database applications. In particular it will put its WIIS Wang Integrated Image System up under Unix on the X Window stations. The products, due to start appearing late this year, will also include 80486-based Unix systems for character applications such as word and document processing. Wang's Unix offerings will be pitched particularly at the government market.

AT&T, AMERICAN EXPRESS TEAM TO FORM CALL INTERACTIVE

American Express Information Services Co is to put its FDR Interactive Technologies business into a joint venture company equally owned with AT&T Co. The new Call Interactive company will be aimed at the growing market for handling enormous volumes of telephone calls in a very short time - used by television game shows seeking audience response, and businesses offering direct sales, market research, and competitions. Starting in September, Call Interactive will be able to process up to 10,000 calls in 90 seconds using AT&T MultiQuest High Capacity Service - if the Federal Communications Commission gives the nod. The call processing capacity will be raised as demand increases.

FIVE NEW RTs ARE SEEN IN THE IBM UNIX PLAN
Latest intelligence on IBM's forthcoming successors to the RT - said to be called RT-3 internally - is that there are to be five machines in the new line, now expected to be announced in October. The new line is expected to include a uniprocessor running at 25 MIPS, and multi-processor versions are expected to support up to 16 processors. Computerwoche suggests that low-end models may be built around Intel's 80860 RISC microprocessor. As already revealed, the new RTs will be accompanied by "advanced" AIX 3.0, which will not run on existing RTs.

INFORMATION TECHNOLOGY, INDUSTRY GROWTH AND COMMERCIAL IMPLICATIONS OF OPEN SYSTEMS - A PERSPECTIVE

by William Fellows

The wave of poor results from major computer manufacturers over the last few weeks would suggest that the pessimists have been right all along. Honeywell, Nixdorf, Wang, Apollo, Data General, Cray, Amdahl, and now Sun and DEC, have all seen a downturn in growth and profits, and a further merger wave is expected, prompting much tongue wagging about classical "market maturity" - or saturation - in the industry. But is this really happening, when new innovations, faster machines and more applications appear every day, suggesting exactly the opposite?

Paul Reynolds, managing director of London based Wentworth Management Consultants believes that information technology as a market is not mature enough, and that a return to rapid industry growth is possible - but only after a long hard look at issues such as standardisation and collective customer needs. Market immaturity he believes is symptomatic of a poor level of co-operation among users, vendors, and collectively between both sides of the industry. He argues that the major vendors and their followers have fallen into an analytical trap, by succumbing to conventional wisdoms that can be easily and successfully challenged.

Conventional Wisdoms Challenged

Certainly, from a macro economic perspective the market is nowhere near saturated - according to a study of computer usage amongst US workers, penetration is no more than 15% - a figure that is certainly less in the UK. Moreover, Reynolds believes the market is not saturated from a micro economic perspective either, and that in fact there are many signs of shortages in supply. Large users wait months for new terminals or disk subsystems; data processing departments find that buy-in services are unavailable. Users are faced with a large array of insufficiently differentiated products using different technologies. And budgets are depressed by pessimistic views of industry responsiveness and by concern over disputes such as the interface law suit between Apple and Hewlett-Packard and the Unix International/Open Software Foundation struggle. The argument goes that to be competitive and avoid the lock-in, users must buy from many vendors - any company that thinks it can provide a total solution is living in a fantasy according to Reynolds - and as a result there is not oversupply, but undersupply in the industry. In addition there are high costs for system integration and specialist services which are not always easily and openly available. These absorb resources, reduce benefits and depress budgets.

Investment And Growth

The popular view is that growth comes from technological change - certainly the Open System marketplace is witnessing a period of change, growth and redefinition that is rooted in Thomas Kuhn's theory of scientific revolution. According to Reynolds however, more important for a climate of growth is investment across the whole user organisation and investments in performance that are easily absorbed by users - both of which can be delivered through standardisation. It encourages a shift in user resources away from integration and duplication of technical expertise towards higher value technology and is certainly borne out by the example of the adoption and development of Sun's SPARC architecture which has been primed by the Unix standard. Standards also make it easier to develop complex applications. IBM and DEC excepted, industry profit does not come primarily from locking customers into proprietary technology because users now know they are being locked in, and spend less accordingly - Reynolds cites NATO, CEC, Lockheed and General Motors as examples of this trend, some of which spend up to 30% less than they would otherwise. Governments and larger corporations will even buy kit from several different vendors, investing time and money integrating them to maintain multi-vendor strategies.

Standardisation

Arguments against standardisation hinge on two basic issues. Firstly that standards turn products into commodities, therefore reducing profits, and secondly that they retard

technological change. The first is true in some instances, however, the low cost of identical PCs and software is very different from buying a complete network of systems for a large corporation or government. In addition much of the user community already buys standardised products directly from the manufacturers, not from the main vendors, and as Reynolds argues, "low spark plug prices do not eliminate the profits of BMW." In a study of large users, he has concluded that even with only a third of information technology requirements standardised, savings of up to 40% on software, 30% on technical services, and 60% in data processing departments on staff training, procurement and planning can be made. Rather than reducing budgets, these savings are more likely to be reinvested, and reinvested in areas of mutual benefit to vendors and users - on new equipment and services. Another characteristic particular to information technology - and one that would shock other industries - is user expectations of vendor responsiveness. In this game it is possible for oversupply and undersupply to co-exist, whilst users have very low expectations of what vendors can do for them.

Answers

So what's to be done? Reynolds believes that users ought start flexing their muscles and begin to collaborate internationally on issues like application portability profiles, and user driven demands for new services and technology. These developments would need to be managed by the supply side of the industry, hopefully encouraging vendors to regain the initiative. Indeed some large US users are forming groups with this express intention, and in New Hampshire and Massachusetts, academic users and procurement bodies meet once a year to thrash out a list of requirements for what they want achieved over the year, which is then presented to industry for fulfillment like a shopping list. Reynolds calls for a new independent internationally composed body to oversee the industry - like those that exist in many others - to address user needs, standards, technology convergence in areas like the integration of high definition television and workstations, communications and portability, as well the issue of intellectual property rights, which conventional legislative bodies have been woefully incapable of defining.

The Present

Looking at the present climate, the battleground of Open Systems has given rise to bodies from the industry which resemble the Geneva conventions on rules of war. Groups like X/Open are heavily subscribed at present, but in Reynolds' view they may not make much difference in the long run because too much is at stake for member companies, leading to so called 'independent' strategies and products being carved up between members. Witness the skirmishes between Unix International and the Open Software Foundation which are, from the users point of view, "totally irrelevant for open systems - users would rather have one than have the industry in dispute".

The Future

Reynolds' theory is all well and good as a plan of moral and rational behaviour - unfortunately the industry is better characterised by Rousseau's concept of man in his natural state - where life is nasty, brutish and short. If the banks and financial institutions scent a profit in the air from the recent poor results of an industry with the shakes, then the dogs will be unleashed and a merger wave will break once more. Whichever way the industry is blown it seems that a storm is brewing, but as Lenin said "you have to crack a few eggs to make an omelette."

INTERNATIONAL NEWS

**YOKOGAWA TO BUILD SUPERTEK
MINI-SUPERS IN JAPAN**

Following its \$13.5m investment in Supertek Computers Inc, Santa Clara, California, for which it inter alia gets 67% of the firm's Japanese subsidiary, (UX No 237), Yokogawa Electric Co is to manufacture the company's minisupercomputers in Japan, starting with the S-2 in September next year, and following up with a forthcoming S-3. Supertek's machines are compatible with Cray Research Inc's X-MP supercomputers. Yokogawa Electric holds the Japanese end of the Yokogawa Hewlett-Packard Co joint venture, and is one of the recently announced new members of the Open Software Foundation.

**NOW WHITNEY FINDS IT CAN'T RAISE
THE CASH TO PAY \$1,065m FOR PRIME**

A chastened J H Whitney Co last week said that while it was extending its \$21.50 cash tender offer for up to 49.5m Prime Computer Inc shares to August 8, it did not think it would be able to secure the financing it needs for the bid at that price. It therefore wants to persuade Prime to recommend a new offer at a lower price. Whitney had all the cash it needed until Prime came out with its mid-term figures, which sent the banks funding the bid into a panic: they said that they would withdraw their support unless Whitney raised additional finance. The setback for Whitney puts MAI Basic Four Inc, which now says it will pay \$525m cash for Prime's minicomputer business alone, in a much stronger position. Even with Whitney bidding \$21.50, MAI argued that if Prime distributed the \$525m to shareholders, its offer would top Whitney.

DATA GENERAL ADDS DASHER MICROS

Data General Corp has added Dasher/386-25, Dasher/386sx and Dasher/286-12c AT-alike personal computers to its line. The new models run the DG/PC-I personal computer integration software and the company's proprietary Comprehensive Electronic Office.

NeXT PICKS PIXAR'S RENDERMAN

NeXT Inc has turned to Steve Jobs' other company, Pixar Inc for photorealistic colour display technology for the planned colour version of the NeXT Computer System. The product is the RenderMan Interface for Three-Dimensional Scene Description, which is also backed by DEC and Sun Microsystems.

**POSIX HAS NEW SUPERCOMPUTING AND
TRANSACTION PROCESSING GROUPS**

The International Standards Organisation has recently recognised a concept called 'International Standardised Profiles,' (ISPs), a method of defining standards suites, which has now been adopted by the IEEE for use in its standards work. The hope is that it will simplify coordination and improve the value of results when applied to POSIX work. When used in OSI communications standards work for example, it enabled the needs of various communications systems and the seven level model to be addressed with a range of alternative specifications at each level. Some have also included options of interest to specific target industries. The IEEE's 1003 POSIX committee has two more additions to its plethora of project groups working on standards profiles for Open Systems architecture, and these will be the first POSIX groups to use ISPs. The 1003.10 sub-committee is to define profiles for general supercomputing standards, as well as focusing its attention on batch processing. The 1003.11 group is to examine standards in transaction processing. In addition Jim Isaak, IEEE 1003 chairman, reports that the 1003.8 group dealing with network services is to be sub-divided into six groups, each of which will focus on a specific networking environment - not necessarily specific to POSIX - such as transfer file architecture, remote procedure calls and X.400. In other IEEE news, a meeting of its X-Windows standards group is to take place in Maryland next week which will try to thrash out a standard to adopt. (UX No 227).

NAS LOOKS FOR UNIX STANDARD

National Advanced Systems, which last week launched its improved implementation of IBM's MVS/Enterprise System Architecture, and an enhanced Multiple Logical Processor Facility on its AS/EX Hitachi IBMulators, may be preparing for a move into Unix. Although NAS cancelled its own Unix project in November 1988 after its sale by National Semiconductor, it is now coming under the influence of its new partner, Open Software Foundation member Hitachi, and says it will adapt to a Unix standard "when one is released". NAS also has plans for gallium arsenide and parallel processing.

**...WHILE AMDAHL UNIX MAINFRAMES
ACCOUNT FOR 15% OF SALES**

Meanwhile, Amdahl Corp was also demonstrating its mainframe support for IBM's new ESA/370 architecture and MVS/ESA operating system on the largest model in its 5890 series of mainframes, the 600E multi-processor. A similar demonstration for the 5990 range is scheduled for October. Following the release of IBM's architectural specifications in mid-June of last year, Enterprise System Architecture is beginning to be viewed by many as the data processing industry standard for the 1990s, Amdahl believes. It says that Enterprise System Architecture will really begin to take off after 1991, once ESA versions of both CICS and DB2 should become available. But another part of Amdahl's future lies with its UTS implementation of Unix for mainframes, which it claims has 40% of all Unix mainframe licences throughout the world, and produced 15% of corporate revenue in 1988, implying a very substantial \$300m business this year. Using its Multiple Domain Facility, Amdahl users can run environments such as UTS, MVS/ESA and VM/XA on the same mainframe (while under IBM's similar PR/SM partitioning system it is recommended that MVS/ESA and VM/XA are not mixed in a production environment). Despite a predicted shakeout in the mainframe market in the near future Amdahl is confident about its position because of its focus on data management. For example, its 6100 storage processor which was launched in June is now shipping in volume and there is a backlog of orders for it. In communications, Amdahl is working towards both SNA compatible products and, outside the IBM arena, it is catering for the X25 protocol. Finally, Amdahl believes that its partnership with Fujitsu will keep it technologically advanced, while its financial stability promises further acquisitions in unspecified sectors.

**RECOGNITION EQUIPMENT
COMPLETES PLEXUS PURCHASE**

Recognition Equipment Inc, Dallas yesterday completed the acquisition of the imaging software assets of bankrupt Plexus Computers Inc, San Jose, for an undisclosed cash sum. The new Recognition subsidiary will operate under the name Plexus Software Inc with its principal office in Santa Clara, California, where it will continue to develop, market and distribute the XDP software package, which includes relational database software, application development tools and an image co-processing board, offering them OEM and via resellers and integrators.

OSF TOPS 150 MEMBERS

As mentioned briefly last week, (UX No 242), the OSF has revealed ten new members which brings its total membership up to 150. In addition to Cambridge's IXI Ltd they are Alliant Computer Systems Co, Littleton, Massachusetts, the Centre Universitaire d'Informatique in Geneva, the Department of Computer and Information Science at the University of Massachusetts, Emulex Corp, Costa Mesa, California, the Fox Chase Centre, Philadelphia, KnowledgeSet Corp, Mountain View, California, Motorola Computer X Inc, Schaumburg, Illinois, and Yokogawa Electric Corp, Tokyo.

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The weekly information newsletter for the UNIX™ community worldwide

The Interface Group, which owns the giant Comdex computer trade show held in Las Vegas each November, has assembled a group of Unix experts in Needham, Massachusetts, whose task is to sound out the possibilities of a new Unix show: meanwhile the organisers of New York's Unix Expo, also held in November, have announced plans for Unix Expo West, to be held in Los Angeles, California between May 7-9 next year.

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Sources close to X/Open say that the next formal alliance X/Open will try for is with the Japan's highly influential Ministry of International Trade and Industry.

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The Hewlett-Packard - Hitachi agreement to jointly develop a new version of HP's Precision Architecture RISC chip-set (UX No 242) will result in a CMOS chip with a performance of 100 MIPS when it emerges in late 1992.

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Most of the major semiconductor manufacturers are backing the creation of US Memories Inc to try and propel the US back into the volume memory chip business using technology supplied by IBM, while the smaller companies such as Cypress Semiconductor, have not been invited to join and are strongly opposed: now Apple, AT&T, Sun Microsystems and Unisys Corp appear to be waiting in the wings as possible investors.

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IBM is pressing Sun Microsystems to settle the RISC patent dispute: it feels the SPARC infringes some of its "fundamental" RISC copyrights.

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Finishing touches to Next Inc's operating system version 1.0 are currently being made ready for release this month - it was originally expected in June: aside from bug fixes, the new version includes new network services and database software, including a beta version of Sybase, a new version of Mathematica from Wolfram Research, faster launching of programs and graphics and a new version of Net Info network management software.

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Sun Microsystems has lost another top executive in the shape of Barry Folsom, who set up the company's East Coast division in Westford, Massachusetts: Folsom was at one time working on the establishment of a Sun spin-off company to be known as Solaris, which like Apple's Claris Corp would have concentrated on application software for the company's hardware - he will now set up a new company, Focus Systems, to work on MS-DOS and Unix document image processing.

Analysts were not at all impressed with DEC's fourth quarter figures and now believe that the year just started will be exceedingly difficult for the company: the consensus for per share earnings in the year to June 1990 had been \$9 even compared with the \$8.45 reported for fiscal 1989 last week, but one analyst trimmed his forecast to \$8.70 and another, even more bearish, cut from \$9 all the way down to \$8.25.

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Reporting that UK turnover for fiscal 1989 did rather better than the worldwide figure of 11%, rising 15% to £850m, DEC UK Ltd also announced a "radical" reorganisation of the UK business, cutting the cake on a geographic regional basis with four new regional directors to sit on the board, with each region managing all services to companies with local headquarters, regardless of where their business activities are located: the four new regions are London, North, Central and South, Ireland joins the UK country group as a fifth region, and the aim is to shorten lines of communication.

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Nixdorf Computer Ltd has introduced its POS 2000 range of retail point of sale terminals which has four models: the 2000/10, available now, uses a Z280 processor, the 2000/20 and the 2000/30 mid-range models use AT bus technology with 80286 and 80386 chips respectively and will be ready to ship by the end of the year, while the top model, the 2000/40 uses an 80386SX chip and will be available in 1990; the 2000/10 is compatible with Nixdorf's 8812 family and enables existing customers to migrate to the 2000/20 MS-DOS single user and 2000/30 Unix multi-user models as well as to the 2000/40 master terminal which supports operating systems such as Flexos and Unix.

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Phoenix Technologies Ltd is the latest victim of one of those nuisance shareholder lawsuits seeking class action status: the suit claims that the firm made materially misleading public disclosures.

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Advanced Micro Devices Inc is to shut most of its US operations for the four days following the Labor Day holiday on September 4 to cut costs and reduce production levels.

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Omri Serlin's Transaction Processing Performance Council has now come out with TPC Benchmark A, and is offering it up for public comment and review: no date has been set for this, but Serlin wants to hear from those interested in checking the thing out, at PO Box 1450, Los Altos, California CA 94023.

Unisys Corp is starting to look at retail channels to increase its sales of Unix-based systems, and has signed Microamerica Inc to a distribution agreement for its U Series multi-user systems and MS-DOS personal computers over the next five years: Microamerica will distribute the machines to its own value-added resellers, and Unisys looks for a big sales boost from the pact.

- 0 -

With both Interactive Systems Corp and the Santa Cruz Operation now taking The Open Software Foundation's Motif as a front-end to Unix, it now looks as if the user interface battle has been convincingly won, at least at the low-end of the market: but Sun Microsystems, which carried out much of the work on the AT&T favoured Open Look interface, is not quite ready to use it yet - Scott McNealy commented that "If Sun were to adopt Motif, God forbid, IBM and DEC would run off and develop something else."

- 0 -

Display terminals and controllers manufacturer Lee Data Corp, Minneapolis is increasing its Unix systems exposure by signing an OEM contract to buy \$7.5m of Aris 800 and System90 Unix multiprocessors from the San Jose company - to pitch at travel, finance and phone firms.

- 0 -

The lap-top Macintosh - dubbed the portapple in some quarters, is expected to make its debut at MacWorld in Boston on September 20 alongside a 25MHz 68030-based Apple IIci with 1-, 2-, 4- or 8-bit video support - presumably ideal for running AUX.

- 0 -

HewlettPackard Ltd's campaign to win the hearts and minds of the financial community with its Unix workstations has borne fruit with an £800,000 contract from Charterhouse Bank for four HP9000 Series 800 Unix RISC machines for the development of an integrated front and back office settlement system: Hewlett beat IBM, DEC, Sun Microsystems and Tandem Computers to the contract, which also has Informix Software Ltd cheering, because it came away with a £150,000 contract for its Informix Turbo relational database, which apparently won out by benchmarking up to 10 times faster than its nearest unnamed rival.

- 0 -

AT&T Computer Systems has chosen Costa Distribution, Mountain View, California to be its networking distributor in the US: Costa has signed a two year deal with AT&T valued at \$10m, buying hardware and networking to sell to its 6,000 resellers, integrators and consultants - the kit will include Starlan, PCs, 3B2s, data communications and Unix software.

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INTEL "TO BOOST i860 FOR MULTI-PROCESSING"

Industry sources are claiming that Intel Corp is not far away from announcing enhancements to its still new i860 processor, revealed for the first time at Uniform in March (UX No 221). Although the i860 is still only sampling in its 33MHz and 40MHz implementations, the new N11 or i870 is widely thought to be waiting in the wings, giving a performance boost "comparable to that from the 386 to the 486" according to one source. The main differences between the N10 and N11 will be more support for multiprocessing, including bus snooping and cache coherency - those companies who have used the i860 as a multi-processor, such as Real World Graphics Ltd (UX No 239) have had to build those features around the chip. The N11 will also be more closely related to the i486, being nearly pin-compatible and able to work in a more closely coupled fashion as a 486 co-processor. Press reports suggest that Compaq Computer Corp is readying a new machine based on the chip running in conjunction with the i486 and using an EISA bus - something could be announced as soon as October, although most sources don't expect to see the chip surface until at least early next year. Others said to be interested include Hewlett-Packard, AST, Zenith, and Pixar Inc. Further rumours concerning a 64-bit version of the i486 could not be substantiated.

HEWLETT SIGNS SAMSUNG FOR \$5,000 SPECTRUMTOSHES...

Having belatedly decided to enter the RISC wars with its Spectrum Precision Architecture, Hewlett-Packard Co is making up for lost time by following up its agreement for high-end RISCs with Hitachi Ltd with another for mass market with Samsung Electronics Co Ltd, Seoul, South Korea. Under the agreement, Samsung will develop, manufacture and resell chip sets, workstations and other computers using the Spectrum RISC-based. This time, Hewlett is licensing both the design and its sub-micron CMOS process technology to Samsung, and the two will co-develop and Samsung will manufacture RISC chip sets that use fewer parts than current sets. Samsung will also be licensed to sell the sets to both Hewlett and third-party manufacturers and will incorporate them into future computers of its own. Hewlett says it will buy finished low-end workstations OEM from Samsung, each company marketing the machines under its own name. Samsung may also develop other RISC-based workstations complementary to the Hewlett line, and Samsung also gets remarketing rights to Hewlett's HP-UX Unix before both move on to the forthcoming OSF/1 version of Unix. Hewlett chose Samsung Electronics, the \$4,500m subsidiary of the \$30,000m-a-year Samsung Group for its low-cost systems and semiconductor manufacturing capabilities, and its presence in key world markets. The new \$5,000 workstations will challenge the Sun Microsystems Sparcstations, low-end Sparc-based machines to be made by Toshiba Corp and Taiwanese companies Samsung Co and Datatech Inc, and DEC's MIPStations, bringing Unix right down into Microsoft OS/2 territory.

...AND PHILIPS WILL MAKE SUN SPARCS FOR EMBEDDED CONTROL

Philips NV has become the first European company to fabricate versions of Sun Microsystems Inc's Sparc RISC microprocessor, the twist being that it plans to major on embedded control applications in data processing, consumer electronics, military and industrial applications. Philips also says that the Sparc will be its only microprocessor design for the 32-bit generation and that it has no plans to take a licence for a complex instruction set architecture or for another RISC. Philips will fabricate Sparcs in its CMOS and BiCMOS processes both in Europe and at its Signetics unit in the US, giving Sun a source within the European Community. With Siemens AG gearing to make the MIPS Computer Systems R-series in Europe and Motorola able to make the 88000 in Scotland, Hewlett-Packard will need a European source for its Precision Architecture RISC.

...AS INTERGRAPH WAITS

TO ANNOUNCE SECOND SOURCE
Following the current fashion for licensing out microprocessor technology, Intergraph Corp, Huntsville, Alabama, is set to announce alternative sources for its RISC architecture in September. One or more companies have been lined up to fabricate the Clipper C300 chip, which until now has been available solely from Intergraph itself. Meanwhile the promised emitter coupled logic - ECL - version of the C300, codenamed the E100, is due for release sometime during the first quarter of next year. Even further ahead the CMOS C400 processor, which will follow the E100, is said to have a entirely different chip arrangement, though all members of the Clipper family will be binary compatible with each other. Following the announcement that it is working on a high performance multiprocessor for transaction processing with Electronic Data Systems, (UX No 242), Intergraph says plans are also afoot for another processor, to come in above this 256 processor, 112 MIPS chip set it - plans are also to be revealed next month.

IMPRIMIS LANDS \$100m SUN PACT
Minneapolis, Minnesota-based Control Data Corp's Imprimis Technology Inc - which will shortly to be sold to Seagate Technology Inc if all goes well - has an order for more than \$100m of high-performance disk drives to Sun Microsystems Inc for use in its new Sparc and Sun-3 desktop and server products. The drives are to come primarily from the Sabre family of 8" Winchesters.

IBM RTs READY EARLY OCTOBER

UK sources this week confirmed the word from the US that IBMs launch of a new range of systems to replace the RT, or 6150 AIX range would be launched in early October - but availability is unlikely to be until mid 1990. The Project RIOS machines will use a Micro Channel Architecture bus and will be able to use PS/2 cards and adaptors (although PS/2s will apparently not take RIOS adaptors). It will run AIX 3, which will not have IBM's Virtual Resource Manager, and will be closer to the functionality and modularity of AIX for the PS/2, but with added features, said the source. There is likely to be a rack mounted model at the top-end, upright systems for the mid range and desktop versions, including a diskless, under \$10,000 model likely to find favour as a development system for use with AIX/370 systems. Memory options should be dramatically increased but there was no word on performance put as high as the previous generation. Introduction is likely to be gradual with mid-range systems first, and a buy-back scheme for existing RTs bought after the launch.

NCR RESTRUCTURES INTO DIRECT, INDIRECT DIVISIONS

NCR Corp is restructuring following a dull first half performance which saw net profits down over 8% at \$171.5m on turnover flat at \$2,780m. In effect this performance is more likely to be a reflection of the state of the market than any inherent weakness within the company, but the executive officers have clearly taken it all to heart and have announced the reorganisation of the company into two new groups. The move is said to reflect the company's marketing strategy, with an Integrated Systems Group to provide integrated systems solutions for end users, and a General Purpose Products Group to offer general purpose computer products for NCR and third party integrators. The Integrated Systems Group will sell total systems solutions through the NCR direct sales force and will consist of five divisions: a new Self-Service Systems Division, based in Dundee, which will include the Dundee and Dunfermline engineering and manufacturing facilities in Scotland; a new Financial Systems Division to include the Dayton and Waterloo, Ontario, engineering and manufacturing facilities and the Utrecht, Netherlands, systems engineering facility; a new Office Information Systems Division which rises from the ashes of OIS-Columbia; and two existing divisions - Retail and Applied Digital Data Systems (ADDS) - will remain as they are.

Multi-user division

The General Purpose Products Group has been set up to focus on the development of general purpose processors and systems that will be used by major accounts and adopted by units within the Integrated Systems Group, as well as by other OEM customers, resellers, distributors and independent software vendors. This Group will incorporate a new Multi-User Products Division encompassing the Columbia, San Diego and Orlando engineering and manufacturing facilities along with the San Diego systems engineering facility; a new Network Products Division comprised of the former NCR Comten organisation, based in St Paul, Minnesota, and the Columbia, South Carolina systems engineering facility; a new Workstation Products Division to include NCR's former Personal Computer Division facilities in Dayton, Clemson, South Carolina and Augsburg, West Germany; a Peripherals Products Division formerly the Engineering & Manufacturing-Wichita organisation which will remain in Wichita; the Microelectronics Products Division, previously known as the Microelectronics Division; and the Copenhagen, Denmark, systems engineering facility which will remain unchanged. NCR has also created an Executive Committee to review its organisational strategic long range plans and general corporate projects.

DATA GENERAL INTEGRATES NEW DASHERS INTO PRODUCT LINE

The new Dasher personal computers introduced by Data General Corp last week (UX No 243) are accompanied a new release of the MS-DOS ICobol interactive Cobol which now features complete program and file compatibility with ICobol applications running under Data General's AOS/VS and DG/RDOS operating systems. The company also announced Revision 2.0.1 of the 386ix operating system from Interactive Systems Corp, which adds support for the TCP/IP communications protocol so that 80386-based Dashers running the Unix implementation can communicate with Data General's MV/ minicomputer family and its new 88000-based AViiON RISC-based systems. Other features of 386/ix 2.0.1 include Xenix compatibility, improved performance and enhancements for international use. As to the new machines, the Dasher/286-12c comes in a compact 12" by 15.5" by 3.75" high chassis, and the base system includes a 3.5" 1.44Mb floppy drive, two serial ports and one parallel port, built-in VGA video support, AT-interface disk adaptors, single floppy controller; and two 16-bit slots. An internal 3.5" 40Mb disk drive is also available. The mid-range 80386SX-based Dasher/386sx has 40Mb internal disk drive, 2Mb memory expandable to 8Mb, VGA controller, 1.44Mb floppy and keyboard. One or two 40Mb or 100Mb disks can be installed for a maximum of 200Mb internally. The Dasher/386-25 can be single or multi-user and the base system includes a 156Mb ESDI disk drive, 2Mb memory expandable to 8Mb on the system board and up to 16Mb with a 32-bit memory board, 5.25" floppy, VGA controller, keyboard and MS-DOS 3.3. A total of five half-height, 5.25" storage bays and eight slots are in each system, and a 150Mb cartridge tape drive is also available for back-up. The Dasher/286-12c with the 40Mb disk is \$3,000, the Dasher/386sx is from \$3,800 and the Dasher/386-25 costs \$8,500. All three are on 30 days' delivery in the US.

IBM OFFERS 15% OFF HIGH-END AS/400s REPLACING NON-IBM KIT

Indicating that the company has run out of System/38 users to upgrade, IBM yesterday announced a US special offer trade-in deal that gives about 15% off the price of a high-end AS/400 - \$35,000 off a B50, \$60,000 off a B60, \$70,000 off a B70 - where it replaces a non-IBM multi-user system - that can't be a multi-user personal computer, and at least 50% of the workload must be put onto the AS/400. The AS/400 must be ordered by December 15 installed by 29. The offer also includes free use of the AS/400 Conversion Workbench for Cobol.

WYSE TO BE SOLD TO TAIWANESE FIRM?

Wyse Technology Inc put on \$1.25 to \$6.625 on gossip that the company will either put itself up for sale or that the management will stage a leveraged buyout of the business. If the company is to be sold, the favoured candidate is Acer Corp or another Taiwanese computer company. Wyse recently cut the prices of its personal computer range.

STRATUS EXTENDS WORKSTATION ARCHITECTURE INTERFACES

Stratus Computer Inc, which previously announced a development programme to fill out its Workstation Architecture, consisting of interfaces to networks, protocols, and software applications, now has interfaces to IBM's Token Ring Network, and Sun Microsystems' Network File System. It has increased its support for Transmission Control Protocol/Internet Protocol TCP/IP networks, and has enhanced its Ethernet connectivity. Support for IBM's Advanced Program-to-Program Communications, APPC, over Token Ring networks means that XA2000 systems may now participate in Token Ring-based local area networks. Applications that use APPC facilities can communicate on a program-to-program basis, and XA2000 applications that use APPC and the Data Link Protocol will be able to communicate on Token Ring-based systems without reprogramming. The new interface comprises a Link Manager and Adaptor. The Manager costs between £664 and £1,448, the Adaptor is £3,879 with a £43 cable. Both are available in the fourth quarter. Stratus' new Network File System software has a Remote Procedure Call user interface which will facilitate transparent distributed applications across XA2000s and systems supported by Sun's Network File System, and the software will also support standard Network File System access. The software will be available in the third quarter and starts at £2,931, going up to £6,379.

AGE HAS X FOR TEXAS GRAPHICS CHIP - ANTICIPATES X11 RELEASE 4

Advanced Graphics Engineering, or AGE, as it prefers, has implemented the server side of the X Windows system on Texas Instrument's TI 34010 graphics chip. It means that using the San Diego, California based company's XoftWare, a manufacturer can implement X Windows on any computer system, controller or peripheral using the popular chip, without the associated development costs. The XoftWare T10 package is an implementation of the MIT X Window System Version 11 Release 3 Server, and requires only 512Kb of memory to do the job. It uses high speed communications routines to make remote calls to other processors which simplifies the operation of input/output functions, mouse and keyboard control, and network interfacing in multi-processor designs. A range of built in interface programs are available for porting to specific system configurations, for example an Ethernet software driver for DOS applications and the standard Berkeley network library for Unix System V. The licence fee for XoftWare ranges from \$30 to \$240 per system. An enhanced version - XoftWare TGA - is compatible with the Texas Instruments Graphics Architecture standard. The software can be used across the entire range of 34010 products and XoftWare costs from \$40 to \$180 per server. AGE says it will track X Windows with new releases of XoftWare for other processors as the system evolves through to X11 Release 4, expected sometime towards the end of the year. This will probably include a prototype implementation of the X Window Manager Control Protocol for the server and xdm, more and better fonts, a Unix System V Streams interface in addition to BSD sockets, xmh improvements, some Colourmap utility routines, extensions to the server and Xlib for arbitrary window shapes, and a ditroff previewer. St.Paul, Minnesota based Control Systems - a PC add-on manufacturer - has signed up for XoftWare in an extension of its line of Artist graphics controllers. It allows Artist boards to operate in both a DOS and Unix environment, so that users don't have to install a new operating system to make the transition to X Windows.

FORTRAN TO C++ WITH COBALT BLUE

Cobalt Blue, San Jose, California has a new dual-translation package to convert Fortran 77 - with Mispac extensions - to either C++ or C. FOR_C++ is available for Sun-3 and Xenix/386 environments, and although Fortran code is not object orientated by FOR_C++, translations use optimum C++ constructs, and resulting C++ code is claimed to be compilable and ready to run. The Sun version costs \$2,250, Xenix/386 is \$1,850, and both include C and C++ source to the run-time library.

US ARMY CHOOSES NEURAL NETWORK CHIP

Hecht-Neilson Neurocomputers' neural network RISC chip, the CMOS based HNC100X has been chosen by the US Army for phase two of its Battlefield Neurocomputer Project. The contract, valued at \$500,000 over the next 18 months, is for development of a new neurocomputer using the HNC100X with a performance of 1GFLOP and 500 million neural network connections per second - nearly two times as fast as the fastest available neurocomputer today according to the San Diego, California based company. The chip is to be implemented using a VME bus, the preliminary design for which took place in phase one of the contract. The neurocomputer will be developed into military and commercial products during phase three. HNC claims to have installed more than 200 neural network hardware systems worldwide to date.

MOTOROLA TARGETS FOR 68040 SHIPS PROVE OVER-OPTIMISTIC

Motorola Inc's panic to pre-announce its new 68040 microprocessor in March so as to up-stage Intel Corp's announcement two weeks later of the 80486 has rather backfired, and the likes of Hewlett-Packard Co and Aris Corp, which wanted to rush out products using the new part are having to hold their fire. Motorola didn't make any firm promises, but suggested that samples would be available this quarter and that products using the 68040 would be out by year-end. Now, reports Computer Systems News, the company says that products using the part will be available for display, but perhaps not ready to be shipped, by the year-end.

PRIME ACCEPTS WHITNEY'S \$20

Prime Computer Inc reluctantly advised shareholders to accept a lowered \$20-a-share offer from J H Whitney & Co for up to 49.5m of its shares after Whitney said it could not get financing for more. It's original bid had been \$21.50 for that number of shares. Whitney will swap \$22m face amount of 15.5% senior subordinated debentures due 2001 for the 13m remaining Prime shares out. Prime said its board was very disappointed at the lower bid, but reckoned it was still the best option; to give holders time to consider it put its annual meeting back again: it's now August 24.

ALPHA MICRO HERALDS INFINITY 4GL - UNIX VERSIONS NEXT YEAR

Alpha Microsystems Ltd of Maidenhead, Berkshire is actively seeking dealers for its new applications software development tool, Infinity. The company was approached by one of its US resellers, Applied Information Retrieval Systems, an eight-man operation based in Waltham, Massachusetts, which developed Infinity under the AMOS operating system in 1982. The new fourth generation language product is menu driven, and database layouts are defined in the data dictionary. It enables several programmers to work simultaneously on the same application, and will run applications while development work is being done. The screen builder function defines layouts, and the report builder customises reports to individual requirements. Release Manager enables the developer to edit applications and then place either the whole application or the changed code in the system. Alpha Microsystems believes that Infinity is the first truly effective fourth generation language product to emerge from its stable. It takes 30 days on average to develop an application, and it doesn't lose the speed that is the claimed key feature of Alpha's AMOS operating system. The company currently has 18 orders from its UK dealer network, and it will be distributing Infinity on the continent via Omegon, its top Dutch dealer. A run-time licence costs between £300 and £1,500, and a development licence is between £2,500 and £6,000. There will be a Unix version from Applied Information Retrieval Systems in the next 12 months, which fits in with Alpha Microsystems' increasing commitment to Unix, seen in its acquisition of Rixon Business Machines, and the current development of a Posix-compliant version of AMOS. Alpha Microsystems has previously expressed its commitment to Open Systems Interconnection, and it expects to unveil systems running both Unix and AMOS within the next 12 months.

ROUNDUP

UK company AI Ltd, based in Watford is going from strength to strength: this week it is opening a US subsidiary in Beaverton, Oregon - home to many parallel processing hardware manufacturers. In addition to Sun and Intel machines, AI's parallel programming language, Strand88, now runs on Sequent Symmetry machines and will shortly be available on transputer plug-in boards running on Atari ATW Transputer Workstations under Helios, 80386 Unix workstations and Sony's NEWS workstation. Other ports are planned to Encore, NCube, Meiko and BBN Butterfly systems. The company has also made a breakthrough in Japan, where the chemical company Asahi has signed up for the language, and a Japanese distributor is soon to be announced.

Paris based artificial intelligence systems house Cognitech, recently acquired by Framantec SA, a subsidiary of Framatome, and in the same line of business, (UX No 229), has launched an X-Windows based interface development environment called Onyx. The object orientated system is written in C and has a library of 300 primitives. Supporting graphic design, interactive development and automatic generation of C code, it is said to run on all Unix workstations. According to Machine Intelligence News Cognitech and Framantec are thought to have around 10% of the French artificial intelligence market each.

A software porting centre has been set up by Dataflex Services Ltd, London, for software developers wanting to move their PC applications to the range of Unix environments: the company claims that on average a complete 'ready-to-run' port can be done in four hours and 17 different Unix implementations are supported.

Bothell, Washington based Emerald Technology's Unix to Unix automatic file transfer program - Blazer - is now available in an updated version on the IBM 6150, the NCR Tower 32 and Interactive's 386/IX operating system, along with AT&T's 3B1, 3B2 and 6386, SCO Xenix, Unisys 5000 and Plexus systems: marketed in the US by Emerald's Seattle based SST Data division, in Europe it is available from Real Time Computer Services, Channel Islands, UK; Delta Infomatica SCRL, Trento, Italy; Quatemaire Informatique, Boulogne, France; and MBS GmbH, Dusseldorf, West Germany - in its new guise Blazer is claimed to be twice as fast as its predecessor.

Santa Clara, California based Integrated Device Technology Inc's RISC CPU module is now available in the UK from Microlog Ltd, Woking, Surrey: the IDT7RS101 card uses an R3000 chip set from MIPS Computer Systems - available with or without the R3010 floating point accelerator - running at 12MHz, 16MHz, 20MHz or 25MHz, and providing 9, 12, 16 and 20 MIPS of performance respectively - prices start at \$2,895, rising to \$3,640.

Mission Electronic's UK division, based in Huntingdon, Cambridgeshire, has developed a low cost method for linking small Unix and Xenix systems into standard Novell networks supporting non-Unix systems as well any other TCP/IP based network. Using a 25MHz, 386 based Mission workstation with the Unix file system mounted, NFS and dedicated cards, the link up costs around £340 per workstation, compared to the £5,000 or so that is otherwise required for such connectivity with other products. The method was developed in conjunction with Hardwick, Cambridgeshire based TCP/IP specialists Unipalm, and the job is reported to take just ten minutes to complete.

UK company, Technology Concepts, Cwmbran, Gwent, is moving into the Unix market, announcing support for Xenix right across its range of serial input/output products. In addition, the firm has a new multi-port card supporting eight asynchronous channels on both the PC/AT and PS/2 formats, providing an option to buffer up to 16 characters in and out per channel - also Xenix compatible. Prices start at £525.

Microsoft Corp has announced a new release, 1.2, of its own version of the OS/2 operating system. MS OS/2 includes a new high-performance file system to improve response and the overall system performance, and it will be the basis for future file system features. Version 1.2 also includes enhancements to the Presentation Manager shell with additional icons and more direct mouse manipulation facilities. There is also a PostScript device driver. It ships to developers next month. Meanwhile, a project at Microsoft is said to be under way to develop a fully portable version of the OS/2 operating system that will run on hardware platforms other than Intel. Reports say that although portable OS/2 is a long term goal, David Cutler, one of the principal architects of DEC's VMS operating system, is heading up the project.

Cubix Corp, headquartered in Carson City, Nevada has a 2410 intelligent front-end Ethernet controller for use with the latest implementations of the Open Systems Interconnection and TCP/IP networking protocol stacks: built around a 1Mb 80186, the 2410 is designed specifically for multitasking network environments, providing a method for connecting and running concurrent sessions on MS-DOS micros and any other Ethernet-connected resource; no prices were given for the 2410.

UCL Group Plc's Universal Computers is exclusively distributing the new 68X Series 030 computer from Altos Computer Systems in the UK: based on the 25MHz Motorola 68030 processor, it is available with 4Mb, 8Mb, or 16Mb of Error Correction Code RAM, up to three 380Mb hard disks, and an internal 1.6Mb floppy drive; the machine is being targeted at corporate Pick users, and a 64 user system costs around around £70,000.

The Secure Information Systems Ltd joint venture between British Telecommunications Plc and SD-Scicon Plc, has opened its computer security evaluation unit, called CLEF: licensed by the UK government's Communications and Electronics Security Group, it aims to ensure that computer and communication products used in the government sector meet a specified standard: where products are almost compliant, it will identify standards for evaluation purposes, and non-compliant products and services will also be identified and eliminated before suppliers invest money in a CLEF evaluation; Secure Information Systems has previously evaluated embedded real-time and fault tolerant systems, secure workstations, access control, communication and authentication systems.

Fred Wang, son of founder and chief executive Dr An Wang this week resigned with immediate effect as president and chief operating officer of Wang Laboratories Inc. Dr Wang returned to work on a part-time basis on Monday following his cancer operation, and the board has appointed appointed Harry Chou to take over Fred's posts on an acting basis. It also appointed a committee of three directors under Chou to look for a new president. Fred Wang, who was always much more of an engineer than a manager, has agreed to remain on the board and is expected to undertake special projects for the company.

SCIENTIFIC ATLANTA MARKETS CRANFIELD SYSTEM ON CONCURRENT KIT

Cranfield Institute of Technology's Cranfield Data Systems - Cranfield, Bedfordshire, has developed a signal processing and data acquisition system around Concurrent Computer Corp's Model 5550 real-time Unix machines, and has signed the Scientific-Atlanta Spectral Dynamics Division to distribute the system worldwide on an exclusive basis except here in the UK, where the system will also be marketed by Cranfield. The Model 5550s, from the Masscomp side of the Tinton Falls, New Jersey house, will be used as the basis for turnkey engineering test and analysis workstations that will run the Cranfield software. The systems will be pitched at engineering test and spectrum analysis applications in aerospace, automotive, industrial machinery and defence markets where they will be used to study the structural characteristics and physical properties of engines, industrial machinery, completed assemblies or other types of equipment that may be subject to either mechanical or acoustic vibration. Concurrent Computer also has several orders in the UK, including a £150,000 order from International City Holdings, taking its real time Unix FinServer, which incorporates VMEbus, and Multibus. It runs on the 6000 family and operates over a range of networks. Bloomberg LP London, a securities broker, has also placed a £750,000 order for a ticker plant operation which will run on two 3280s, and Telerate is adding to its range of 3230 and 3210 computers in a multi-million pound deal. And Dublin, Ireland-based Lifetime Assurance had ordered a £675,000 3280 MPS system to handle 2,000 policies per month.

NEW UK UNIX COMPANY STARTED BY EX UCL MANAGER

Ex UCL Managing Director Chris Creighton Thomas is the founder of a new company, Computer Profiles Group, that was launched last week to address the Unix, AIX and networking markets in the UK. Computer Profiles, which has its headquarters in Coventry, is the result of a management buy-out from UCL of the PC and Unix division of Computer Factors, a Unix and Pick company founded by Creighton Thomas and bought by UCL for £2m back in October 1987 (UX No 150). According to Creighton Thomas, UCL "was not prepared to invest in the division", which sells mostly IBM 6150s and PS/2s, as well as Bull XPS and Toshiba laptop systems. Creighton Thomas and former UCL general manager Steve Hardman paid £325,000 for the assets and stock of the business, which retains its staff, contracts and dealerships. Current turnover is £2.5m - which Creighton Thomas anticipates will double over the next two years - particularly given the expected boost to the 6150 range expected from IBM this October. And while majoring on Unix is now regarded as a safe bet, Pick is looking much less attractive, "particularly since Pick Systems Inc set up in open competition with its licencees" he said, referring to the acquisition of PC Pick specialists Seattle OS (UX No 217). The holding company includes two divisions: Computer Profiles Ltd, which will carry on the VAR business, addressing market areas such as distribution and public authorities; and a new bespoke software division called Software Profiles Ltd, based in Warwick.

TRI-DATA USES NON-UNIX SPARC FOR NETWAY ROUTERSCE

Software Inc of Des Moines, Iowa has gone to Tri Data Systems Inc over in Sunnyvale, California for its Netway 3270 SNA local area network gateways to create a QM-Professional gateway for its QuickMail Apple Macintosh electronic mail system. QM-Professional, to be available in the fourth quarter, is designed to provide a transparent, two-way mail exchange between QuickMail and IBM Profs via the Netway SNA gateways. Users will simply send mail to a designated user or group of users, with QuickMail automatically distributing the mail to local network users or Profs recipients, and no special procedures will be required to send Profs notes and documents. A single QM-Professional Gateway will support up to 100 users per Mail-Center and up to 32 MailCenters per Mail Server machine. Netway 1000 and Netway 2000 provide Macintosh and MS-DOS users with shared access to 3270 sessions on IBM hosts. Netway 1000 supports up to 16 simultaneous user sessions.

Intelligent router

Netway 2000, described as the industry's first combined gateway and intelligent bridge-router, supports 64 SNA 370 sessions, two LocalTalk Apple local networks, two VMEbus double expansion slots and two RS-232 interfaces for host access. Tri Data claims that use of the 10 MIPS Sun Microsystems Sparc processor and VMEbus running under the company's proprietary Spartos Sparc Real-Time Operating System can bring the cost of SNA 3270 sessions to well below \$160 per workstation if fully used - in what must be one of the very few applications of the Sparc RISC so far that moves beyond its core role as a central processor for Unix systems. The simple Netway 1000 gateway costs \$4,000 for 16 concurrent 3270 sessions, the Netway 2000 with 64 simultaneous sessions and support for multiple hosts, is \$10,000. Pricing for the QM- Professional Gateway will be set later, but QuickMail costs \$400 for 10 users, \$270 for five users, and \$70 for a single user add-on. QuickMail PC sells for \$200 for every five users. Tri-Data Systems has also announced that support for Apple Computer Inc's more fully-functioned AppleTalk Phase 2 local area network would be added to the Netway 2000 gateway during the fourth quarter of this year, at no charge to existing users. Ethernet and Token Ring adaptors for the Netway 2000 will also be available in the fourth quarter, and will sell for \$2,800 and \$3,700 respectively.

...AS SUN'S TOPS DIVISION ADDS GATEWAYS TO PROFS, UNIX MAIL

Sun Microsystems' Tops networking division has added gateways to IBM's Profs mainframe office automation system from its InBox electronic mail product, and TOPS also promises gateways to the Unix Mail electronic messaging system. The new gateways are promised for the fourth quarter of this year. TOPS has gone to StarNine Technologies in Berkeley, California for its implementation of the Simple Mail Transfer Protocol, and the gateway to SMTP will direct messages between InBox and Unix mail systems so that Macintosh and MS-DOS users with InBox on AppleTalk or Ethernet networks will be able to send and receive electronic mail with users of Unix systems. TOPS says it decided on StarNine because of its experience in developing and marketing Macintosh-to-Unix communications products. The link to IBM's Profs will be made via a gateway under development with Soft-Switch Inc. The gateway will enable InBox users to exchange notes, documents and binary files transparently with Profs users. The Soft-Switch gateway will also provide links to other mail and proprietary office automation systems, but says that it decided to implement the ones named first because research with customers indicates that SMTP and Profs were high on most of their proprietary lists.

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UNIX INTERNATIONAL TARGETS CHINA, PREPARES FOR V.4 LAUNCH

Desperate to conserve foreign exchange, China has banned imports of computer hardware and a variety of other consumer and professional electronic products "to protect its domestic industry", according to the official China Daily. But apparently undeterred, Unix International has set its sights on China, determined, in the words of Unix International president Peter Cunningham "to consolidate opinions and explain that System V is a system for the masses". Cunningham is currently visiting Beijing to meet with China's Ministry of Information Technology, apparently interested in establishing Unix System V.3 (and beyond, says Cunningham) as a standard for government procurements. Government-backed research institutions in Taiwan and Korea are already members of Unix International, and Korea, currently in the process of major government procurements based around System V, and understandably especially interested in multi-national language support standards. Meanwhile, Cunningham said that the early release program for System V.4 386 has been running for the last few weeks, and around 30 companies now have it. According to Cunningham, the code "has an unusual degree of maturity - it is not a snapshot, but a complete release". He said that "some interesting endorsements from key low-end manufacturers" would be revealed when V.4 is officially released, probably next month. As for future Unix developments, Unix International's "road map" of the direction of future releases up until 1993 has now reached draft format, and should be out around September or October. And in early September, Cunningham said that a programme to involve Universities in Unix development would be revealed: "we'll make them an offer they can't refuse", he said.

SOLD OUT OF SPARCSTATIONS, SUN'S PROBLEMS PERSIST

Sun Microsystems Inc's hopes that its dip into losses for its fiscal fourth quarter would be short-lived are unlikely to be met according to an investigation of the company conducted by the Wall Street Journal. Among the problems now besetting the company, perhaps the most frustrating is that it underestimated demand for the new low-end Sparcstation-1 "by at least a factor of 10": the paper quotes an insider saying that the shortage of colour monitors for the machine is so acute that the company is unable to fill many orders. But the problem is aggravated by the fact that customers switched orders for the 68030-based Sun-3 and the 386i machines for Sparcstations, so that sales of those machines have tailed off as users decide to wait for the new ones. The second major problem is that Sun failed to move quickly enough to impose a hiring freeze in response to the product transition sales slowdown, which was exacerbated by the company's problematic transition to a new management information system. In the past five weeks, Sun has added nearly 1,000 people, bringing the total to about 10,000, which may not sound high for a \$2,000m-a-year business, but Sun has comparatively low marketing costs because it sells mostly through third parties. As a result, the company is seen to have "hired a whole year's worth of people even before the fiscal year began" in July. As a result it is unlikely that Sun will see a profit for its fiscal first quarter - and that may well cause demands for an institutional shareholders for a management shake-up, and near-20% holder AT&T Co is likely to be asked to play a more active management role.

BUT VALID WANTS \$120m OF SUNS

Highlighting the fact that overall demand for Sun products remains as high as ever, comes the news of one of the company's largest OEM deals ever: it has received an order worth \$120m from Valid Logic Systems Inc for delivery between now and November 1990, the order covering the entire Sun range. The stations will be used for internal product development and for sale worldwide.

100 GO AS ENCORE DROPS

GOULD LINES BAR CONCEPT/32

Now that it has looked over exactly what it acquired with the Gould Computer Systems business, Encore Computer Corp, now headquartered in Fort Lauderdale, Florida, has decided that Gould's original 32-bit minicomputer business - the Concept/32s - is the only part of the company really worth persisting with, and the Pownodes, NP-1s and Gould's other departures from the straight and narrow will presumably be phased out. Encore plans to pitch the Concept/32s at the real-time market for flight simulation, range and telemetry and energy distribution systems, while it will concentrate on its own Multimax parallel Unix machines for the business market, concentrating on database applications, the Pick operating system, high performance servers and parallel processing research. New Real-time and Information Systems sales groups have been established for the two lines, both to be headquartered in Fort Lauderdale. The switches will cost 100 jobs, mainly in manufacturing, and the Puerto Rico board plant will close in October, the work moving to Melbourne, Florida. Encore is working on a top of the range multiprocessor based on the Motorola 88000.

E-SYSTEMS TO DO

GALLIUM ARSENIDE DAP

Active Memory Technology Ltd, the Reading, Berkshire company spun out from ICL to exploit the DAP Distributed Array Processor (UX No 196), is to see the thing implemented in Gallium Arsenide technology by electronic defence contractor E-Systems Inc, Dallas, Texas under a project funded by the US Defense Advanced Research Projects Agency for use in aircraft weapons subsystems for the US Air Force Logistics Command. A Tempest radiation-shielded version of the DAP is to be developed by Datasat Inc, Wilton, New Hampshire.

STAR TO ACQUIRE CULLER

Glen Culler's Culler Associates Inc supercomputer company is to be acquired by Star Technologies Inc, the quoted back-end array processor manufacturer based in Sterling, Virginia. When last heard of, Culler Associates had bought the assets, patents and software technology of the defunct Culler Scientific Systems Inc from Saxpy Computer Corp and had a 12-man team working on the development of the Culler 8 Personal SuperComputer, an ECL machine being designed to deliver 300 MFLOPS for about \$300,000 (UX No 182). Sale terms were not disclosed.

CYPRESS, FUJITSU, LSI VIE FOR TOSHIBA SPARC ORDER

Toshiba Corp has three fabricators of Sparc microprocessors on tenterhooks as they wait to learn which way the Japanese company jumps in choosing a chip as the basis of its promised line of low-end Unix workstations. According to Electronic News, Toshiba is weighing up the offerings from LSI Logic Corp, Cypress Semiconductor Inc and Fujitsu Ltd, and has designed prototypes around the offerings of all three. Cypress says it is bidding a modification of its 40MHz Sparc that delivers 29 MIPS against the 25MHz Fujitsu version that does 17 MIPS, while the LSI Logic version matches the Cypress, but Toshiba is making a trade-off between price and performance, and if it decides to go for the lowest price, Fujitsu is likely to get the business. Toshiba is pinning so much of its future on the forthcoming workstations - some of which will fall into the "Sparcintosh" category - that it is likely to want a second source for whichever version it chooses. Cypress is particularly keen to win the beauty contest because the Sparc currently accounts for about \$1m in business a quarter, but a big order from Fujitsu would shoot the firm into the major league.

HUNTER SYSTEMS BRINGS DOS APPLICATIONS TO X WINDOWS

Hunter Systems Inc has integrated its XDOS binary compiler with X-Windows through a recently signed deal with its neighbour, Mountain View, California-based Eakins Associates, which sells on a line of X Window Visual Display terminals from Visual Technology Inc. Using XDOS, which converts DOS applications into a binary format so that they can run as native Unix software, X users will be able to run XDOS converted applications on X display stations alongside Unix programs, allowing cut and paste between text, spreadsheet, database and graphics applications. So far XDOS works with DOS applications such as Lotus 1-2-3, WordPerfect, dBASE III Plus, WordStar Professional and MultiMate Advantage II, and can run on Motorola-based hardware from Sun, Sony, NCR, Unisys, Motorola, Bull and Arix, with support for Apollo, HP and Xenix 386. Eakins will sell the software on its 14" monitor Model 640 XDS and the new X-19 19" monitor.

WANG AGAIN FAILS TO RENEGOTIATE ITS SHORT-TERM BANK DEBT

Despite widespread expectations that negotiations had reached a successful conclusion, Wang Laboratories Inc last week had still not reached agreement with its bank lenders for restructuring of its short term debt. The company has received a further stay of execution from the pressing bankers - who are in too deep to gain anything by forcing the Wang into Chapter 11 bankruptcy - and they agreed to allow the Lowell, Massachusetts office systems manufacturer to suspend payments of principal and interest on its institutional debt. The company is in big difficulties because it made it a practice to finance its business on a day-to-day business on large lines of short-term borrowings that were tied primarily to the company maintaining a minimum net worth. With the enormous write-offs that Wang took with its year-end figures it no longer meets that minimum net worth agreement and is therefore in technical default on the loans, and they will have to be replaced with something that gives the jittery banks more certainty that they will eventually get their money back.

UNISYS FREEZES PAY, HIRING

Unisys Corp has responded to the slowdown in its business highlighted in its second quarter figures by setting a salary freeze with an initial term of the end of the year, and a hiring freeze that has an indefinite term. The news came out via a report in the Washington Post, which the company later confirmed. The company has also scaled back second half budgets for research and development, capital spending, administrative and travel expenses from the levels set at the start of the year. Further plant closures and lay-offs are also under consideration following the lay-off of 2,500 people, 3%, that was announced earlier this year.

VISIX SIGNS INTERGRAPH FOR LOOKING GLASS INTERFACE

Visix Software Inc, developers of the Looking Glass user interface based on X Windows (UX No 215), was set to sign its long-awaited bundling deal with Intergraph Corp as we went to press. The three year deal is valued at \$10m, and Intergraph will be bundling the software in with every system. Visix, of Arlington, Virginia, has been in negotiations with the "big four" workstation companies - Sun, DEC, Hewlett-Packard and IBM - for months now, and appears to have made at least a minor breakthrough as far as DEC is concerned: DEC will be showing Looking Glass on the stand at this week's UniForum in Boston, although there is no indication that they will actually take on the product yet. Meanwhile, having completed deals for Intel-based machines through Interactive Systems Corp and the Mips Risc processor through Pyramid, Visix says it is close to signing up a company using Motorola-based hardware, which may be announced this week.

HELIOS OFFERS MEMORY BOARDS FOR USE WITH SUN-3 BOARD SETS

The Boston-based Helios Systems division of Dynatech Co's Piiceon Inc reckons that the market for Sun Microsystems Inc's Sun-3 workstation board set has reached the point where it justifies the doubtful accolade of a line of plug-compatible memory boards - and that Sun's pricing is sufficiently conservative that it can make money while undercutting Sun's prices. Helios is offering 4Mb, 8Mb and 12Mb memory boards compatible with the Sun-3 Eurocard VME board set, and the MSE boards plug directly into Sun's Eurocard VME system, and operate on the Sun P2 bus. Systems designers can expand the 4Mb Sun Eurocard system in increments of 4Mb, building 8Mb, 12Mb or 16Mb systems using a single add-in Helios MSE board - and the boards are the smaller 6U format against Sun's 9U boards - and Helios suggests that there are also more input-output boards available for the 6U configuration than for 9U. The 4Mb board lists for \$3,000, the 8Mb board, which has no Sun counterpart, is \$5,000 and the 12Mb is \$7,000.

HM OFFERS 80486 MINSTREL WITH 240Mb DISK FOR £8,500

HM Systems Plc, London NW has plunged into the 80486 fray, coming out with an £8,500 version of the Minstrel Workstation using the chip and undercutting both the £9,112 IBM PS/2 Power Platform and the AST Research 486 at £9,500. The price is for a machine with 4Mb 80486 CPU, 1Mb video memory and 240Mb disk - and the box is 40% smaller than the IBM PS/2 Model 70; existing Minstrel Workstation users can upgrade with a processor board swap-out. It will be out as soon as HM Systems gets enough chips from Intel.

HP - APOLLO MERGED SYSTEMS FOR MID NEXT YEAR WITH HP-UX VERSION 8

Plans for closer integration of Hewlett-Packard's HP-UX and Apollo's Domain unixlike operating systems will come to a head with the release of HP-UX version 8.0, scheduled for the middle of next year. As reported, (UX No 237), the two will not be formally merged, rather they will converge around the Open Software Foundation's OSF1 offering and XOpen's portability guide. HP-UX version 7.0, which is available from October on the HP's Series 300 and 800 machines, adheres to XOpen's XPG2 requirement, Posix, and has C2 security clearance. Version 8.0 - to which a free upgrade from previous versions is to be given - will be XPG3 compliant and is expected to receive B1 security branding. In addition, HP says it is currently designing lifecycle development tools for Motorola's 68040 processor - board level upgrades into which have already been promised for its own, and Apollo's 68030 based workstations, (UX No 233). The tools are thought to include a real-time, full speed emulation system, a probe interface to logic analysers, a cross C language system, a C and assembly language debugger, and a software test system. In the UK, HP says it has completed the installation of an HP 9000 Model 825 Precision Architecture RISC system at Wakefield District College valued at £150,000.

...BUT H-P WARNS THAT QUARTER WILL BE BELOW EXPECTATIONS

Hewlett-Packard Co last week joined in the chorus of woe emanating from US computer and microelectronics companies, warning that operating results for the third quarter of its 1989 fiscal year to July 31 last, will be below analysts' forecasts; the full figures will be announced on Thursday, and will reflect consolidation of two months of results from Apollo Computer, acquired by Hewlett in May. Net profits are expected to be in the range of 75 to 80 cents per share, after a reduction of 10 to 15 cents per share for the impact of the Apollo acquisition, compared with 80 cents per share in the third quarter of 1988, where the consensus of analysts had gone for around 90 cents. Hewlett said that while both US and international orders for its products continued to show good year-to-year growth, turnover would fall below expectations because of continuing difficulties in adjusting shipment plans to match the changing mix of its business. The company has instituted a hiring freeze in all areas that add to the company's operating expenses, confining itself to hiring additional direct labour people wherever they are required to meet its production schedules.

IMP HAS 50MHZ 68030 BOARDS

Integrated Micro Products, of Consett, County Durham, which last year took over the Parallel Computer Inc operation from ailing General Automation (UX No 192) is launching what it believes to be the first 68030 board running at 50MHz. With 12 MIPS performance the board is claimed to double the power of the existing 25MHz processor in board applications. The JT68030 VME board is specifically designed for IMP's parallel MJ multiprocessor systems and the chip is mounted with a 32 Kb cache and an optional 40 MHz 68882 floating point co-processor - the cache is controlled by a 68230 parallel interface and timer, allowing the processor to operate at a greater clock frequency than is possible when operating out of RAM. Existing 25MHz IMP 68030 VME boards can be upgraded to the 50MHz version. Release date is scheduled for September, though no price has been fixed yet.

PENTAGON FAILS TO AGREE ON A STANDARD RISC

The US Army may have decided on a neural network chip (UX No 244), but the joint services Common Avionics Processor committee has failed to agree on a single chip for use in next-generation military aircraft, and has decided to settle on two RISC parts, MIPS Computer Systems Inc's R3000 and Intel Corp's 80960. Computers using either chip may therefore be used in the Air Force Advanced Tactical Fighter and the Army LHX helicopter. The 80960 was backed by Lockheed Corp, which is using a Hughes Aircraft signal processor and by Northrop, which has a Unisys computer that uses it as a co-processor, but McDonnell Douglas backed the R3000, used in a Texas Instruments computer for the helicopter. The 80960 to be used is a superset of the original Intel chip developed by the BiiN Inc 50-50 Intel-Siemens AG joint venture firm.

AT&T, HEWLETT, SIEMENS AGREE FIBRE OPTIC STANDARD

AT&T Co and Hewlett-Packard Co have joined Siemens AG to agree electrical, optical and physical plug and dimension specifications for fibre-optic transmitter-receivers for use in Fibre Distributed Data Interface local area networks, meeting the ones being developed by the American National Standards Institution.

RTI WINS RACE FOR 80486 DATABASE PORT

Relational Technology Inc, Alameda, California reckons it has beaten its relational database rivals to an implementation for the Intel Corp 80486 microprocessor, saying that Ingres now runs on the 80486 under Unix. It has also teamed with Corollary Inc to implement Ingres on multiprocessor 80386 and 80486-based Unix supermicros, under a joint marketing and engineering agreement that involves optimising Ingres for Corollary's 386/smp symmetrical multiprocessing Unix, based on Santa Cruz Operation's SCO Xenix System V and SCO Unix System V/386. Early tests on a single-processor 80486 box show Ingres offering three to five times better performance than on 80386s, according to RTI.

DOWTY READY WITH UNIX WORKSTATION, X TERMINAL RANGES

UK graphics specialists Dowty Information Systems, Chippenham, Wiltshire, has decided that it is quite capable of providing a complete graphics computing solution rather than just boards and controllers, and is moving into the Unix workstation market with the launch of its Dowty Workstation. The workstation, which uses a 25MHz version of Motorola's 68030 processor and comes with 4Mb of RAM, will be unveiled at the forthcoming Computer Graphics show in London's Alexandra Palace, which runs from November 7-9. With Unix, Ethernet, NFS and a 91Mb hard drive, prices start at £13,000. Dowty will also be showing off Network Computing Devices' 16" X Window Display Stations which it is to OEM in a deal to be signed with the Mountain View, California based company shortly. The agreement brings Dowty into direct competition with Unix system supplier Logitek, Manchester, which also sells on NCD kit in the UK. Dowty will offer the X Stations at a starting price of £2,200.

PICK - ON THE ROAD TO UNIX

By William Fellows

The Pick operating system, which began life as a data management stores system for a US military project way back in the mid-1960s, has evolved into a commercial multiuser system - for users as opposed to technicians - with an inbuilt relational data base and English like inquiry language at its heart. According to a new report by the International Database Management Association, San Diego, California, Dick Pick's brainchild is now thought to have around two million users worldwide, and over 3000 applications written specifically for it. So Pick has reached maturity, or so it would seem. But the version of Pick which eventually becomes standard is up for grabs, and if its immediate prospects - according to the report - "are somewhat shaky" - then what of its long term future?

Back in July we reported that the long term future of Pick is destined to become inextricably bound to the fortunes of Unix, (UX No 241). At the parental home in Irvine, California, Pick Systems has a pragmatic plan to integrate Pick with the popular flavours of Unix, as well as other operating systems such as OS/2, over the next year or so. The IDMA's industry report on the Pick marketplace essentially confirms the need for these initiatives, predicting that the survival of Pick is linked to its future coexistence with other operating systems. Recent industry trends towards coalescence add further impetus to this direction, with Sanyo, Edgcore, Sequoia, Stratus, the Ultimate Corp, ADDS/NCR and McDonnell Douglas all joining up for the Pick/Unix corps.

Early Days

Early versions of Pick were developed on machines from Microdata - now the basis of McDonnell Douglas Corp's information business - and Intertechnique, now IN2. The first port was to Honeywell's Level 6 minicomputer for the Ultimate Corp, which became the first Pick licensee in 1978. In 1981 the first IBM implementation rolled on to the Series 1, and in the same year Pick and Associates adopted the name by which it is known today - Pick Systems. A couple of years later the PC revolution kicked further life into Pick, it being one of the only software environments capable of running in a business environment on concurrent, multiuser PCs: versions for the XT and AT were released in 1984 and 1985.

Floundering Around

Where Pick really missed the boat was in the the open systems market which sprang into life from the mid-1980s. It should really have spelt open waters for the export of Pick into rich new territory. Ironically a system emulating Pick under Unix was developed first by VMark Software in 1985 known as uniVerse - and although it was written in C and not Pick assembler, this shot across the bows was all too ominous. The long anticipated Open Architecture version of Pick was not unveiled until 1986, and its reception was a disappointment, containing few enhancements over classic Pick. Open Architecture version 2 and Advanced Pick soon followed, which attempted to address the shortcomings, but their arrival only seemed to confuse the marketplace, rather than galvanize it into Pick activity.

Complete Range

Although Pick, with its inbuilt relational database, is ideal for business environments, in the open systems marketplace applications and operating systems stand or fall on their ability to perform a complete range of computing tasks. Here Pick falls down in several crucial areas. Firstly in scientific computing, where it is easily surpassed by Unix, Pick cannot compete because it lacks high floating point performance and mathematical functions. More importantly, communication features essential to the interaction of open and distributed systems networks are lacking, and security is weak. Office Automation applications are also found lacking. Although wordprocessing, spreadsheet and graphics functions do exist, the IDMA's report found users to be less than satisfactory with them.

Despite the practical shortcomings of trying to position Pick in an open systems environment for which it was not really designed, perhaps the real problem is more simple. Nick Drescher, president of UCL Ltd, observed that fundamentally, Pick falls down because it is "not a well-known operating system backed by a large company." IBM operating systems are accepted because it is IBM, and Unix is accepted - with all its variations - because it has AT&T and others behind it.

Market Share

In the stand alone market, compared solely with Unix and PC/MS DOS, Pick has barely a 3% market share - the other two taking 31% and 66% respectively. And even when - according to the report - PC/MS DOS popularity falls to around 50% in 1993, with Unix taking 44%, Pick's share will still only be around 5%. Indeed it is certainly not just the product which has attracted licencees - Dave Jackson, founder of Altos Computer Systems is quoted as saying, "I could be a hypocrite and say that Altos is in the Pick market because the operating environment is technically the best, but the truth is that Pick's distribution channels are equally, if not more important, to that."

Spelt Out

And the Unix message is clearly spelt out - most importantly - by users. In the report, of those respondents who said they were evaluating alternative operating systems, 63% said they were giving Unix serious consideration, 64% said a Pick only system was out of the question, and over half said they would select a Unix/Pick system. Nevertheless Pick is still important to its users - the report claims that nearly 90% reckoned Pick has given their business a competitive edge.

Take A Ride

So how can Pick Systems reconcile these forces and still come out on top? The IDMA predicts that by 1993 86% of all Pick suppliers will offer Pick and Unix concurrently - the figure is around 50% at present - with the present two million users rising to eight million in ten years time. The installed base of Pick systems is projected to grow from 100,000 to 250,000 by 1993. To reach these giddy heights it is clear that Pick needs to hitch a ride on the Unix trail - the report even suggests that integration of the two "will prove a life saver for the Pick operating system." Certainly all this is not lost on Dick Pick and Co down in Irvine, California, which has signalled that its road is to be paved with Unix.

The report, entitled "Industry Impact Study - The PICK Marketplace," is available from IDMA, San Diego, California, priced \$50.

DYNAMIC MODELLING INTERFACE COMES TO EUROPE

Following an agreement with Sherill-Lubinski Corporation back in May, the UK's Tenet Systems Ltd of Horsham, West Sussex, is to distribute the Corte Madera, California-based company's Graphical Modelling System in Europe. GMS allows users to develop graphical user interfaces for the purpose of dynamic modelling, and is aimed at the specialised graphics marketplace, particularly avionics command and control systems in the defence and aerospace sectors, and process control in industry. As well as presenting an object-orientated visual schema, GMS, which is written in C, employs object-orientated techniques in its construction, such as inheritance and hierarchies. A high level mouse driven composer and editor combined with a modelling language interpreter facilitate the creation and control of models and screens. Dynamic extensions to a library of C functions are used to create the bindings between screen icons and the application database variables. Running under Unix or VMS, GMS is not expected to compete with the other interfaces in these environments such as Motif and Open Look. A development licence costs £10,000, run-time is £2,500. In anticipation of a healthy European demand for GMS, Tenet is opening a subsidiary in Paris in October, followed by another in Munich in January of next year.

EDS COMMISSIONS SIX CLIPPER DATABASE SYSTEMS FROM INTERGRAPH

The decision by Electronic Data Systems Corp to build its forthcoming parallel back-end transaction processing and database machine around Intergraph Corp's RISC microprocessor (UX No 242) is a singular coup for the C300 Clipper over its more widely-publicised rivals - one of which was reportedly bested in the decision to go for the Clipper: word is that EDS had been considering the R-series from MIPS Computer Systems Inc, although MIPS denies any knowledge of it and says EDS must have been dealing directly with one of the fabricators of its RISC chip. Intergraph, Huntsville, Alabama initially has a contract to build six of the systems for EDS, in the minimum eight-Clipper configuration, and the future of the project will depend on how these perform, although as the thing has been designed to include up to 256 of the C300 processors, it is likely that EDS will want to try out a bigger machine before deciding finally on the viability of the concept. Intergraph reckons that the eight-Clipper version will deliver 112 MIPS. The machines will run a Unix-derived operating system to support a database developed by the General Motors Corp subsidiary, and the first machines will be used by the technical services group in Electronic Data Systems' own data centres. If the machines prove viable, the next step would likely be to introduce them into General Motors data centres run for the company by its computer services subsidiary, and EDS will then decide whether the machines should be marketed as commercial products. The development is a further blow to IBM, because the machines will be direct competitors for the DB2 relational database running on top-end 370-type mainframes, which already faces keen competition from Teradata Corp's DBC/1012 parallel back-end database machines.

SILICON GRAPHICS UK CATCHES UP WITH US

Silicon Graphic's UK arm, Abingdon, Oxfordshire, is starting to catch up with its US parent's revamp of the Unix based Personal Iris Series last month, (UX No 241), adding the 3D graphics 4D/25 Turbo workstation, and Data Station 4D/25S server to the range. Using a 20MHz version of MIPS Computer Systems R3000 and R3010 RISC chip sets, the 4D/25 - with two 8Mb models - is claimed to offer four times the graphics performance of entry level systems and a 60% increase in CPU performance - 16 MIPS and 1.6 MFLOPS - for a 25% increase in price. With 8 colour planes and a 14" monitor prices start at £22,650. The 4D/25G comes with 24 colour planes, four overlay planes, 24 bit Z buffer, 380Mb disk and a 19" monitor for £36,350. Both feature new Silicon Graphics designed graphics processors which boost the polygon rate fourfold to 20,000, and 3D vector calculations by three times to 200,000. The Data Station 4D/25S, which uses a single 20MHz R3000 chip can be configured with up to 32Mb of memory, 170Mb SCSI disk and an Ethernet Interface with a starting price of £11,450. In addition, Turbo graphics upgrades from the standard Personal Iris workstations to the performance of the 4D/25 are available, at a cost of £4,450 - significantly more than the \$5,000 US users have been asked to pay. Other options include a 14" colour monitor, nine track half-inch back up tape drives and a 5.25" floppy drive for DOS emulation. Silicon Graphics' most powerful system, the 160 MIPS Iris Power 4D/280, as well as the new mid-range 4D/210 also launched last month, will be introduced into the UK according to the company, though no timescale was offered. Around 5,000 Personal Iris systems have been sold in the UK since their introduction last October, (UX No 200), the UK division accounted for 10% of Silicon Graphics \$263.7m revenues in its last financial year to June 30. Meanwhile, in the US, Silicon Graphics has signed a \$1.1m deal with Xyvision, Wakefield, Massachusetts - Xyvision is to bundle Personal Iris workstations with its own proprietary software.

US COMPLAINS AS TRON PROCUREMENTS START

US companies are complaining that Nippon Telegraph and Telephone Corp's specification of the Tron operating system as mandatory for its ISDN and digital switching network suppliers is a trade barrier against US firms hoping to bid for contracts. But NTT officials claimed that Tron was an open system, available for development by foreign as well as Japanese firms. However, the Japanese have now built up a long lead in Tron expertise: in the current joint development effort to build systems for Tron at NTT, Northern Telecom is the only outsider company. The others are Fujitsu, Hitachi, Matsushita, Mitsubishi, NEC, Oki and Toshiba.

STRATUS IMPLEMENTS PICK UNDER PROPRIETARY VOS

The XA2000 family of fault-tolerant continuous processing systems from Stratus Computer Inc can now run Pick-based office automation software. The company has now completed its promised integration of Pick Open Architecture, Version 2.0 with its VOS operating system, and over the next six months it intends to release enhanced versions which will enable users to exchange data and files between Pick and VOS environments. Stratus says that the enhancements will give Pick users communication, networking and software development capabilities previously confined to the VOS system. The company has also released a suite of office automation software packages including JET Software's The Works 2.0, a Pick word-processing package; Via Systems' Compusheet, a Pick spreadsheet; and Accusoft Enterprises' Accuplot II, and Accumath graphics and enhanced math software packages. The software for the Model 70 starts at £21,550 and runs through to £43,000 for the 110 to 160.

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The weekly information newsletter for the UNIX™ community worldwide

Yet more departures from IBM's advanced workstation division, where preparations are being made for an October launch of new RT systems: Clay Cipione, director of AIX systems, has left the Austin, Texas facility after 25 years with IBM for a job as vice president, systems and products at Mead Data in Dayton, Ohio.

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And IBM is set to consolidate the advanced workstation division with the Austin programming centre in a new building to house over 3,000 people, due for completion in 1991.

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IBM also says that AIX/370 and AIX/370 NFS will now be generally available in the first quarter of next year, while support for the current IX/370 Unix implementation will cease by the end of 1990.

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Unisys Corp is reportedly preparing its own answer to IBM's System Applications Architecture, helping to tie together its multiple hardware platforms: the Unisys Solutions Generation Environment, or SGE, is intended to ease software portability, provide a consistent interface, and simplify network administration between Unisys platforms.

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And Unisys is also planning to add Posix compliance to new models in its mainframes: its first appearance will be on A Series and 1100/2200 systems.

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The Object Management Group could soon gain its most important member - AT&T, which controls the licensing of the C++ object oriented language: AT&T is tipped to take up the tenth board seat at the Group, started by the likes of Data General and Hewlett-Packard to promote object oriented programming (UX No 228).

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Prime Computer Inc has launched the 80386-based Sequent Computer Systems multiprocessors it is buying OEM from the Beaverton company as the EXL 1200 line at from \$94,500: a two-CPU EXL 1227 is \$153,000 and the more expandable 1281, \$193,000.

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Lance Hansche has stepped down as president and chief executive of Phoenix Technologies Ltd, and will now serve as executive vice president for the computer and business development groups at the Norwood, Massachusetts company: founder and chairman Neil Colvin is looking for a new chief executive and board member Ted Joseph has been appointed to the post on an interim basis.

Friday September 1 has a ring around it on Apricot Computers Plc's calendar: that's the day when the Birmingham company is due to unveil a new new range of stand-alone personal computers to join its Qi series of networked and file-server machines, and expected are a high-end Qi PC-I with 25MHz 80386 processor, a Qi PC line of PS/2-compatibles using the 16MHz 80386SX chip set; and an AT-bus Xen-S PC386 also using the 80386SX; a £1m press advertising campaign for the new machines is planned for September.

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Advanced Technology Systems Inc of Vienna, Virginia is preparing to launch a product called LCache/386 which is designed to provide 80386-based machines under Unix with a large buffer so that users can pull data off write-once optical disk drives at near magnetic disk speed.

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Pyramid Technology Inc is expected to extend its OEM deal with Mips Computer Systems Inc in the near future, with the addition of a new workstation to its product line.

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Intel Corp, seeing an unexpected slowing in the growth of sales of 80386 chips after they were very strong in the second quarter - the 80386SX is still growing - warns that turnover for the third quarter to September 30 will be "flat or perhaps slightly up" from the second quarter's \$747m but that earnings per share are likely to be flat or slightly down on the 53 cents of the second quarter; start-up costs associated with new products scheduled for delivery in the second half of the year will also reduce margins - new OEM systems built around its own chips start shipping this quarter while the 80486 and 80860 chips are scheduled for delivery in the fourth quarter.

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Beaverton, Oregon-based FPS Computing warns that it will likely report a third quarter loss higher than the \$1.5m reported in the second quarter because of the cost of restructuring, and that turnover would be flat with the second quarter at about \$14.7m: the restructuring will involve "modest" reductions in its administrative and managerial workforce worldwide; it puts the dwindling sales down to a decline in sales of its older products, and says it will concentrate on new products, specifically the Models 500, 300 and 350 Unix boxes.

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The Instruction Set reckons that there is enough demand for AIX skills out there now to warrant three new courses entirely devoted to IBM's Unix pretender - Using AIX, AIX Fundamentals and AIX Systems Administrator are each intended to provide introductory training in AIX.

Lionel Singer Corp Pty Ltd of Sydney is a very popular Australian representative for young American companies because it flatters each of them by setting up a subsidiary bearing their name, so that Pyramid Technology Australia, founded in 1984 is actually wholly-owned by Lionel Singer - he spotted Sun Microsystems in 1984 too, setting up Sun Computers of Australia on Sun's behalf: now Pyramid Technology Corp wants to take its fate Down Under into its own hands, and has reached agreement in principle with Lionel Singer Australia, to assume responsibility for business operations and to acquire some of the assets of Pyramid Technology Australia, which will be organised as a wholly-owned subsidiary of Pyramid Technology Corp; no financial details of the pact were disclosed.

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Dean Microsystems, Pangbourne, Berkshire, has been appointed UK distributor for Parsytec GmbH, Aachen, West Germany's range of transputer based products - starter and development kits start at around £2,500 - Parsytec says it hopes to offer Ethernet connectivity in two months time, followed by TCP/IP at the end of the year.

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As expected, (UX No 242) those Comdex people The Interface Group from Needham, Massachusetts are to run a Unix Show: it will be called Unix Solutions, and will be held at the Anaheim Convention Center between October 3-5 in 1990.

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And another date for the diary is Nina Lytton's Open Systems Initiative Conference, to be held between October 3-5 this year alongside Interop 89 in San Jose, California: speakers will include Geoff Morris (X/Open), David Tory (OSF), Peter Cunningham (Unix International), Larry Dooling (AT&T Software Operation), Dean Morton (Hewlett-Packard), Nicholas Donofrio (IBM) and Gerald Riso (IT Requirements Council): phone Open Systems Advisor in Boston, Massachusetts on 617 742 2442.

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APPLE'S \$175m BREAKTHROUGH INTO MILITARY MARKET WITH AUX

With two major contracts under its belt, Apple Computer Inc has suddenly broken through into the US defence market, and at last won a significant deal for AUX Macs. Yesterday the company announced that Honeywell Federal Systems Inc had ordered personal computers from the Macintosh II family under A/UX Unix in support of the Worldwide Military Command and Control System Information System Workstation Segment in a deal worth up to \$164m over five years. And last week, the company was given an order by Electronic Data Systems Corp for up to 2,500 Mac IIs valued at about \$9.5m, for the National Aeronautics & Space Administration's Johnson Space Center in Houston, Texas. NASA's Macs will replace IBM Displaywriters and MS-DOS boxes from Telex Corp and will link to IBM hosts via 3274s and SNA gateways, and with DEC VAXes over Ethernet. The much bigger WWMCCS contract - say it Wimmix - requires B1 security in A/UX, and calls for from 10,000 to 80,000 Mac IIs under A/UX. The Macs will be used as secure local workstations for joint strategic operations planning and execution at each level of the unified and specified commands of all US military services worldwide. Applications include office automation, information management, engineering support and computation-intensive missions. The systems will also communicate with existing WWMCCS minis and mainframes. The two orders represent a major breakthrough for Apple into the US defence market, making it clear that the government now regards the Macintosh as a viable long-term alternative to MS-DOS machines as workstations.

X/OPEN "TO RESOLVE USER INTERFACE ISSUE NEXT MONTH"

X/Open has scheduled a September meeting to resolve its current quandary over the issue of a standard graphical user interface for the Unix operating system, according to industry sources. X/Open was originally expected to make a decision between AT&T's Open Look or the Open Software Foundation's Motif interface earlier this year, but apparently backed off after pressure from the opposing factions within its ranks. Whilst Open Look is generally regarded as the better solution technically, OSF Motif gained an early lead out in the marketplace and now appears well established. Aside from ducking the issue altogether, or risking offence and choosing one or the other, X/Open must either develop its own interface (very unlikely) or find a way of supporting both contenders and letting the market decide (UX No 239). This now appears to be the most likely course of action, backed up by Unix Software Operation chief Larry Dooling, who told delegates at the UniForum Summer conference in Boston that "as long as 80% of the toolkits between Open Look and OSF Motif were common, then Unix V.4 would support both with no problem". USO has apparently tested the source code of Motif to see if it worked as claimed.

TANDEM, STRATUS PREPARE NEW HIGH-ENDS, UNIX LINES

Tandem Computers Inc and Stratus Computer Inc, the two companies that together dominate the fault-tolerant transaction processing systems market, are each preparing new top-end machines for introduction this autumn as they prepare to hedge their bets with native fault-tolerant Unix offerings. Tandem Computers, Cupertino has a new high-end machine code-named Cyclone to run its Guardian operating system, and according to Electronic News will unveil it in October. Next year, Tandem plans to come out with a parallel family of Unix-based machines built around the R-series RISC microprocessor from MIPS Computer Systems Inc. The first of these is expected to have three processors, and to deliver performance comparable with its low-end NonStops. When the MIPS-based machines arrive, Tandem is likely to drop the standard - non-fault-tolerant - Unix machines it buys OEM from Altos Computer Systems Inc and sells as the LXN. Coming from Marlborough, Massachusetts-based Stratus is a line of 68030-based machines to replace the 68020-based XA2000 line; the 68030 is suddenly interesting now that it is offered in a 50MHz version. For the future, Stratus is working on machines using Intel Corp's new 80860 RISC chip, but before that arrives, either later this year or early next, it will launch a native fault-tolerant Unix for its Motorola machines. It presently offers a USF Unix implementation of Unix that runs under its proprietary VOS, but is expected to drop that when the native Unix - which will be able to run either alone or alongside VOS - arrives.

UNISYS-DEC TO REDUCE WORK FORCES

Unisys Corp is looking to reduce its worldwide workforce by 7% to 8% by the end of next year as part of a restructuring planned to follow a thorough top-to-bottom review of all aspects of the company's operations. Unisys started the year with 93,000 employees, but was already looking to cut this by 3%, which suggests that the company wants to slim by between 9,000 and 10,000 employees over the two-year period. In what sounds like bad news for its smaller OEM Unix systems suppliers, Aris Corp and ICL's Computer Consoles, Unisys also wants to get as much manufacturing as possible in-house. The aim of the reductions is to cut the company's cost base by at least \$400m between now and the end of 1990. US marketing operations will be restructured to eliminate overhead and consolidate various administrative and technical support functions. Total marketing and distribution mechanisms for open systems products will be "sharpened"; and the worldwide manufacturing overhead will be reduced. Unisys also plans to accelerate the use of common parts and processes across product lines and to cut corporate overheads. And in a similar move, DEC has ordered at least nine of its departments to cut their workforces by 25% via attrition or transfer by July 1991, according to an unconfirmed report in last week's Boston Globe. DEC has some 125,800 employees, but only an estimated 30,000 apparently would be affected, which suggests that the Maynard minimaker wants to lose about 7,500 people over the next couple of years.

WANG APPOINTS PRESIDENT

Wang Laboratories Inc has named Richard Miller, most recently head of Thomson Consumer Electronics and before that head of the GE consumer electronics business, to be its new president and chief operating officer, succeeding Fred Wang. Miller said he is "confident" that the financial problems facing Wang will prove "manageable".

UNISYS PLANS POSIX COMPLIANCE FOR OS1100, MCP

Unisys Corp plans to make future releases of its mainframe operating systems Posix-compliant, starting with the 1100-2200 family and the A series, and is promising to give release dates for the Posix implementations in the fourth quarter. Posix compliance is increasingly being demanded by the US Federal Government in major tenders. The move will facilitate Unisys' plan for a Solution Generation Environment answer to IBM's Systems Application Architecture for all its computer families (UX No 245).

LOW-KEY SUMMER UNIFORM PROVIDES INDUSTRY FOCUS

William Fellows reports from Boston, Massachusetts

Considering that there are probably more Unix users in this part of the world than anywhere else, users, and vendors too, were conspicuous by their absence at the UniForum Summer show in Boston last week. With the Massachusetts Institute of Technology and Harvard sprawled along the north bank of the Charles River in Cambridge, and a host of Unix companies beyond, the show on the south bank should really have attracted more visitors. But vendors had an unusually reserved presence, with IBM's stand very modest, whilst AT&T, Santa Cruz Operation and NCR were missing altogether. Despite all this, the show did provide a useful focusing point for the Unix marketplace in general, as it moves relentlessly through cycles of change and re-definition.

Staff changes at Unix International

Unix International took time out to offer a window into its own reorganisation and short term plans. We understand that its spokesman Tom Mace has gone back to his old company Unisys Corp, because he didn't want to move to the East side of the country. In his place, Dave Sandell now becomes vice president of marketing, and industry newboy Layne Weggland comes in as director of business and planning. The organisation's third office (after the US and Japan) is now up and running in Brussels with four employees under Rheiner Holstadt, including Maurice Schwartz from ICL as European marketing manager, and Alberto Satowichi from Olivetti.

Unix V.4 - It looks like November for general release

As far as the operating system is concerned, versions of Unix System V.4 for the 68000, 88000 and Sparc processors will be available from the end of this month to the 34 companies that have been receiving early versions - this is the third and last set of early releases following 3B versions in March and 386 versions in June. This suggests a general release time of November for everyone else. According to both Unix International and AT&T's Unix Software Operation, this gives those 34 companies "a nine month head start in development over the rest of the field". Unix Software Operation chief Larry Dooling, addressing the conference that ran alongside the exhibition, said that X/Open's Prospectus of Market Demand, hammered out with users at a recent meeting in [Montreal, Canada (UX No 237)] will be directly translated into a set of product demands by Unix International, and combined with input from the organisation's own work groups. Dooling said that USO would then be obliged under its contract to "provide them with hows and whens, or a justification of why not".

Donal O'Shea leaves Open Software Foundation

Meanwhile, at the Open Software Foundation, Donal O'Shea has caused a stir by resigning as vice president, operations and communications with the Open Software Foundation - like Tom Mace of Unix International, he and his family did not like the idea of re-locating from the West Coast to Boston. The OSF was reported to be "bowled over" by his decision, and says that for the time being, O'Shea will act as its consultant in California. No replacement has so far been confirmed, although several options are currently being considered. O'Shea joined OSF from a senior position at the Unisoft Group last year. The Open Software Foundation claimed that it had received over 60 responses to its second and third Request for Technology proposals, including 24 for the Architecture Neutral Distribution Format RFT (UX No 228) and 43 letters of intent for the distributed computing RFT (UX No 236 - see story on page three). The fourth request for technology, originally expected to be issued in September, will now be delayed due to the amount of work involved in the current RFTs.

IXI signs Motorola for X.Desktop - new version soon

The continuing struggle to establish a standard graphical user interface for Unix has already moved up from general agreement on a common base of X-Windows towards the higher level scurmishes between AT&T's Open Look and OSF Motif. Now the front line is moving towards a higher level still - that of desktop managers that sit on top of X applications, providing the user with a general iconic interface. At the show, Cambridge, UK-based IXI Ltd signed up another major player for its X.Desktop product - Motorola Inc is to endorse X.Desktop as a standard on its Delta series of systems, sold directly by IXI to customers at a cost of \$495. The promised shrink-wrapped version of X.Desktop will be available in the fourth quarter. IXI's Anil Malhotra added that the new version two of the product will be available soon, with improvements and extensions developed primarily from suggestions by users of version one. Upgrades will be provided for existing users for the cost of a tape.

...as HP rejects both X.Desktop and Looking Glass

Both IXI and rivals Visix Inc with its Looking Glass desktop manager have been sweeping the field for customers in this market, with few other competitors in sight so far. Both Hewlett-Packard and Apollo were said to have evaluated the products, but found X.Desktop too primitive and the more technically sophisticated Looking Glass too commercially problematic. Apollo was close to signing with Visix, and apparently signed a "memo of understanding" to take the product before merging with HP. But now, the combined company has apparently embarked on a project to develop its own desktop manager, which might take up to 30% of the market out of the clutches of the two smaller companies, if and when it comes to market. It is not yet clear whether or not the desktop manager will be an extension of Hewlett's on-going New Wave project.

Expanded Posix standard will prove there is "life beyond Unix", says DEC VP

Don McInnis, vice president of DEC's engineering systems group chose to speak on "life beyond Unix in the open systems environment" at the conference, claiming that "the Unix issue is coming to a close with Posix. We are going to have to expand the work that started with Unix to address a much broader array of standards, and this means extending it to DOS, MacOS, VMS, MVS and others too". The job of providing an open systems environment, said McInnis, "goes beyond the original goal of Unix". Recent announcements from DEC, Hewlett-Packard, and this week Unisys Corp (see separate story) have seen moves by manufacturers to begin adding Posix compatibility to proprietary operating systems. But according to Ken Gorf, European business development manager at Amdahl, such moves will be of little value while they restrict themselves to compliance only with the base level P1003.1 operating system interface standard at system call level: "you are already 95% there if you have an ANSI C compiler", said Gorf.

ARIX COULD HAVE 68040 MACHINES BY JANUARY - BUT SPARC MACHINES AWAIT SUPPORT CHIPS

Motorola Inc is now saying that 50MHz versions of its 68030 processor will become available in January of 1990 (although Integrated Micro Products Ltd already claims to have some, rated at 12 MIPS - UX No 245), with its next generation CISC processor, the 68040, due out in the second quarter of next year. According to Arix Corp, however, early shipments are expected as soon as three weeks time. If it gets the chips, Arix says it could be in a position to offer a 68040 upgrade for System 90 users by January. The new chip is expected to take the performance of the Arix multiprocessor up from the current top of 40 MIPS to 180 MIPS. And Arix is also having second thoughts about the 68030, which it originally declined to take as a CPU because performance gains were minimal. As from December, Arix will replace the older 68020 chips used in the communications processor and disk controller sub-systems of the System 90 with 68030s. Meanwhile, the development of Arix hardware using the Sun Microsystems' Sparc Risc processor is currently on hold. Arix is taking the 33MHz version of the Sparc, which currently doesn't have the necessary caching and memory management unit chip support needed by Arix. That work is currently in progress at the Ross Systems subsidiary of Cypress Semiconductor Inc, headed by ex Motorola chip designer Roger Ross.

UNIX USER GROUP MAY CHANGE FOCUS IN FACE OF SHOW COMPETITION

The entry of Comdex organisers the Interface Group into the Unix exhibition market with October 1990's Unix Solutions show in California (UX No 242, 245) may be too much for the industry to bear, according to Ed Palmer of UniForum, the new name for the Santa Clara, California-based Unix user group previously known as /usr/group. Executive director Ed Palmer appeared doubtful that the industry could support five major Unix shows a year - including two UniForum events sponsored by the group, and now two from rivals Unix Expo - alongside a host of smaller events such as Usenix and next month's influential SCO Forum, organised by the Santa Cruz Operation. Accordingly, hinted Palmer, UniForum is putting more emphasis on its original work defining standards. In fact, the group has gained little credit for its initial standards work, which formed the basis of the ANSI C standard, AT&T's System V Interface Definition and X/Open's Common Application's Environment. Even today, much of Posix and X/Open standards work originates from UniForum initiatives, whilst X/Open itself has been concentrating on gaining support and feedback from large Unix users. Now the group is holding meetings with both Unix International and the Open Software Foundation with regard to a forum for discussion, and wants both organisations to become corporate sponsors for \$2,500 each. The move could put UniForum back into the centre stage of standards definition, a position currently occupied by X/Open. Although the organisation gets most of its revenues through running UniForum - around 25,000 attendees were at the February event in San Francisco - UniForum could carry on without the shows on a smaller budget.

NETWISE RPC A CONTENDER FOR DISTRIBUTED COMPUTING RFT

Netwise Inc of Boulder, Colorado, is one of the first companies to publicly announce its submission to the Open Software Foundation's Distributed Computing request for technology. Supported by users such as Data General, NCR, Novell, Unify and Wang, the company said it would be submitting its RPC remote procedure call product to the OSF's third request for technology. RPC has been sold by Netwise for the past two years, and is claimed to provide advanced remote procedure call technology to over thirty hardware platforms and to popular networks. Novell uses the tool as its standard RPC interface, and Unify Corp is using RPC to implement the client-server and remote database features in its forthcoming release of Accell-SQL for Unify 2000. The tool includes two primary components: an RPC compiler to generate network communications source code that will support distributed processing between all components of a LAN application, independently of hardware and operating system; and a network library for a specific network and operating system environment. Support is available for MS-DOS, OS/2, Unix, Xenix, VS, MPE and VMS, with network libraries for NetWare, LAN Manager, TCP/IP, DECnet, I*, NetIPC and NetBIOS (XNS). According to UK distributors Integralis of Bracknell, the tools can be used by applications developers "who do not have to be skilled in real-time software development".

SUN HAS C++ VERSION 2

Sun Microsystems has introduced its own version of AT&T's C++ object oriented language at the recent International Joint Conference on Artificial Intelligence held at Detroit. Sun C++ is said to be one of the first products to be based on C++ Release 2.0 from AT&T, and includes a set of integrated program development tools. Including the new features of Release 2.0 such as support for multiple inheritance, the Sun version also works with Sun tools such as an enhanced version of dbx and dbxtool window debugger, for source level debugging capabilities, and uses the dynamic linking and shared library features of the Unix-based SunOS operating system, with additional libraries for stream I/O, complex arithmetic and tasking. Sun C++ also supports the Network Software Environment (NSE) configuration management system, and allows object linking to information written in Sun's FORTRAN, Pascal, Modula-2 and C implementations. No prices were given.

HP TAPS COROLLARY TO MAKE VECTRAS 32-USER UNIX BOXES

Hewlett-Packard Co is quickly building up its Vectra MS-DOS personal computer line to provide a low-end for its Motorola 68000 family Unix workstations, and this week announced agreements with The Santa Cruz Operation Inc and Corollary Inc that will enable it to offer complete multi-user systems based on the high-end Vectra models. It has gone to Corollary for its serial input-output subsystem, which supports up to 32 terminals on an 80386-based AT bus machine, while Santa Cruz will supply its SCO Unix System V/386 3.2. Hewlett notes that it has been in the multi-user systems market with its minicomputers for over 20 years and that it plans to apply its expertise with multi-user Vectras.

AMDAHL HOPES TO GROW UTS UNIX TO 30% OF BUSINESS OVER NEXT FIVE YEARS

Close to general availability of its recently released UTS 2.0 version of Unix for its plug compatible mainframe lines, Amdahl Europe was yesterday extolling the virtues of what it called "the only alternative native operating system for IBM and plug compatible mainframe users". Indeed, Amdahl is the leader by a long way as a provider of Unix on systems costing one million dollars up, claiming nearly half the market in 1987 according to IDC - more if non-competitive companies such as Cray and Control Data Corp are taken out of the reckoning. "Amdahl started off as a plug compatible manufacturer, but UTS provides us with a major secondary revenue stream not subject to the whims, vagarisms and market hype of big blue", said Ken Gorf, business development manager with Amdahl Europe. Aside from Amdahl's usual selling points over IBM, such as the multiple domain facility, smaller footprint, and less power consumption, the company's decision to offer UTS as a native operating system from 1986 gives it significance performance advantages over IBM's recently launched, but as yet unavailable VM hosted AIX/370 version. Apart from the two licence fees and management and maintenance of two environments, VM can put an overhead of up to 40% on a hosted Unix implementation. Amdahl's open systems policy includes a full set of Open Systems Interconnection connectivity options, conformance to X/Open and Posix standards, and a commitment to follow Unix International on the path to Unix System V.4. But Amdahl will also continue to add those features crucial to large scale Unix, such as support for sophisticated systems administration, security, tape management, connectivity and multiprocessing support, which have already led to the addition of 1.5 million lines of code to the core half a million lines of the core Unix system. (By comparison, MVS has a reputed 17 million lines of code, meaning that a B1 secure version of the operating system is a practical impossibility). On the terminal connectivity side, for instance, Amdahl currently provides support for front-end processors such as its IBM 3705-compatible 4705, modified to support full duplex ascii operation, or through Ethernet controllers from companies such as Fibronics - but it plans to cut the costs per line with new hardware and software in future releases, taking away the need to remain compatible with 370 front-end processors.

Quality

Network management is another area on which Amdahl is working, through its support of the OSI Network Management Forum. "We need networking facilities of the same quality as that found in proprietary environments, such as DecNET and SNA. Meanwhile, applications availability is mounting, with database products such as BRS Search and Focus now available, and Oracle Version 6 near to being launched; a European deal with Uniplex for office automation software, and the recent addition of Cobol and Ada compilers. New applications are being ported at a rate of two a week, according to Gorf, who estimated that UTS, currently generating up to 15% of Amdahl's overall revenues, would be accounting for up to 30% within five years time. Details of customer sites, however, were not forthcoming other than the well known example of AT&T, which now 50 UTS CPUs spread over three continents. Other UTS users include a European PTT, a European stock exchange, and a major US defense installation including seven Crays, DEC VAXes, and Silicon Graphics Iris workstations. Main growth areas should come from the public sector, government, and recently privatised industries, said Gorf. Limited availability for UTS 2.0, based on Unix System V Release 3.1, began in July, and Gorf said that general availability is expected by October.

EXPERTELLIGENCE CLAIMS PORTABLE OBJECT PROGRAMMING BREAKTHROUGHS

ExperTelligence Inc, Santa Barbara, California is claiming two breakthrough software technologies, which it is calling adaptable portability and smart object programming - at present available only on Texas Instruments Explorer and microExplorer machines and on the Apple Computer Inc Macintosh running in native mode. Adaptable portability enables applications to be moved from one system to another without the need to modify the code or the interface. ExperTelligence claims that with its technology, a scrollbar defined in the X Window Open Look system will have the Open Look "look and feel," but if transferred to the Macintosh, it will look "100% Maclike - without the developer even knowing about the target machine". The smart objects technique is described as an advanced use of object-oriented programming that enables programmers to manipulate objects like scrollers, gauges, sliders and so forth directly, choosing from a menu of objects. By selecting an object and choosing the option "connect to," when the program is run the gauge will move according to the value given by the slider, with no need to add any further code at all. ExperTelligence claims that the interactive system is so easy to use that simple interfaces can be created using complex objects without the developer having any programming knowledge. The menus can be adapted for use by engineers, architects, chemists and other specialists, and the application using the objects can be immediately transferred to any target machine when the objects will be automatically transformed into their target system counterparts. The new technologies are included in ExperAction! for the Explorer and the Mac with Procyon Common Lisp and the Common Lisp Object System, with Unix and IBM PS/2 versions planned.

BOLT, BERANEK CLOSES ITS SCOTTISH PLANT AFTER \$25m LOSS

Hit by a \$22.7m loss for its fourth quarter to June 30, making a \$25.1m deficit for the year, Bolt, Beranek & Newman Inc, Cambridge, Massachusetts is having to perform some drastic surgery, inter alia closing its 20-employee plant in Livingston, Scotland and consolidating certain facilities of BBN Communications Corp. The company attributed the heavy losses to a drop in government sales, continuing difficulties with the contract for Japan Airlines and the costs of introducing the new TC2000 version of the parallel Butterfly computer. The company took an \$11m loss because of cost overruns on the network for Japan Airlines - BBN said wryly that the \$15m contract "was supposed to produce a profit." The company's hopes for returning to profitability now "depend heavily on our ability to increase our network sales at BBN Communications and to market the new TC2000 successfully;" it has invested about \$50m in developing the new machine.

SUN SHOWS \$20M 4TH QUARTER LOSS

As reported in on-line editions of Unigram.x last week, Sun Microsystems has now revealed its expected loss for the fourth quarter and fiscal year ending June 30th, 1989 - rather more than the "slight loss" it originally warned of. The company reported a loss of \$20.3m for the period, compared with a net income of \$25.3m last time, and revenue growth was only 18% for the quarter, taking turnover to \$431.2m compared with \$365m for the same period last year. For the full fiscal year, Sun revenues were up 68% to \$1.765 billion, from \$1.052 billion reported in 1988, and set against the \$2,000m plus that had been expected this time last year. Net income was down 8% to \$60.8 million, or \$0.76 per share, from \$66.4 million or \$0.89 per share last year. President and CEO Scott McNealy cited Sun's major product transition in April, difficulties in component supplies, and difficulties in operating the company's new management information system. And despite reduced hiring and expenses, Sun's statement said that a return to profitability in the current first quarter "could not be assured". On the positive side, McNealy said that the Sparc processor had now become an established microprocessor standard, Sun's installed base of systems had increased by 85%, and that the number of Sparc applications had been increased to around 750. Order backlogs for new products totaled \$362m.

SYMBOLICS HAS IVORY BOARD FOR SUNS

Following the recent move by its Graphics Division to put its Animation and Paint system onto the Apple Computer Inc Macintosh, Symbolics Inc, Burlington, Massachusetts has continued its pursuit of users of widely-installed non-specialised hardware by coming out with a UX400S co-processor board for Sun Microsystems Inc workstations, and versions of its artificial intelligence application development and run-time software for use with it on the Suns. The UX400S Unix co-processor board is very similar to the MacIvory co-processor for the Apple Macintosh: each combines the proprietary Ivory symbolic microprocessor with the necessary interfaces. The board with 10Mb memory and the company's run-time software costs \$13,900 and will be available for VMEbus Sun-3s next month; the workstation needs a hard disk. A version for the high-end Sparcstation is planned.

ORACLE PACT WITH SUN

Oracle Corp, Belmont, California yesterday announced that it had signed a comprehensive joint marketing agreement with Sun Microsystems Inc that will involve co-operative marketing programmes, continuing exchanges of technical personnel, and joint sales activities. The two will also work together on graphical user interface standards, optimisation of databases on RISC architectures, networking standards and other technical issues. Oracle also said Version 6.0 of the Oracle relational database was out now for all Sun's stations and servers.

JAMES McDONALD REVEALS PRIME PLANS

Following completion of the buyout by J H Whitney Co last week, the new chairman and chief executive of Prime Computer Inc is to be IBM alumnus James McDonald, who took on the president's job at Gould Inc, found a can of worms and ended up selling off the company in pieces. McDonald says he plans to reduce research and development expenditure and to break the Natick, Massachusetts minimaker down into much smaller operating units, each of which will be a profit centre. All businesses will be continued, but job losses are certain. The biggest challenge will be to generate a big enough surplus at Prime to meet \$150m in annual interest payments on the burden of debt assumed by the company in the buy-out. McDonald is confident that Prime's maintenance and service operations will generate the necessary cash. Once the buy-out is done, Prime will at least for a time be privately held.

MANAGERS TO BUY OUT TECHNOLOGY FOR BUSINESS

Sunbury-on-Thames, Middlesex-based, Technology for Business Plc, which is a UK distributor of vertical market systems for the legal profession and builds machines under the Rair Ltd name, is to be the subject of a management buyout. It was put up for sale by its holding company CLF Yeoman Plc in May (UX No 229) CLF decided to get rid of Technology after the company made #12m in losses less than a year after being acquired; the buy-out will be cleared in early September when further details will be available.

TAIWAN DEVELOPS MIPS-BASED PARALLEL BOX

After \$4m of investment and two years' work, Taiwan's government-funded Electronics Research & Service Organisation has given birth to a six-processor machine, the MR-10, built around six R2000 RISC processors from MIPS Computer Systems Inc, reports Electronic World News. The parallel processor, which presumably runs Unix, will be demonstrated at the World Computer Congress in San Francisco later this month, where the Electronics Research & Service Organisation will be looking for co-operative deals with US firms to develop a marketable version of the machine over the next year or so.

DEC TO REPLY TO Rdb BUNDLING COMPLAINTS

DEC is promising a response by the end of the month to a demand from Adapso, the Association of Data Processing Service Organisations, that it end its practice of bundling the run-time version of its Rdb relational database with the VMS for the VAX minicomputer family. Adapso and key members led by Software AG and Oracle Corp contend that the practice of bundling Rdb violates anti-trust laws; DEC says it is bundling the run-time database software because so much of its other software depends on it.

EMULEX LAUNCHES UNIX ETHERNET SERVER

Disk subsystem integrator Emulex Corp, Costa Mesa, California has diversified into Unix-based servers for terminals of an Ethernet network with the launch of the Performance 4000-T Terminal Server. Based on the firm's server for DEC local area network users, the product supports the TCP/IP transport protocol and enables up to 32 terminals plus a parallel printer to be connected to an Ethernet network. The throughput rate is claimed to translate to handling 16 lines simultaneously at 38.4Kbps or 32 lines simultaneously at 19.2Kbps. No word on the processor, but the 16-port configuration is \$3,900, a 16-port expansion unit is \$2,185. Ships are planned to begin in September.

QUINTUS HAS MULTIPROCESSING FOR SEQUENT

Quintus Computer Systems Inc, Mountain View, California, and Sequent Computer Systems Inc, Beaverton, Oregon, jointly announced that the Quintus Prolog Multiprocessing Package was available for parallel computers. The knowledge engineering product is designed exclusively for parallel processing systems. The partners reckon that Prolog on Symmetry will benefit a range of knowledge-based applications such as economic modelling, diagnostics, expert systems, configurators, simulation, data manipulation, transaction and numerical processing, computer-aided engineering and computer-aided software engineering. Quintus enlisted the aid of two of Sequent's major university and research customer sites, the Argonne National Laboratory and the University of Edinburgh, Scotland for development and testing of the new knowledge-based system. No price or delivery details of the new package were given.

unigram·x

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IBM used the UniForum in Boston to demonstrate a prototype of Hitachi Ltd is not going to hang around and wait for its engineers to develop the new implementation of Hewlett-Packard Co's Precision Architecture plans to come out with work stations of its own built around the RISC: it will initially buy in the current generation of Hewlett's microprocessors around which to build stations that will run the Open Software Foundation's OSF/1 implementation of Unix, and plans to market the things in the US and Europe as well as in Japan, harnessing the large base of Hewlett-Packard software.

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Rikei Co, specialising in the import and resale of computer hardware, mainly from the US, has signed to bring in Network Computing Devices Inc's NCD 19 X Window System terminal: the 68020-based terminal will be offered for the equivalent of about \$4,300 in Japan.

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Apple Computer is reportedly planning to use the 50MHz 68030 in a forthcoming top-end Macintosh II.

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Data General Corp has licensed Novell Inc's Portable NetWare to run on its Eclipse MV family servers and on the new AViiON Motorola 88000 RISC-based servers and systems, becoming the first company to do an implementation for a RISC. They should be ready by the spring.

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Texas Instruments Inc is plunging into X Window-based development and has signed for Cambridge, Massachusetts-based Saber Software Inc's Saber-C X Window and C-based environment to do new software systems.

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Around half of the 21 executives at Apollo Computer Inc before the merge with Hewlett-Packard have now left the company, reports Electronic News, with further departures ahead: in the UK, the Apollo offices in Milton Keynes are to be closed.

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BOS Software of Saffron Hill in London has an agreement with Sun Microsystems that allows the BOS Global 2000 range of business and office software to run under Unix on the Sun 386i.

What's happened to OS/2? The answer seems to be that it is well on the way to becoming a de facto proprietary IBM operating system directed only at mainframe users who vote the IBM ticket and install PS/2s as super-3720 terminals and use the things for software development - offloading the mainframe.

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Where's the evidence? Computerwoche reports that demand in the US for accountancy packages to run under OS/2 is so low that software developers are ignoring the operating system, preferring instead to concentrate on the established Unix and MS-DOS markets: Open Systems Inc, a software house based in Eden Prairie, Minnesota has ceased to update its accountancy packages for OS/2, California firm Systems Plus Inc has followed suit with its single-user OS/2 system, and Basis Inc in Albuquerque, New Mexico, which has sold only three copies of its BBX Progression 3 OS/2 tools package, now sees its future very much in the Unix world; one OS/2 package, the Platinum program developed by Advanced Business Micro Systems, another California firm has reportedly sold satisfactorily; but even here, 90% of the business with it been for MS-DOS. its PS/2 486 running AIX and OSF Motif, which should be available in December.

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Sphinx founder Pamela Gray, now president of a new Unix company called Marosi Ltd, has retained her seat on the board of UniForum, the US Unix user group, along with Heinz Lycklama from Interactive Systems and Duog Michels from Santa Cruz Operation: other board members are James Bell (Hewlett-Packard), Edward Borkovsky (Unican), Ronal Lachman (Lachman Associates), William O'Shea (AT&T Data Systems), and new faces Bill Keating from Sun Microsystems and John Ozvath from major Unix users McDonald's.

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Open Desktop development kits have been shipped out to around 200 software developers, OEMs and users, some of which have been complaining about the performance of OSF Motif, according to Computer Systems News: SCO said that performance and stability would be improved once the cut-price integrated software package - also including SCO Unix, NFS, TCP/IP, Merge-386 from Locus and Ingres from Relational Technology - comes to market next month.

TIS Ltd, Bourne End, Bucks, has gained another major Unix order in the UK, this time for the first phase of the £8 million Securicor Express Parcels Computer System project known as SPARCS: TIS will supply Securicor with £2.5m worth of Convergent SPC100 and SPC200 hardware, connected to Securicor's ICL Series 39 mainframes via communications technology from Hytech Microsystems of Oxford, and using bar code readers from Eyetech Integrated Systems, Thornaby, Teeside.

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The Kernel Group, Leeds, has set up an Open Systems Distribution division as a service to value-added-resellers and major end users: the division has initially announced a manufacturer agreement with Altos UK, but says that other manufacturer deals are on the way, with up to six signed up by next year.

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And Computer Service Technology, also of Leeds, has also signed up with Altos as a distributor: CST is the result of the recent management buy-outs at Systime, and already has a network of some 40 VARs.

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IPI/Grammtech of San Antonio, Texas, is marketing XDOS software from Hunter Systems on the NCR Tower series, allowing DOS programs to run on the Motorola-68020 and 68030-based Towers as native programs.

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"IBM should worry - everyone in the mid-range had better look out when the company launches its successor to the RT in October" is the message coming out of RT resellers who have had sight of IVM's plans - but if you believe that you'll believe anything: now that IBM has reluctantly accepted that the AS/400 will have to be allowed to play the role marked out for the 9370, it can't afford to allow the RT to look remotely competitive with the AS/400, however much all those RT resellers would like it.

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Correction: the dates on the inside pages of this issue are incorrect - apologies for any confusion caused.

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ARDENT, STELLAR MERGE TO CREATE STARDENT

In what sounds uncomfortably like a marriage made in hell, sibling graphics minisupercomputer makers Ardent Computer Corp, in Sunnyvale, California, and Stellar Computer Inc, from the other side of the country in Newton, Massachusetts, are to merge on a 50-50 basis to form Stardent Inc. Respectively founded by industry luminaries Allen Michels and William Poduska, the two, which launched initial products within a week of each other in March 1988, are together doing about \$25m turnover and have sold a total of 650 machines - 400 for Ardent, 250 for Stellar. The two founders will be co-chairman and joint chief executive, and have not decided which base will become the Stardent headquarters. On technology, it is understood that a merged product line using Ardent's MIPS Computer Systems Inc RISC-based processor and Stellar's graphics will be the medium term aim. Ardent, which raised \$108m in venture capital against \$60m by Stellar, is by far the stronger of the two by virtue of the fact that diversifying Japanese tractor builder Kubota Ltd has been bankrolling it, and manufactures its workstations. Stellar will close its US manufacturing and transfer it to Kubota also. Kubota's 44% of Ardent will fall to 22% of the merged company. The market for super-high performance graphics workstations has not grown at the rate the pair hoped, and neither is profitable. Stellar's venture capital investors are believed to have pushed the company into agreeing to enter the merger. Future plans - page 2.

INTEL VIES WITH SPARC FOR TOP PERFORMANCE AT SUN

Sun Microsystems is still a bit touchy when it comes to talking about plans for a new Intel 80486-based workstation to replace the 386i, but it now looks as though production of what is being called the 486i will go ahead, adhering to the public commitment Sun made at the launch of the chip in April (UX No 226). The project had earlier looked in jeopardy when sources close to Sun revealed that the 486i would put the performance of other Sun systems to shame, provoking more than a little heated debate at the company's Mountain View, California headquarters. Electronic News put figures of 15 MIPS and 19 MIPS respectively on 25MHz and 33MHz versions of the 486i - which would overshadow Sun's flagship Sparc-based products, currently topped by a 16 MIPS Sparcstation server, though 29 MIPS Sparcstations are planned for next year, according to the paper. Andy Nilssen, senior product manager for the 386i at Sun's Boston Development Center, Billerica, Massachusetts, said that prototypes of the 486i are now up and running and looking "pretty good", whilst production capability is in the process of being ramped up in anticipation of volume 80486 availability from Intel. Sun says that version 4.0.2 of SunOS will be available in the first week of September for the workstation, which includes significant performance enhancements for the MS-DOS window application, as well as a new GXI graphics accelerator board. Computer Reseller News estimates that demand for Sparcstations is now outstripping supply by around 30%, translating into a 60 day delay for orders. Nevertheless, Sparcstation sales accounted for 50% of the company's \$326m sales in the fourth quarter ending 30 June. Nilssen said a further 15% was generated by 386i sales.

IBM RT "HELD BACK THREE MONTHS"

Reports coming out of the US indicate that IBM will be three months late in shipping version 3.0 of its Unix pretender AIX, which is to form the basis of the Open Software Foundation's OSF1 operating system - however the OSF seems to have been prepared for Big Blue's customary tardiness and says the delay has already been accounted for in the release schedule for OSF1, which will go ahead as planned before the end of the year. Five models planned - page 3.

PHOENIX "SET TO ABANDON SPARC"

The headlong rush by Sun Microsystems to licence the Sparc processor to all comers looks set to receive its first major setback this month, with the expected announcement that Sparc International member Phoenix Technologies, Norwood, Massachusetts, will discontinue its Sparc development efforts and run down its Unix activities, including the licensing of the SunOS operating system it took on in February. Although no one at Phoenix would officially confirm this, spokesman George Adams said that an announcement would be made within the next few weeks. Alongside Interactive Systems Corp, Phoenix was one of two third party software companies who agreed to become second sources for software development environments for the Sparc chip, such as the SunOS operating system, debuggers, compilers, networking and windowing software. In March Phoenix was claiming that it was working with "at least half a dozen" hardware companies such as Mission Cyrius, providing its Advanced ROM BIOS and software for Sparc/Micro Channel machines (UX No 227), and in July it struck a deal with Texas Instruments to provide "chip and BIOS Sparc kits" for hardware developers (UX No 239). The change in direction comes on the back of poor financial results this year from the ten year old company. One result of the Phoenix move could be to increase the share of the Sparc business for Interactive Systems Corp. A spokesperson for Sparc International confirmed that Phoenix's backward move had been anticipated, but would not comment on any effect it might have on the Sparc movement in general.

HEWLETT ADDS HP-UX 7.0, TWO UNIX RISCS, X400 FOR UNIX

Hewlett-Packard Co has announced its first Precision Architecture RISC-based server, a new low-end HP-UX Unix workstation in the HP9000 800 line, release 7.0 of HP-UX, which includes the Open Software Foundation Motif windowing environment as the user interface, and Hewlett's first electronic mail product for Unix systems. The new release of HP-UX will be available for the 9000 Series 300 and Series 800 by year-end and the company says it has adopted OSF/Motif as the primary user environment for Series 300 workstations, and that it will be the underlying user interface for its future NewWave product under HP-UX, so that MS-DOS and OS/2 users will get the same user interface under Unix. The new OpenMail is based on X400 and is written to X/Open standards. As well as being offered on the 300s and 800s, will be licensed to other systems vendors in the hope of establishing it as an industry standard. A new AdvanceMail III version of its MS-DOS electronic mail program enables users to communicate through DeskManager on the HP3000 minis and through OpenMail on the HP9000s. OpenMail licences are \$3,900 to \$21,500 and it arrives in November; AdvanceMail III follows in December at \$420 per single-user copy. The new HP9000 Model 635SV is the first HP-UX server and sells for \$49,000, and has been priced to beat the DECstation 3100s and the Sparcserver 330 from Sun Microsystems Inc. The new Model 808S is an eight-user, entry-level machine that sells for \$21,950 configured, and both ship sometime in the fourth quarter. There are also AdvanceLinks for MS-Windows and for Macintosh, providing terminal emulation and file transfer to Hewlett's HP3000, HP9000 and HP1000 minicomputers, enabling MS-DOS and Mac users to access electronic-mail services on the HP3000 and HP9000; AdvanceLink for Windows is \$300, for Macintosh it's \$300, \$350 and \$400 for the text, graphics and colour graphics versions, out now.

ARDENT, STELLAR PRODUCT LINES TO MERGE BY 1991

According to Ian Edmonds, vice president of marketing with combined Ardent and Stellar graphics company Stardent (see front page), and previously at the same position with Stellar, said that the new company would maintain two product streams for the next twelve months, but with closer software integration, particularly on the graphics side. Currently, software companies have to maintain two ports for the machines, and software houses such as Swanson Analysis Inc, Houston, Pennsylvania, would like to see a single stream as quickly as possible. A fully integrated product line is unlikely to be ready until 1991, when a new Risc-based machine using the Mips Computer Systems CPU, and compatible with both existing Ardent and Stellar lines will emerge. Job losses and re-structuring requirements have yet to be assessed - but Stellar currently does little of its own manufacturing, with most done by Texas Instruments and others, with Stellar completing only the assembly. Stardent is likely to retain a limited Stellar manufacturing capability in the US, with the rest to be physically shipped over to Kubota in Japan. All existing OEM deals will be kept on, said Edmonds. Ardent has deals with Ohio Imaging Inc, Bedford Heights, Ohio, as well as Kubota, and a deal signed with Unisys Corp just before news of the merger broke. Stellar signed up FPS Computing earlier this year. Ardent is to go ahead with its forthcoming new hardware releases, including low-end "Stiletto" workstations and new minisupercomputers, which will ship before the end of the year.

NOW SHOW COMPANIES BATTLE OVER UNIX

The Interface Group's pitch into the Unix exhibition arena from its strong base of the Comdex trade show with next year's Unix Solutions exhibition and conference, October 3-5 at Anaheim in California, has really set the cat amongst the pigeons. It looks like an attempt to knock off some of the main competitors, of which there are four. In the firing line are the two UniForum shows - the large Spring Unix carnival and the smaller Summer affair - which are both run by the US /usr/group, now known itself as UniForum; and the two Unix Expo events run by National Exposition - the main New York show and the newly established Unix Expo West to be held in Los Angeles California between May 7th and 9th next year. The question is, can the Unix market support all five? Exhibitor costs run into hundreds and thousands of dollars per show, and some at the recent UniForum show in Boston (UX No 246), expressed a feeling that five really is too many. Both UniForum and Unix Expo's organisers view the Interface Group's move with some trepidation, although both are confident that it won't affect their plans. National Exposition Company's show manager Don Berey said that there was really "no need for another show", and that the extra Unix bash would be a "threat". Both UniForum and Unix Expo would seem to be vulnerable in some respect, the not-for-profit UniForum because much of its revenues come directly from the shows, and the loss of one would be a severe body blow. National Exposition's Unix Expo West is also right on the front line, because it is targeted at almost exactly the same exhibitors as Unix Solutions, specifically West Coast, Pacific basin and Asian companies. Although IBM and DEC are already signed up for the Los Angeles show, the Interface Group claims that Unix Solutions is set to attract 10-15,000 visitors, of which 40% will be users. Furthermore, the timings bring next year's Unix Expo New York and Unix Solutions right up against each other, Unix Solutions running from October 3-5 and Unix Expo October 31st to November 2nd 1990.

VISIX LOOKING GLASS TO SHIP NEXT MONTH

With IXI's desktop manager already out in the field, Visix Software Inc's Looking Glass desktop manager has been somewhat left behind - for want of a product, and for want of such things wars have been lost. All this is set to change, however, as Visix says it has now shipped beta versions of Looking Glass which will go out on full release sometime next month. Shrink-wrapped versions for Sun, Hewlett-Packard, IBM and DEC hardware will be available before the end of the year. Looking Glass will be formally introduced to the world at Unix Expo in New York, 1-3 November. Visix is set to announce further licencees for its desktop manager in the first weeks of September, and says that itself and rivals IXI now have around a one and a half year head start on anyone else developing a similar product.

IXI WORKS WITH VISIONWARE ON X SERVER FOR OS/2

Meanwhile IXI Ltd has been called upon by Systime spin-off VisionWare Ltd of Leeds in Yorkshire to help in the development of its X Window System server for OS/2, which will run under Presentation Manager. When released early next year, VisionWare's PS/2 X server should be the first of its kind on the market. The MS-DOS/Unix integration specialist says that its XVision DOS X server running under Microsoft windows and previewed at the European Unix User Show last June (UX No 235) will begin shipping in October.

"DELAYED" RTs WILL COME IN FIVE MODELS

The latest intelligence on IBM's new family of RTs suggests there will be five machines priced from \$10,000 to \$100,000, with performance ranging between 20 MIPS and 50 MIPS - to which a \$5,000 diskless version will be added at a later date. While optimists still expect to see the machines in October, sources close to IBM now put the release at some months away, possibly in the first few weeks of the new year. However, if IBM is serious about making inroads into the workstation market that is currently ruled by Sun Microsystems, DEC and Hewlett-Packard, then it will have to do better than it has done with the existing RT machines. IDC figures show that IBM has shipped a total of just 13,000 workstations worldwide - only 3,900 of which are being used as workstations rather than shipped 69,000 and 41,600 workstations respectively.

SANTA CRUZ OPERATION GOES TO RETIX FOR OSI SOFTWARE

The Santa Cruz Operation Inc has gone to Santa Monica-based Retix Inc for local and wide-area Open Systems Interconnection software for use with its SCO Unix System V/386 and SCO Xenix operating systems for personal computers, and as an add-on product for the Santa Cruz Open Desktop, integrated graphical Unix front end. Santa Cruz will offer full seven-layer Open Systems applications, including file transfer access and management and X400 message handling. Retix looks for over \$10m between now and 1994 from the agreement. The software will enable customers for the operating systems to conform to GOSIP requirements on government contracts as well as meeting increasing end-user commercial demand for Open Systems Interconnection compliance. The open systems communications software will run concurrently with existing Santa Cruz networking packages, including TCP/IP and Xenix-Net on the same processor.

CYPRESS CLAIMS 29 MIPS FOR FASTEST" 40MHz SPARC

Cypress Semiconductor Corp, based in San Jose, California, is claiming that its new 40MHz 7C601 version of Sun Microsystems' Sparc microprocessor is the fastest version of the RISC currently available, and rates the part at 29 MIPS. The 7C601 includes a large windowed register file of 136 general-purpose 32-bit registers to reduce the number of load and store operations needed and reducing traffic on the bus. The part costs \$900 when you order 1,000 or more of the things.

DATA GENERAL LICENSES HEWLETT'S NEWWAVE

Data General Corp yesterday became the first company to take a licence to Hewlett-Packard's NewWave software environment - on undisclosed terms. Data General plans to add NewWave, which makes it easier for computer users to move and update information among different applications on MS-DOS machines, and to schedule routine tasks to be done automatically by the computer, to its office systems line this month.

TOLERANT RETREATS FROM HARDWARE FOR UNIX FAULT TOLERANT SOFTWARE

Tolerant Systems Inc has sealed its earlier decision to retreat from hardware manufacturing (UX No 223) in favour of producing fault-tolerant software products with a change of name. The San Jose, California-based company is now to be known as Tolerant Software Inc, and will concentrate on unbundling its existing fault tolerant technology to offer as system level software and utilities. Initial offerings will be packaged as part of the forthcoming AT&T Unix System V Release 4.0, and marketed directly at Unix hardware vendors. Although Tolerant's president Ronald Haley called the move "a natural progression" for the company, reflecting "a strong interest from customers and computer vendors for unbundled versions of our software capabilities", it involved a 25% reduction in the company's workforce down to 75. Tolerant will continue to support customers of its Eternity fault tolerant hardware, but said it would not be seeking new systems business. However, the machines will continue to be available from companies that have manufacturing licence agreements with Tolerant, including Hindustan Computers of New Delhi, India (UX No 186) and the South Korean Government's prime computer contractor Dacom (UX No 140). Most notable amongst software licencees have been Bull SA and RC Computer, back in July 1987 (UX No 137).

DATA GENERAL LAUNCHES X DISPLAY STATION

Recent Unix convert Data General is the latest company to launch an X-Window display station to provide its customers with a facility for workstation-like graphics without the local compute power of a workstation or high-end PC. The company's AVX-30 station is designed to work with the Motorola 88000-based Avilion Unix range, and costs around a quarter of the cost per seat of traditional solutions, according to Data General. Supporting Ethernet through the TCP/IP protocol, the station also supports Telnet for hosts unable to support X, and has a built in VT100 terminal emulator, allowing serial access to one host while local area network connections are maintained. Inside is a 12.5 MHz Motorola 68000 processor with display video RAM, graphics co-processor, and up to 4.5Mb of system RAM. The 16-inch square, 1024 x 1024-pixel monitor includes eight fonts of various sizes built in for fast access. Prices start at \$2,800, with immediate availability.

X WINDOWS TO BECOME A FIPS STANDARD

The X Window System has been proposed as a Federal Information Processing Standard (FIPS) by the US National Institute of Standards and Technology - previously known as the National Bureau of Standards. The standard, which has a public comment period set to close this week on September 5th, includes the X11 protocol, X Library and X Intrinsics. Specifications for these elements are the basis of the Open Software Foundation's OSF/Motif interface, AT&T's Open Look and other graphical user interfaces, as well as being the basis of current IEEE 1201 committee work on high level tool kit standards. They are also supported by the X Consortium and X/Open. The FIPS process is a necessary stage in the long process of establishing a standard, and provides a means for federal customers to specify FIPS conformance for any graphical user interface products tendered for procurement. OSF said that it would be encouraging its members and other open systems organisations to support the NIST effort.

3COM PACKAGES PRODUCTS TO DO 3+OPEN CLIENT-SERVER SYSTEM

3Com Corp, Santa Clara, California has bundled several of its hardware and software products to create 3+Open Client-Server System, claiming it to be the first such system developed by a networking company. The system is offered with software interfaces to enable it to be used with kit from DEC, IBM, Apple Computer, and the generality of Unix systems. 3+Open Client-Server System consists of 3+Open LAN Manager, the new 80386-based 3Server/500, the company's network workstations, and electronic mail and internetwork capability. It comes in two standard packages, both available next month, and each includes 3Server/500 preloaded with 3+Open LAN Manager with Demand Protocol Architecture and the appropriate combination of 3Stations. The introductory price with one 3Station/2E is \$19,250; after October the price will go up to \$21,495. With 10 of the 3Station/2E machines and 3+Open Mail, 3+Open Internet and 3+Open LAN Vision installed on the server, it's \$41,925. Internetworking options are 3+Open TCP; the GS/X25 gateway for Ethernet, token ring and broadband local area networks; and the 3+Open Maxess Systems Network Architecture gateway for access to IBM hosts. 3+Open TCP, out in October, is \$350 for the single user version, \$2,000 for a server licence. GS/X25 gateway server and router for TCP/IP is out next month, GS/X25 for XNS, October; GS/X25 for Open Systems Interconnection, November, at \$12,500 to \$20,500 depending on configuration. The Maxess SNA Gateway, October, is \$6,000 for the SDLC link version, including necessary co-processor board; the Token Ring version - no co-processor needed, costs \$3,400.

NEUTRAL DISTRIBUTION FORMAT CAN WORK, SAYS FOUNDATION

The Open Software Foundation hopes to scotch rumours that its ambitious Architecture Neutral Distribution Format project (UX No 228) may not be technically possible by releasing a few details about the Format - intended to enable shrink wrapped software to run on any Unix system, regardless of processor. 24 summaries of proposals have been received for the RFT, the majority of which have come from non-members, according to OSF spokeswoman Liz Cobbs. Detailed submissions will be received by October 16th. Following a member review of these at the end of the year, a shortlist of hopefuls will be drawn up early in 1990. There are currently three different approaches to the problem. The first involves a straight encryption or coding of the software to make it machine independent. The second is to provide an intermediate compiler format - some kind of halfway house. And the third is to develop tagged executable code - almost at machine/assembler level, in which extra information is "tagged" onto existing executable code. As yet, the OSF is unwilling to talk about any timescale for product/laboratory development or release. On the distributed computing front, submissions for the RFT are due in by October 6, following which a member review will take place in November. A technical decision will be made early next year. The OSF currently has 180 employees, set to rise to 220 by the end of the year. 70% are engaged in research and development. Latest tally of members is 158.

HARLEQUIN ANNOUNCES LISPWORKS AT AI CONFERENCE

UK software house Harlequin Ltd of Cambridge, chose the recent International Joint Conference on Artificial Intelligence in Detroit as the launchpad for a new development environment for Common Lisp. LispWorks is a package integrating the ANSI standard Common Lisp with an object-oriented environment based on the Common Lisp Object System, along with lightweight processes, X-Windows, and monochrome and colour graphics. With all the elements written in Lisp, Harlequin claims that programming tools, compilation and interpretation and garbage collection are all closely embedded into the environment. Tools include an Emacs style Lisp editor, full source level debugging and a hypertext facility for on-line documentation. The user interface is an optimised version of CLX, the standard Common Lisp interface to X-Windows, and there is also an implementation of the CLUE Common Lisp User Interface Environment. Available on a wide range of hardware, LispWorks costs £5,000 for a single user version on a Sun workstation, although low-cost delivery systems sufficient to run applications are also offered. Future releases will include a Distillation Facility for removing unnecessary code in run-time application systems, and a Postscript-based model with active windowing is also planned. Harlequin has also developed the ScriptWorks high performance PostScript "clone", which includes facilities for previewing and windowing.

GEI EMERAUDE IS FIRST WITH PCTE CASE

A French company, Suresnes, Paris-based GEI Emeraude, is claiming to be the first to implement an Esprit programme project to establish a portable environment for computer-aided software engineering tools. Esprit's Portable Common Tool Environment (PCTE) standard is an interface intended to make software engineering tools portable across a wide range of workstations. Running on Unix-based workstations, the Emeraude software acts as a layer between software and programmers, replacing the Unix file system with its own object management system. This is described as a distributed database system in which files, programs, documents - or more complex entities such as program libraries or projects - are treated as various types of objects, linked together according to predefined relationships and properties. Emeraude also provides programmers working in a local area network with a graphical user interface, and transparently distributes programs and data over the network. The company claimed that a large number of software tools was already available for the environment, with more in the pipeline. No prices were given.

UNIFY PORTS ACCCELL TO A/UX

Unify Corp has ported its Accell applications development system and Unify relational database to run on Apple Computer Corp's A/UX implementation of Unix, which it hopes will make A/UX more attractive to corporate and educational users. Vertical market packages written for the Accell/Unify RDBMS package include healthcare, manufacturing, retail and distribution, banking and finance, and government administration. The software will run on Apple's Macintosh II, IIX and IICX A/UX platforms, which after a slow start have begun attracting orders from large corporates and the US defence industry (UX No 246). Meanwhile, Unify Corp is expanding its value added reseller channels in the US with a new "VAR sales accelerator" initiative, offering VARs more technical, sales and marketing support, along with an 80% discount on the price of the Accell 4GL development system, which brings the cost down from \$4,500 to \$895.

PRELUDE OFFICE AUTOMATION COMPANY FINDS AFCAC A MIXED BLESSING

Phase II Software, Cambridge Massachusetts, is gaining mostly indirect benefits from its involvement with the giant Air Force Communications and Command contract, won by AT&T at the end of last year and variously estimated to be worth up to \$4.5 billion in total (UX No 204). Phase II is a spin-off from VenturCom Inc, developers of the Prelude office automation software package chosen as part of AT&T's package to the Air Force, and the new company now handles support for the contract and new software development for Prelude, under President Bill Spencer. But AT&T negotiated a site licence for Prelude, meaning that even though sales of AT&T 3B systems are now picking up after a slow start, Phase II will not see a corresponding rise in its own revenues. In fact, even the site licence fees go to VenturCom as the original developers of Prelude. But according to Spencer, both support and side effects of winning the contract are proving more lucrative for the company, which employs eight staff. Prelude was chosen by AT&T as a distinctive solution from other bidders, who all opted for the rival Uniplex package. A major selling point was Prelude's integration capabilities - having been built on top of an applications development environment, the product had the capabilities of closely integrating the other products included in the successful bid: the Telnos word processor from Paris-based Telnos SA; Masterplan project management from Quality Software Products, Beverly Hills, California; a calendar program from Unisource Software Corp, Cambridge, Massachusetts; and a consistent interface for the whole system, developed by AT&T itself. Currently focused on 3B systems, Phase II would benefit more if the contract were extended to include AT&T's new 80386-based machines sourced from Intel Corp - a distinct possibility, according to some observers. A diskless version of the 386 machine, used as an intelligent terminal, is part of the contract specification. Meanwhile Phase II is working on other large contracts, including systems for the US Department of Agriculture in conjunction with Electronic Data Systems Corp. And it is working on extensions to the Prelude suite, including a Hypercard facility and a new bit-mapped graphics version - current graphics versions use X-Windows. Prelude is primarily a Unix-based product, but includes MS-DOS conversion utilities for the most popular PC-based word processors and spreadsheets.

CISCO'S MULTI-ROUTER SUPPORTS NOVELL, APOLLO, OSI PROTOCOLS

Multi-protocol routers from Cisco Systems Inc now support 14 different networking protocols, following the addition of Novell's IPX, Apollo's Domain and the International Standards Organisation's OSI protocols to the boxes earlier this month. Cisco, which introduced the routers back in April (UX No 226), said that users could select the protocols they want to use today, and later on add new ones without adding or changing the hardware. Other protocols supported by Cisco routers include TCP/IP, DECnet, Appletalk, and Xerox XNS implementations from such vendors as 3Com, Ungermann-Bass and Xerox itself. John Morgridge, President of the Menlo Park, California-based company, said that market research companies were predicting that over 380,000 PC local area networks would be installed during 1989, bringing the total number to over 1.1 million. Of these, Novell's Netware holds more than a 50% share, he said. "Users are looking to integrate their Netware-based PC LANS into enterprise-wide internetworks, while the same integration process is taking place in the workstation arena where Apollo is a leader", said Morgridge. Another area of business will be those companies looking to move to the OSI standard, who can use the Cisco router to begin the migration process, he said. Cisco routers are said to operate at comparable or faster speeds to competing network bridging products, at up to 12,000 packets per second. The routers allow wide area networks to be built that link up any number of local area networks at any location, and are used by customers such as AT&T, Boeing, Cray Research and N V Philips. Cisco has offices in Paris, and is represented in the UK by London-based Chernikeeff Telecommunications Ltd.

AT&T, NETWISE JOIN OBJECT GROUP

As predicted (UX No 245), AT&T has taken a place on the board of the Object Management Group, alongside Netwise Inc from Boulder, Colorado. And nine other companies have joined the group as ordinary members, including Borland International, Eastman Kodak and Unify Corp, bringing total membership up to 29. AT&T was particularly important to the group, as it is the developer of the object-oriented C++ language. Formed in April by Data General, Hewlett-Packard, Philips, Prime, Sun, Unisys and others (UX No 228), the group's aim was to help popularise and standardise the concepts of object-oriented programming. It has now set up the OMG technology committee, which will work on extending the group's core technology base, which currently consists of Hewlett Packard's New Wave Object Management Facility. Christopher Stone from Data General is executive manager of the group, while Phil Sakakihara at Hewlett-Packard is acting chairman of the technology committee. Other new members are: Aion Corp, Palo Alto, California; Coordination Technology Inc, Trumbull, Connecticut; Objectivity, Menlo Park, California; Ontologic, Billerica, Massachusetts; Softron Inc, Waltham, Massachusetts; and the University of Colorado in Boulder.

RABBIT GOES BACK TO ITS ROOTS WITH UNIX CONNECTIVITY LINE

After concentrating in recent years on MS-DOS and OS/2 connectivity software, Rabbit Software Corp of Malvern in Pennsylvania has gone back to its Unix roots with a new set of connectivity products to provide IBM 3270 emulation over SNA for Unix, Xenix and AIX operating systems. RabbitPLUS 3270 allows users to execute local applications while connected with the host, download information from the host for local processing, transfer file between host and 386-based PC systems, and to have multiple host sessions active simultaneously. Another product, Netcom II provides X.25 for Unix and Xenix 386 systems to connect up to packet-switched wide area networks. And RabbitPLUS RJE emulation deals with IBM remote job entry devices such as card readers, punches, exchange devices, printers and consoles. Future plans include LU 6.2/FU 2.1 communications. No prices were given.

POINT 4 HAS 25MHZ MARK 386

Point 4 Data Corporation, Tustin, California, has added a 25MHz version of the Mark 386 Unix system it sources from SCI Systems Inc, Huntsville, Alabama, along with diskless versions of the hardware, and a 12% price reduction of its existing 386/20 model. Point 4, still better known for its proprietary Data General Nova-like hardware using the Iris operating system (UX No 181), is offering the machine in desktop or upright configurations with up to 24Mb RAM for up to 64 users, using the company's intelligent multiplexer. Both the 20MHz and 25MHz machines are now also available as Model 10 "kernel configurations". Iris users can run applications on the new machines by using language processors such as IMS Basic and Unibasic. Prices start at \$7,400 for the Model 10, rising to \$17,300 for upright systems with 765Mb ESDI disk drives. Point 4 introduced its high-end Mark 2000 line using the R2000 processor from Mips Computer Systems Inc back in May (UX No 231).

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The weekly information newsletter for the UNIX™ community worldwide

Former Open Software Foundation vice president Donal O'Shea was recently forced to apologise to Mike De Fazio, director of AT&T's Unix Software Operation for a remark he made in the US trade paper Unix Today in which he (O'Shea) reportedly described the Open Look user interface as "a piece of @!*t!"

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It could be that the public disparaging of AT&T/Sun's joint offering - along with his other forthright views - could have had something to do with O'Shea's sudden departure from the OSF camp (UX No 246), especially coming at a time when the rivals in the Unix war are desperately trying to mitigate the effects a growing public disaffection with the squabbling, which at the end of the day can only be harming their combined long term ambitions, which as they keep telling the world, is to oversee - and sell - the much vaunted open systems revolution.

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One of the ironies of the whole Open Software Foundation/Unix International battle is that whilst both are screaming blue murder at the rest of the computer industry about the need for open system strategies - as well as shouting each other down - it does seem a trifle hypocritical given that neither organisation is actually using Unix in their respective office environments - what are they using? - the same as everybody else that wants low cost, user friendly compatible systems - Apple Macintoshes!

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And please excuse us for blowing our own trumpet - it is Unigram.X's example that these two big school kids should be following: our weekly Unix newsletter - the only one of its kind in the world, published out of London, New York and Tokyo, and now also available electronically via UUCP - has been written, formatted and printed on an (ageing!) 80286 box running Unix, and more recently Xenix, for the last three years.

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UK rumours suggest that ICL Sparc systems, probably called the DRS 600 range, could be out this October.

Unix systems will remain the fastest growing segment of the computer industry, according to a new report by International Data Corporation: worldwide sales of Unix are set to reach \$26.4 billion by 1993, representing 22% of the market - meanwhile MS-DOS and OS/2 are expected to weigh in with a combined share of 48%.

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Norsk Data A/S accompanied news of an interim pre-tax loss of \$27.2m with news of 600 further job losses in October.

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Correction: the name of the new European Operations Director of Unix International (UX No 246) is spelt Steinar Hoistad, while Alberto Sacerdoti is Technical Director, Europe.

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Data General is to licence Portable NetWare from Novell Inc for both its Eclipse MV and Aviiion Unix systems using the Motorola 88000: DG claimed to be the first company to port NetWare to a top-end Risc platform, saying that it would be available for both platforms by the Spring of 1990 - but NCR Corp and Prime Computer have also taken out licences.

- 0 -

Another major defense contract that could be worth between \$250 and \$400m is due to be decided over the next few months: bidders thought to be still in the running for the US Army's Small Multiuser Computer contract are Electronic Data Systems Corp and Prime Computer Inc, Computer Sciences Corp and Motorola Inc, Unisys Corp bidding Intel PCs, and C3 Inc using computers from SCI Corp, Huntsville, Alabama - Wang Laboratories Inc, and Zenith Data Systems Corp are also thought to have submitted bids.

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For keen technicians only, AT&T has issued a series of five videotapes of the recently held software developer conferences on the forthcoming version of Unix System V.4: the tapes run for a mind-numbing total of ten hours, summarising the contents of the sessions, and cost \$450 in the US from AT&T's Unix Software Operation, or from the USO office in Japan and Unix Europe in London.

Unisys Corp's plans to cut \$400m from its cost base by manufacturing in house between 85 and 95% of its small systems is bad news for the company's many OEM customers: Unisys has sold 3,300 Arix machines and 15,000 of its U5000 Series systems bought in from NCR Corp to date, while last year alone saw the company do \$40m worth of business for Computer Consoles Inc.

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MAI Basic Four reportedly spent \$27m during its unsuccessful nine month bid for Prime Computer Inc: now it is looking towards Unix as its future salvation, and while it puts the strategy in place is cutting 12% of its workforce, or around 500 jobs.

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Ace Microsystems, Kew, Middlesex, is moving its widely selling Lex word processing package away from its reputation as a rather unfriendly, technical product with LEX-WP Version 9c: already available on DEC VAXes, the new version, which includes red-lining, box drawing, document encryption and built in spell checker and thesaurus, is now available on the ICL DRS-NX hardware.

- 0 -

The Unix Software Operation is reportedly preparing a business plan for its proposed spin-off from AT&T as a wholly owned subsidiary, hears Computer Systems News from USO chief Larry Dooling at the Santa Cruz Operation Forum last week: AT&T confirmed that accountants were currently scurrying around the echoing halls of AT&T in New Jersey, working out the cost structure of the various divisions, but said that little would happen at least until they had completed their report in about a month.

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NEW INTEL RISC "WILL EXECUTE TWO INSTRUCTIONS PER CYCLE"

Intel Corp suddenly has new chips coming to market in all directions, and its next offering, the 80960CA, is expected to appear early this week. A key feature of the new version of the embedded control RISC microprocessor is what the company is calling superscalar performance, so that the part can execute two or more instructions per clock cycle to deliver 66 MIPS performance. The part is also expected to include integrated floating point co-processor and to be aimed at the imaging peripherals market. But despite its primary focus as a part for embedded control, the original 80960 is the chip that is being used by the Intel-Siemens AG joint venture firm BiiN Inc as the CPU for its real-time multiprocessor line.

UNIX INTERNATIONAL PLANS DUAL INTERFACE SUPPORT

Unix International is currently working on some new technology that in the words of its boss Peter Cunningham, may "resolve the interface issue." Cunningham declined to comment further, but said that an announcement will be made over the next few weeks. This could refer to a development made by AT&T's Unix Software Operation, responsible for implementing technical developments in Unix, we reported a couple of weeks ago, (UX No 246). Apparently USO engineers are now confident that as long as 80% of the Open Look and Motif toolkits are the same, then they will both be able to run on Unix System V.4. But Unix Software Operation's Larry Dooling sounded less positive at the recent SCO Forum, where he said that a common applications programming interface for Open Look and OSF Motif was "far in the future - we have a market need, and a feasibility study, but don't have anything definite".

INGRES ON MULTI-CPU'S "GIVES QUANTUM PERFORMANCE LEAP"

Relational Technology Inc has been expanding on the thinking behind its joint development efforts with Sequent Computer Systems Inc and most recently Corollary Inc, saying that it is working on a multiprocessing version of its Ingres relational database for machines based on multiple 80386 microprocessors and running under Unix. The Alameda, California company says that while the upcoming Ingres Release 6, currently in beta test, will run unchanged under Corollary's 386/smp multi-processor version of Santa Cruz Operation Inc's Xenix System, with optimisation, it will deliver performance improvements beyond those normally achieved with multiprocessing. One area of improvement is in query optimisation, where Relational has developed a Parallel Database Query system with Sequent that enables queries to be split over multiple processors, yielding much better than linear improvement in performance when processors are added - anything from 10-fold to 100-fold, the company suggests. Relational did \$50m in sales of databases for use with Unix in the year to June, and says that while databases for DEC's VMS are still the biggest contributor, Unix is approaching parity, and is expected to grow by 65% to 75% in the fiscal year just started as a result of DEC's decision to bundle a database derived from Ingres with its Ultrix implementation of Unix, and also from the fact that The Santa Cruz Operation Inc is bundling Ingres as a component of Open Desktop.

SUN, UNISYS OBJECT TO X FIPS STANDARD

The National Institute for Standards and Technology, which has now closed the public comment period set for its proposed adoption of the X Window 11.3 software as a Federal Information Processing Standard, (UX No 247), is currently in the process of analysing responses, understood to include objections from companies such as Sun Microsystems and Unisys Corp. Although X11 has been widely adopted, there is a general feeling amongst the industry that the technology, in particular the Intrinsic toolkit, has not yet reached its full maturity. Objectors favour revising the FIPS to take account of the forthcoming X11 Release 4, but this could delay its formal acceptance by up to a year.

NATSEMI WINS X TERMINAL DEALS WITH NS32000

Having failed to cut it with its microprocessors in the CPU market, National Semiconductor Corp is having to try and find niche markets for its NS32000 family of chips - and reportedly is on the brink of breaking through in the emerging X Window System terminal market. According to **Computer Systems News**, the company will shortly reveal contracts with two manufacturers readying X terminals, one in Europe, the other in the Far East. And in its campaign to get laser printer builders to incorporate its new graphics-oriented NS32CG16 processor into their laser printers, the company has won Samsung Electronics Co of Seoul, South Korea and Goldstar Electronics to use the part in new laser printers. Samsung is to use the NS32CG16 in a printer that will support Hewlett-Packard's LaserJet Page Command Language and also emulate Adobe Systems Corp's PostScript language. Development of the print engine and controller should be completed by the end of 1989.

PERFORMANCE TECHNOLOGY HAS LAN UNIX CONNECTIVITY TOOL

Local area network specialist Performance Technology, San Antonio, Texas, which up to now has concentrated on producing IBM MS-DOS compatible software, is flying to Unix with the launch of four new Powerpac applications connecting local area networked PCs running MS-DOS to minicomputers running Unix. Powerserve allows a Unix machine to participate in a PC network as a file server, Powerworkstation provides VT-220 terminal emulation for PC workstations, Powertool is a Unix to PC file transfer facility, and Powerdrivers are a set of Unix drivers that include the Netbios protocol, Arcnet driver, remote terminal driver and an SMB printer driver. An interface card which allows an Arcnet bus to be attached to the VME bus is also available. At present the software runs on Motorola 68000 based architecture, implementations include Motorola, Datapoint, Philips and NCI (Norway) computers. To make the Unix system work, PCs must run Netbios and any network software compatible with Microsoft MS-Network, such as Performance Technology's Powerlan, or the IBM PC LAN program. The Powerpac software starts at \$2,400 for four concurrent users, rising to \$12,800 for 32. The Arcnet/VME interface card is \$2,650 for a 32 bit version.

25 JOIN AS UNIX INTERNATIONAL TOPS 100

Unix International says it now has reached the magic one hundred - having recently added 25 new names to its membership list. The team now includes the likes of the Santa Cruz Operation, Altos Computer Systems, Nippon Telephone & Telegraph Data Communications Systems, as well as Topologix, Diab Data, Tadpole Technology and Emulex. Unix International's president, Peter Cunningham said that the group now wants to target membership on academia, presumably to lay a testing ground for future versions of Unix, and will reveal new application procedures for Universities next week, "in an offer they cannot refuse." The group has also moved into its offices that will serve as worldwide headquarters - located in Parsippany, New Jersey.

...AS 1,500 ATTEND

FAR EAST STANDARDS SYMPOSIUM

In China, Unix International's long march to promote Unix as the "system for the masses" kicked off with a Unix symposium attended by 1,500 delegates representing industry, business, education and government, and a meeting with China's Ministry of Information Technology. Unix International wants the Chinese government to adopt Unix as a standard requirement in all its purchases - all very well, but computer imports into China are banned at present. Nevertheless, Peter Cunningham, Unix International chief, says he expects some announcements of government standards to come over the next few weeks. From there, Unix International moved on to talks with Taiwanese and Korean PC clone makers, which could potentially represent a lucrative market for the Unix operating system.

MICROTEC HAS 88000

DEVELOPMENT ENVIRONMENT

Microtec Research Inc, Santa Clara, California has plans for an ANSI C compiler/source debugger toolchain supporting Motorola's 88000 RISC architecture. The XRAY88K development environment works in conjunction with Microtec's C cross compiler and macro assembler, supporting the 88200 coprocessor, all under the auspices of the 88Open Software Initiative's compliance specifications. It will run on Sun-3 workstations, VAX/VMS and PC compatible platforms, and will be distributed by Motorola on its Delta Series of computers.

TADPOLE MULTI-PROCESSOR RISC BOARDS RUN AT 220 MIPS

Tadpole Technology's, Waltham, Massachusetts, US arm of the Cambridge, UK based company, has announced a VME based board set for Motorola's 88000 RISC architecture, which it claims will run at up to 220 MIPS, and has implemented a multiprocessor version of Unix to run on it. TP-IX/88K is a distributed, multi-threaded version of Unix System V.3.2 specifically designed for the TP881V board set, but will also run on other 88000 boards. The software includes TP-CDS/88K, a C compiler capable of running native or cross compiler codes for generating Unix or stand alone applications. Tadpole says that it will evolve to support the forthcoming V.4 release of Unix, and that other versions for Intel i860 and Motorola 68040 architectures are under development, to be released mid-1990. Available from November, TP-IX/88K comes with TCP/IP, NFS and Berkeley's 4.3 BSD networking interface. The TP881V board set has up to 128Mb of DRAM, dual SCSI interface, four RS232 lines and Ethernet support. On top of all this the company also has a new graphics controller - the TP-AGC - which operates with a host CPU. It is a VME colour or monochrome graphics frame buffer implemented on a custom silicon device known as the TS20020 - basically a hardware windowing engine providing hardware graphics and text window management on a single chip. The TP-AGC uses four of the things and provides simultaneous movement of 32 single plane, or for four windows. It comes with 4Mb of video RAM, has a display resolution of 1600 by 1200 pixels, and is supported by X Windows and TP-IX.

EVERYTHING BUT UNIX ON UPGRADED AS/400 SYSTEMS

Ignoring the problem of top-end AS/400 users already running out of steam - seems such users are prepared to install a second machine to alleviate their problems - IBM last week came out - in Europe only - with three 5363 36s designated AS/Entry machines with more disk but no new software, and replaced the AS/400 Models B30 and B40 with upgraded B35 and B45 machines offering improved price/performance. New software includes the long-awaited C/400 compiler and TCP/IP support over Token Ring and Ethernet, which along with an ASCII Workstation Controller for the Models B30 to B70 for up to 18 ASCII devices including MS-DOS and OS/2 computers, means that just about everything need to run Unix on the machine is now in place - apart from the operating system itself! And if IBM continues to turn its back on the idea, might it not be very tempting for third parties to do implementations for the machine?

NIXDORF TO EXTEND PYRAMID TARGON LINE UP TO EIGHT PROCESSORS

Nixdorf Computer AG announced its upgraded Targon Unix systems from Paderborn, West Germany back in July (UX No 242), but their introduction in the US has led to talk of future plans for the Targon /35 minicomputer line, which originate from a long-term OEM deal with Pyramid Technology Corp, Mountain View, California. The company's recently launched top-end Targon 35 Models 60 and 70 were the first models to use the next generation Pyramid Risc processor used in Pyramid's own MIServer line (UX No 218), and doubling performance to between 12 and 15 MIPS per CPU. Nixdorf will extend the line above the current four processor Model 70 to include an eight processor model rated at up to 120 MIPS. Nixdorf extended its OEM deal with Pyramid back in April, and secured manufacturing rights for the line. Pyramid uses the machine in configurations of up to 12 processors.

ICL SPREADS THE WORD ON OFFICEPOWER WITH NEW PORTS

ICL North America, Irvine, California, previously the computer products division of Computer Consoles Inc, is to open up its powerful OfficePower office automation suite to other hardware platforms for the first time, offering versions for Sun, Convergent and Sanyo/Icon Unix hardware in an attempt to establish the office automation package as a standard in the Unix marketplace. The agreements come under ICL's new cooperative marketing partnership programme, but at the moment apply only to the US. ICL is now porting Officepower 5.0 to the Sun-3 series, Convergent's CT Server 386 and 68010 S series, and the Sanyo/Icon system - other platforms are expected to follow. ICL reckons that with around 100,000 users worldwide, this puts Officepower into third place in the Unix office systems software stakes. However such a claim seems to be somewhat exaggerated when put alongside a May 1989 office systems study by Dataquest, which reveals that Uniplex software comes top with a 40% share of the market, followed by R-Office from R-Systems with 29%, Alis from Applix with 12%, down through several others before arriving at Officepower with a 2% share.

NEW TOOLSET SUPPORTS MULTIPLE INTERFACES

While Unix International and the Unix Software Operation consider the implications of supporting both Open Look and OSF Motif on Unix-based hardware (see front page), software house b+s Multisoft of Gardena, California (no relation to the UK accounting software firm Multisoft) has been showing a collection of developer tools that support multiple user interfaces at the recent SCO Forum in Santa Cruz, California. The company's Window Manager Interface program is said to allow software developers to create a single standard application that will operate with different graphical user interfaces on different platforms, including Microsoft Windows, DECWindows, OSF Motif and Open Look. The software is a set of C library routines that form a layer between the operating system's graphical user interface and the application, supporting all features such as mouse control, pull-down and pop-up menus, scroll-bars and window frames. It will run on SCO Xenix System V and the latest release, Unix System V/386 3.2 for Intel-based hardware.

HIGH LEVEL PROGRAMMING INTERFACE ALLOWS UNIX/MAINFRAME INTERACTION

Nynex company Systems Strategies Inc, Boston, Massachusetts, has released its high level language application programme interface - or HLLAPI - that allows an application program running on Unix to communicate with another application running on an IBM mainframe. HLLAPI was originally developed by IBM as a mainframe connectivity software standard, specifying the programming interface to IBM 3270 terminal emulator software, enabling a program running on a PC or workstation to automate the user's mainframe interaction. However, System Strategies says it has developed its own version specifically for Unix environments rather than DOS. It conforms to IBM's latest 3.1 release of the software, and in addition supports direct session data, external emulation and 3270 printer integration. Source code costs \$40,000, object code between \$1,000 and \$2,000, depending on configuration.

IBM "READY WITH 33MHz PS/2 75, 80486-BASED MODEL 90

IBM is widely expected to add an 80486-based Model 90 and a 33MHz 80386-based Model 75 to its Personal System/2 line shortly - possibly this Tuesday. Among those tipping the new machines is Marty Winston of Fort Worth, Texas-based public relations outfit Winston & Winston. He reckons that both will be tower configurations, with the Model 90 looking like a MicroVAX. He expects it to be clocked at 30MHz, but others say it will be 25MHz. The motherboards, he says, feature SCSI socketed firmware ready for upgrade when the SCSI B standard is introduced, and he also looks for a new video standard with "4,000 by 4,000 by 256 colour virtual screen" and a new "2,000 by 2,000 by 256 display". He also looks for the new machines to feature Micro Channel buses running at 80Mbytes per second, and he is among those tipping the Intel 80160 RISC chip being offered as a plug-in co-processor - the MCA bus and Risc co-processor options are likely to be common links with the new generation AIX-based RTs, originally expected to emerge in October, but now thought to be delayed (see back page). Other sources look for the Model 90 to be offered primarily as a server, and to sell for \$14,000 to \$15,000, while the Model 75 is expected to start at about \$8,000.

ELXSI MAY RECEIVE \$10m TO FINANCE ACQUISITIONS

Troubled Elxsi Corp, San Jose, which last month shut down the hardware side of its business and said it would instead seek to exploit its operating software, has found itself \$10m of new money to fund the acquisition of operating companies with products and technology to complement Elxsi's Embos and Unix-based software. The agreement is conditional on Elxsi being successful in selling the assets it no longer needs; the investors are Milley & Co and The Airline Group Ltd Partnership of Greenwich, Connecticut. They will pay \$3m for 20% of Elxsi, plus \$2m for a 15% senior subordinated 10-year note and warrants, and lend it another \$5m.

NeXT's NeXTSTEP 1.0 FINALLY READY

NeXT Inc, Palo Alto has finally completed the 1.0 release of the NeXTStep Mach Unix-based operating software for the NeXT Computer System, 11 months after the machine was launched. The company has been shipping the software to developers, and says that it hopes to start shipping it to customers by September 18. According to the Wall Street Journal, desktop publishing is likely to be the first major application for the machine: Frame Technology Corp of San Jose has a publishing program described as making "the benefits of NeXT really reach up to you". As well as selling the machine direct to colleges, NeXT is putting it through Businessland Inc, and is set to launch in the UK next month.

HOSTED POSIX: WHO GAINS ?

The POSIX portable operating system interface standard produced by the IEEE has provided a useful focus for related standards efforts such as X/Open's Portability Guide and the Japanese SIGMA project, and is a common link between Uni developments undertaken by the Open Software Foundation and Unix International. But now companies are adding the Posix interface to proprietary operating systems. Dominic Dunlop of The Standard Answer looks into a new trend.

Many people think that POSIX is a standard for UNIX. It's not. If it were, it would not be possible for Digital Equipment, Hewlett-Packard, and Microsoft to confuse an already bemused market by announcing POSIX interfaces for their proprietary operating systems - VMS, MP/E, and OS/2 respectively. Why are suppliers rushing to jump on the POSIX bandwagon, and what is it about the POSIX standard which allows them to do so without completely jettisoning their original operating environment? And, in the end, does POSIX compatibility at this level bring any benefit to computer users?

As with so many things in this world, the answers to these questions have to do with power, and those who wield it. The US government wields a lot of power over computer suppliers by dint of the enormous budget that it controls. So, when the government's National Institute of Science and Technology (NIST, formerly the National Bureau of Standards - NBS) brings out a Federal Information Processing Standard (FIPS) which specifies requirements to be satisfied by all US government purchased computers, suppliers sit up and listen.

A year ago, NIST released FIPS 151. Broadly speaking, this states that all computers purchased by the US government for general purpose data processing must be able to offer a POSIX interface. (There are various exceptions: one of the more important is that, pending a standard for real-time POSIX, computer systems which must satisfy some real-time requirement can ignore the FIPS.)

Check in the box

Note that the FIPS requires only a capability: it does not specify that the computer actually runs POSIX while doing the job for which the government buys it. All it has to do is offer a POSIX interface in case the government decides to install additional POSIX-compliant application software at some time in the future. This approach is realistic: large application packages cannot be written to use a new operating system interface at the drop of a hat, so many current needs can be satisfied only by existing packages designed for proprietary operating systems. On the other hand, the approach allows suppliers to continue offering solutions based on proprietary technology, just so long as they can prove that POSIX is supported as an option, and so put a check in the box on the requirements form. This may well delay the day when all the applications are written for POSIX as a matter of course.

This brings us to another concentration of power - that of the manufacturers themselves. It was clear from the early days of the POSIX project in the IEEE (Institute of Electrical and Electronic Engineers) that the proposed operating system interface could not simply describe UNIX running on a bare machine, but must also apply to emulations of UNIX hosted by other operating systems. Without this capability, POSIX could not gain support from important computer manufacturers, and so would have little chance of becoming a publicly-agreed standard.

Consequently, IEEE Std. 1003.1-1988, the document which finally emerged from the standards process, is careful not to specify anything which might imply that the POSIX environment has total control of its host system. For example, nothing in the standard allows even a privileged user to set the time of day, to connect or disconnect file systems, or to configure input/output devices: these actions may be the province of some underlying environment, not of POSIX itself.

Not quite rich

The result is a definition of an environment which can be hosted by VMS, MP/E, OS/2, and, indeed, any other multi-tasking operating system which offers a supervisor mode and a protection mechanism. It is also a definition which is not quite rich enough to allow the implementation of many types of practical application program.

FIPS 151 makes the application developer's life a little easier by requiring some features specified only as options in the POSIX standard. Consequently, a FIPS-compliant interface is a better base for useful applications than an interface which presents simply the minimum requirements of the POSIX standard. And, because the FIPS is backed by the stick of US government requirements and the carrot of US government funds, it has come to represent the practical standard to which suppliers conform. Even so, a practical application program is likely to require a considerably larger foundation, taking in such topics as administration, command language, communications, database access, graphics and screen control. Standards covering these fields are emerging, and are likely to be backed by future FIPS.

NIST has done the world a service by requiring compliance to FIPS 151, but is smart enough to know that this is only one step along the road that leads eventually to open systems. The current POSIX standard on its own is not rich enough to form a basis for practical applications in the real world. This applies whether the environment is in control of the systems on which it runs, or if it is hosted by some other operating system. Consequently, a supplier who offers no more than a POSIX interface to an existing proprietary operating system is not offering a great deal: several additional standardised subsystems are required before the facility becomes useful.

The many draft standards being developed by the IEEE and others will eventually be sufficient to define open systems which can fill any requirement without the need for extensions. Until then, less authoritative, but considerably more comprehensive, documents such as the X/Open Portability Guide, come much closer to describing practical systems which allow real application portability.

Editor's note: UniForum - the US /usr/group - has published an updated version of its "Your Guide to POSIX" booklet, the first in a planned series which will soon include three more volumes - POSIX Explored: System Interface, Shells and Tools and Real Time Extensions. Contact UniForum on 408 986 8840.

ACORN FLESHES OUT UNIX WORKSTATION WITH PERIPHERALS, FOUR PORT EXPANSION CARD

Nine months after the launch of its sub-£4,000 Risc workstation, the UK's Acorn Computers Ltd of Cambridge are slowly putting some flesh round the system with the introduction of a range of peripherals, including a SCSI interface card, hard disks, tape streamers and monitors, as well as a four port RS232 expansion card that will allow the machine to be used as a multi-user system supporting up to six users. In fact, Acorn is relying on third parties to add value to the basic machine, and the packaging and distribution work is being carried out by its primary Unix distributor, the Hugh Symons Group of Poole in Dorset. On offer are 182Mb and 380Mb disk drives, costing £1,495 and £2,270 respectively, and a 150Mb quarter inch tape back-up system at £985. Symons also supplies a 19" 1152 x 900 pixel resolution monochrome monitor from Texas for the R140. Smaller disk drives are on offer from Oak Computers of Leeds, which sells a 64Mb disk for £795. The soon to be announced four port RS232 expansion board for the system has a more complicated history - it originated from a four channel Musical Instrument Digital Interface developed by Cardiff-based Technomusic Ltd, and adapted by Hugh Symons, with device drivers written by The Instruction Set. Cost is £450. Acorn says that after a slow start it is now consolidating its position in the education and research markets, and hopes the four port board will open up new business opportunities for customers wishing to run multi-user software such as Uniplex, Q-Office, Sculptor, Sea-Change and Informix. The R140 uses Acorn's proprietary ARM Risc processor

Solbourne Computer is moving apace to sign up resellers for its low cost Sparc compatible workstation clones. Five more have been added in the US with an expected commitment of \$9.4m over the next year, bringing the total up to 22 - they are AI CAD, Madison Heights, Michigan; create.x inc, Hanover, New Hampshire; Orlando Technology Inc, Orlando, Florida; Terminals Unlimited, Vienna, Virginia; and Simulation Associates Inc, Newport News, Virginia; and Solbourne Computer Europe, Swindon, Wiltshire, has appointed Logitek plc, Manchester, and 4GL Computing, Edinburgh as its first UK resellers.

Saber Software Inc's UK subsidiary, Manchester, has signed up the Power Products division of Unix distributor Frontline Distribution, Basingstoke, Hampshire, for its Saber C programming environment - Saber and Frontline hope to cash in on the 50% of the installed UK workstation base thought to be in use for software development.

In the UK, media mogul Rupert Murdoch's News International has bought up £400,000 worth of Sanyo Icon 4000 Unix minicomputers from Swindon based Kode Computers to handle Sky TV channel's subscription database.

From 14 - 16 of November, European Unix interest will be focused at the Exhibition Unix 89 Scandinavia show in Stockholm, Sweden, where 70 companies are due to show off their latest offerings - the show is accompanied by a conference with seminars and tutorials - more details from Anita Nilsson, UniForum Svenska AB on +46 8 750 3976.

TETRA REVAMPS TETRA 2000 FOR DOS AND UNIX

Hoping to make significant inroads into the UK DOS marketplace, as well as revamping its well established Unix product line, business software specialist Tetra Business Systems, Maidenhead, Berkshire, has announced new versions of its Tetraplan accounting package - Tetra 2000-DOS for DOS, and Tetra 2000-ix for Unix, Xenix and AIX. Both come with 16 application modules covering the main areas of accounting and can be directly linked to external databases, but offer different user interfaces. Improvements over the well established Tetraplan system include drop down menus, windows, better security, browse facilities and a range of user definable options. In particular, a new module - Data Manager - allows users to develop their own databases using a combination of system and additional data, which can be incorporated into reports. Although an adapted DOS version of Tetraplan has been available for the past five years, Tetra 2000-DOS has been developed primarily with networked and multi-user DOS customers in mind. For a rationale of its DOS drive, Tetra points to the £57.8m spent in the UK on accounting software last year - of which £33m were DOS sales, £23m Unix/Xenix - it claims to have a 22% cut of this Unix market, but only a 10% share in the DOS stakes. Tetra 2000, for DOS and DOS networks, Xenix 386 and Novell based systems, Altos 1000 and 2000 machines, as well as IBM's PS/2s and 6150s running AIX, will be available from October - other Unix and Xenix versions will follow in November, the Open Software Foundation's OSF1 operating system will be supported when released, and additional hardware platforms are understood to be under development, tagged for a January 1990 release. And ten year old Tetra is certainly looking to get aggressive on the marketing side; for the single user the company is putting the onus on resellers to set pricing - expected to average out at £600 - multi-user DOS and Xenix versions, for a minimum of four users, cost £730 per module. In addition it aims to have the top 100 UK dealers signed up to take the new software on to their books. These strategies come on the back of recent appointments to the company: Ian Brown comes in from Rank Xerox as UK marketing director, and former Pegasus Software CEO Colin Stanley joins the ranks as non-executive director.

MBS SEEKS BROADER BASE WITH HP 9000 DISTRIBUTORSHIP

Bracknell-based distributors Microtex is the third company in the UK to join Hewlett-Packard's Advanced Computer Reseller 800 programme, launched two months ago (UX No 238). The company currently concentrates on Altos distribution, and recently appointed former Altos Europe chief Archie Thomas as its managing director. Although Altos systems remain the mainstay of the business, MBS said that increasing demand from the market for systems with power and capability beyond that of current Altos machines had led to the signing of the deal. MBS joins Perrin Systems and Protek in the ACR 800 programme, which is aimed at establishing distributors for the HP 9000 Series 800 precision architecture Risc minicomputers. Thomas said that MBS would "soon be adding further products to our portfolio" in its move to re-position as a broader-based open systems distributor.

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Along with AT&T and ICL, Xerox Corp is one of the few major companies known to have definite plans for a new line of hardware using the Sun Microsystems Sparc processor - and now industry sources are expecting to see a Sparc motherboard option to boost the power of the Xerox's proprietary 6085 line of workstations by early next year. It is expected to boost the power of the current 8MHz MESA processor by between five and 12 times, and produce a line of workstations costing between \$2,000 and \$6,000.

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And Sun has reportedly won another Korean company. Daewoo, which in the US is based in Wellesley, Massachusetts, is expected to reveal prototype Sparc workstations at Compdex in November. Daewoo is also expected to rescue former PC high-flyer Leading Edge, also based in Wellesley, which recently filed Chapter 11, by buying into the company over the next few weeks.

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Next Inc is beginning to get an unfortunate reputation for always running behind on its release dates: now IBM's delayed RT launch is being blamed in some quarters on "lingering bugs in the NextStep interface".

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But it appears that IBM is deadly serious about the new RTs: according to PC Week, the company will run a series of ads proclaiming the new systems to be "the most powerful workstation on earth", and will go so far as target Sun Microsystems by name in the ads as the competition.

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Talking of advertising, Visix Inc is set to raise the stakes in the X desktop management business with an advertising campaign that started last week, costing a reputed quarter of a million dollars.

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Compaq is expected to release its multi-processor version of Unix, worked on with Corollary Inc, this autumn for its 486 EISA box.

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AT&T is set to allow universities and colleges to make binary copies of its C++ version 2.0 language system for distribution to students for \$25 each, with a license for C++ source code costing \$300 per CPU.

Motorola Inc has been showing off its first X Window application. The Xroff publishing system from Image Network costs \$900 on the Motorola Delta range, and manages large collections of fonts and documents.

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More on the Unix groups that prefer using Macs - word is that the offices of Unix standards body X/Open are crawling with the Apple machines, although the recent addition of several Sun workstations should go some way towards restoring their credibility.

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But Unix International assures us that it is now using Unix: the group has a Convergent machine which is used to send out bug reports on the early releases of System V, and to handle electronic mail. Other Unix systems are scheduled to be installed shortly, and the Apple Macintoshes will eventually be used to front end these systems, according to Peter Cunningham.

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Unisys Corp has a new president, replacing Paul Stern who resigned last year: James Unruh, previously executive vice president at Unisys, is thought to be the most likely candidate to take over from 63-year old chairman Michael Blumenthal on his retirement.

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Nixdorf Computer AG acknowledges that it may have to cut its workforce by more than the announced figure of 1,600 this year, but a report that it planned to lay off between 2,500 and 3,000 people was said by the firm to be inaccurate.

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Siemens AG has joined Bull SA, Ing C Olivetti & Co SpA, Philips NV and six other firms as an investor in application specific integrated circuit designers European Silicon Structures, ES2.

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Emulex Corp has unveiled the WZ15 Fixed Disk Subsystem for workstations from Sun Microsystems and DEC, saying that the compact desktop storage subsystem contains one high-performance 5.25" disk drive with an SCSI interface, listing for \$6,700 with a 760Mb drive. The ER2Z Removable Disk Subsystem, also a desktop unit, accommodates one or two removable Portable Drive Modules, and is \$9,700 with one 760Mb module. The EH23-S is an 8mm Helical Scan Tape Back-up Subsystem for Sun workstations costing \$7,000; all three will ship in November.

Ing C Olivetti & Co SpA plans to launch a range of personal computers using the 80486 chip on October 19 and new personal computers aimed at the fireside market are planned.

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Mentor Graphics Corp is celebrating an additional \$1.5m order from NeXT Inc, Palo Alto, California for "a broad spectrum" of its electronic design automation systems, including design capture, simulation, printed circuit board layout and chip layout systems; NeXT developed its first generation machine using Mentor's design automation tools.

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FPS Computing Inc of Beaverton, Oregon has formed its own Japanese subsidiary using the old name Floating Point Systems, in order to put more muscle behind the Model 500 64-bit multiprocessor developed from technology acquired with Celerity Inc and the Model 300 machines that it buys in from Stellar Computer Corp: it is targeting mainly the scientific and technical computing markets, and the new company will have responsibility for marketing the products in the whole of Asia.

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Yokogawa Electric Co, Hewlett-Packard Co's partner in Japan, has become only the second company in Japan after Hitachi Ltd to join the renegade Open Software Foundation rather than the true - well not blue - Unix International Inc. And while the move makes sense since as well as partnering Hewlett, Yokogawa also works closely with IBM Japan, the industry is abuzz with rumours about Yokogawa possibly setting to compete with Hewlett with its own separate computer business - it acquired US-based Digital Computer in October 1987 and Supertek Japan in June, and it is expected to use these to enlarge its share of the supercomputer and workstation markets.

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SUN, NOVELL, NETWISE JOIN FORCES OVER DISTRIBUTED COMPUTING STANDARD

A new development in the labyrinth world of networking looks likely to get a host of previously incompatible systems talking to each other. In a dramatic move, Netwise Inc, Novell Inc and Sun Microsystems, have banded together to develop and combine their respective networking technologies, which they claim, will allow distributed shrink-wrapped software applications to run across a range of operating systems, hardware architecture and networks - without modification. At the core of the project, Boulder, Colorado based Netwise is to incorporate an enhanced version of Sun's Remote Procedure Call (RPC) Library and associated external data representation (XDR) protocols into the next release of its RPC Tool network development system, along with Open Systems Interconnection, OSI specifications, levels 5 to 7. Support of Sun's new RPC technology, which is based upon the transport layer interface co-developed with AT&T for the forthcoming Unix V.4, provides independence from the underlying network transport - such as TCP/IP and OSI - and means that distributed applications using this interface need not know what type of transport is actually running in a host system. Novell markets RPC Tool and other Netwise technology as its popular NetWare networking software, and is to incorporate the new technology into future releases sometime next year. Previous versions of NetWare will be upwardly compatible with these - the same functionality should also find its way into Portable NetWare at a later date. Novell is estimated to have more than four million PCs tied into its various networking products - potentially this could deliver a huge range of previously unavailable connectivity options into the hands of Unix system users, allowing distributed applications to run across heterogeneous networks PC LANs, workstations, mainframes, and operating systems in which the new RPC is installed. Although this is the general thrust of the development, the specifics are unlikely to become crystal clear until the thing is released. Sun has placed the new RPC specifications into the public domain and will freely licence source code, maintaining that applications developed under NFS will be object code compatible with each other and therefore should run right across any network incorporating the technology without recompilation. Novell's position is less clear, it has indicated that applications developed under NetWare 386, which includes the new functionality, may only be source code compatible, meaning that recompilation would have to take place. In addition the move is likely to give a big boost to Sun's efforts to establish its Open Network Computing system - of which NFS and RPC is a part - as a standard. The company is presently fighting hard to compete with the likes of Apollo and its Network Computing System which already numbers Open Software Foundation members IBM, DEC and Hewlett-Packard amongst its supporters. Netwise has already expressed its interest in submitting distributed computing technology to the OSF (UX No 246).

DEC "TO MAKE ECL VERSION OF MIPS R6000 CHIP"

DEC is reportedly preparing a wafer fabrication facility to produce an ECL version of the forthcoming MIPS Computer Systems Inc R6000 RISC - and where DEC has made slight - but irritating to software developers - modifications to the R2000 and R3000 chips, the new version is expected to have rather more substantial DEC-specific features to the R6000 to bring it closer to its own VAX architecture. According to *Electronic News* these could include hardware support for parallel operation. The forthcoming part, expected to be 64-bit and to deliver up to 60 MIPS, is seen as the jumping off point for DEC to move to a RISC-based processor that can be used in future VAXes as well as in its Unix machines. The parts are expected to be tried out on a pilot line in Hudson, Massachusetts and produced in volume at its plant in Ayr, Scotland, starting at the beginning of next year. MIPS is expected to bring out its own version before the end of this year, and DEC could start announcing systems based on the R6000 as soon as next April.

INMOS OFFERS 10 MIPS T400 TRANSPUTER AT JUST \$20

When SGS-Thomson Microelectronics BV acquired Inmos International Plc in April, it made it clear that it intended to put enough muscle behind the Transputer to enable the part to compete head-to-head in world markets with the Intel Corp and Motorola Inc families and the emerging RISC microprocessor families, and on Friday it revealed parts of its strategy, coming out with a new entry-level 32-bit version of the part at a rock-bottom \$20, which it reckons is \$2 per MIPS. The company also discussed future developments, and revealed that the next Transputer, code named H1, will have a peak performance of 100 MIPS and 20Mflops, a large on-chip cache dispensing with the need for static RAM off chip, a 16Mb DRAM controller, 100Mbps link architecture, and input-output data rate of 80Mbytes per seconds. The H1 is in development at Inmos' Newgate headquarters, and expects first silicon "within 18 months". Inmos is now providing a range of software support packages that will enable new software to run on the Transputer. In addition to parallel C and Fortran compilers, development tools for Sun Microsystems, VAX, IBM, and NEC computers, it plans optimising compilers for C, Fortran and Occam, a network debugger, a profiler, and TCP/IP Ethernet software. Integration with Unix will be achieved via TCP/IP, Sockets, and Remote Procedure Call support. A modular Iq subsystem is to be launched at the forthcoming Buscom, and Inmos will expand the Transputer Modules range of functions and interfaces. As well as bringing in the T400 at \$20, available now, Inmos cut prices on the other family members 40% to 70%. The T400 is rated at 10 MIPS and 0.1 MFLOPS, has 4Gb address space, 2Kb on-chip static RAM and two 20Mbps Transputer links. It software and pin compatible with the T800 floating point and T425 Transputers.

MICROPROJECT SUES AT&T OVER "DUD" WE32100 CHIPS

Microproject Corp, Marina del Rey, California is suing AT&T Co for millions of dollars, alleging breach of contract, fraud and conspiracy and attempt to monopolise. Microproject alleges that AT&T continued to supply it with a faulty version of the WE32100 microprocessor for its Unicorn B computers, launched in October 1987 (UX No 151) after it discovered the bugs and stopped using the version in its own 3B line.

SUN TO LICENSE SBus

Not in the least put off by Phoenix Technology's plans to withdraw from SPARC development efforts (see page 3), Sun is to provide a further impetus to the policy of licensing its technology to allcomers by putting the specifications of its SBus architecture into the public domain. The move means that all critical components needed to build SPARC compatible systems are now available. First the processor itself, then software - SunOS, NFS, Open Look, X/NeWS, the X/View toolkit and the C programming language, and now the SBus. To encourage development an SBus Developer's Kit and support services are to be made available, along with a circuit board needed to connect SBus cards to the bus, produced in conjunction with LSI Logic. SBus architecture allows add-in boards to be installed into systems, and the specification is described as a technical roadmap that designers need to develop boards and systems. Sun claims 125 companies, including the likes of Texas Instruments, Seiko and Solbourne have already signed up for the technology. In addition Sun says it will license its own implementation of the SBus to interested parties - presumably those which want to develop clone systems. The developer's kit costs \$300 in the US, £250 in the UK. The Direct Memory Access interface chip designed by Sun for the SBus is available directly from LSI Logic. And Sun has announced a \$10.3m order from electronic design automation specialist Dazix - spawned from the merger of Daisy and Cadnetix - for Sparestation desktops, workstations and servers.

INTEL UNVEILS 66 MIPS 80960CA RISC

Intel Corp duly announced its second generation 80960 RISC chip for embedded control applications, claiming 66 MIPS native and 30 VAX MIPS for the 33MHz version - there are 16MHz and 25MHz versions as well. The "super-scalar" 80960CA does up to three integer instructions per cycle, claimed to be the next stage on from "ordinary" Risc technology, which normally aims at achieving one cycle per instruction. It includes on-chip 1K-byte instruction and a 1.5K-byte 128-bit wide data RAM for program variables and register files. The 600,000 transistor part, four times as complex as the original KA version, has four-channel high speed direct memory access and a software configurable bus controller. It can also save its entire previous execution state and serve a high-priority interrupt without going off chip. Software available includes optimised C compiler, assembler, source level debugger and instruction set simulator. Support chips include 27960CX 1M-bit EPROM to support the 33MHz version's burst mode with no wait state, and 85C508 address decoder and 85C960 bus control programmable logic devices. Intel plans a 16-bit bus and applications-specific versions of the 80960. Volume is set for fourth quarter; the 16MHz is £97, 25MHz, £138 and the 33MHz, £277, for 1,000-up in each case.

* Tadpole Technology Plc, Cambridge, UK has announced a VMEbus single board computer using the 80960CA. The TP960V has networking, SCSI and serial input-output facilities and will support Wind River Systems Inc's VxWorks real-time environment for developing on a Unix host and down-loading via Ethernet; the TP960V will be out in December; no prices were given for it.

HEWLETT ADDS HP3000 960, APOLLO 2500...

The expected launch of low-end systems from Apollo Computer Inc was held back earlier this year due to the company's acquisition by Hewlett-Packard. Now, however, HP feels it is organised enough to reveal the Apollo Series 2500, a single-board, diskless graphics workstation that replaces the older 68020-based Series 3000. The new diskless workstation is said to be cheaper and twice as fast as the old machine. It is built around the 20MHz 68030 and 68882 floating point unit, and costs \$4,000 (£3,400 in the UK). Unlike previous Apollo workstations, the system includes a SCSI bus in place of the PC AT Bus. Hewlett-Packard's Apollo marketing manager in the UK, Phil Barrett, claimed that the machine was the lowest priced on the market. "Sun does not have a competitive product", said Barrett, who claimed that the new machine was faster than the higher-priced Sun 80, due to optimised compilers and subsystem.

...AND HEWLETT CONSIDERS EISA BUS FOR ITS WORKSTATIONS

Hewlett-Packard Co is reportedly considering building some of its workstations that use chips from other than Intel Corp around the Extended Industry Standard Architecture bus, just as IBM is planning to use the Micro Channel in forthcoming versions of the RT and in other non-Intel machines. The Hewlett move would significantly increase the credibility of the EISA bus, which has had a dreadful press in the US. The company is also expected to come out with EISA models of its Vectra personal computer line by year-end.

ADVANCED LOGIC USES 80486 IN "FIRST EISA BUS MACHINE"...

Advanced Logic Research Inc, Irvine, California is claiming to be first to market with a personal computer based on the Extended Industry Standard Architecture bus specifications. The PowerCache 4e is built around the 25MHz version of the 80486, complementing the company's Micro Channel Architecture PowerCache 4, which uses the same CPU and is claimed to outperform IBM's PS/2 plug-in 80486 board by up to 40%. Both machines have a 128Kb read and write-back cache that supports the 80486 burst cacheable cycle mode feature. The 4e comes standard with 2Mb memory expandable to 128Mb and a 1.2Mb floppy, with 15MHz ESDI adaptors with up to 32Kb disk cache supporting 150Mb, 340Mb or 650Mb drives. The super video adaptor will support resolutions up to 800 by 600 in 16 colours. An Intelligent Graphics Subsystem that supports 8514A-compatible non-interlaced graphics and incorporates the Texas Instruments 34010 graphics processor is also available. The PowerCache 4e starts at \$13,000 but Advanced Logic did not give any delivery date for the new machine.

DEC MOVES TO OFFER VOLUNTARY REDUNDANCY - TO 700 PEOPLE

DEC has been reduced to taking a rather more proactive role in reducing its workforce, and has offered voluntary redundancy to 700 manufacturing employees in Massachusetts in the hope that 200 of them will accept the offer and leave its payroll. With continuing weak demand for its products, the company, which like IBM operates a no-lay-offs policy, needs to cut its costs. DEC says it remains cautious as to near term revenue growth and profitability.

AT&T V.4 PRICING ANNOUNCEMENTS MAY SET OFF NEW UNIX ROW

AT&T's Unix Software Operation looks set to announce pricing and licensing terms for the upcoming release of Unix V.4 at the end of September according to sources inside AT&T, some weeks before the operating system itself goes on general release, for which a likely curtain raiser could be the Unix Expo show in New York during the first week of November. AT&T has been hawking provisional pricing plans around Unix users and manufacturers since July - plans that Unix International, the group responsible for shaping the look of future Unix releases has had no say in drawing up. The reason for AT&T's sole jurisdiction over pricing according to a spokesman being that Unix International, with over one hundred companies affiliated to it, could have violated the stringent US anti-trust laws if it had taken part, and of course AT&T is still in the business of trying to make money out of its products. There are currently understood to be several different pricing options under review, but judging from reports in the US trade press a significant price hike compared to the flat \$150 licence fee for V.3 seems likely. Computer Systems News estimates that V.4 binary license charges could represent 1% of a machine's hardware cost, or up to 20% of its software cost, with the brunt being borne by workstation and minicomputer licensees. AT&T sources confirmed that work is currently focused on the implications different price strategies could have at the high and low ends of the the Unix marketplace.

Licensing

On the licensing side however, Unix International has been providing much input into AT&T's plans via its licensing conformance workgroup, which is headed by Dick Grunmeyer of Unisys. And, although many of its recommendations have been adopted by AT&T, some appear to have been changed, and the workgroup has been meeting this week to thrash out the finalities. "Work apparently focused on the issue of whether members and users would have to conform to the System V Interface Definition, commonly referred to as the SVID, or to X/Open's Portability Guide 3 - XPG3.

SEQUENT ADDS PERIPHERAL SUPPORT FOR OLTP CUSTOMERS

Sequent Computer Systems Inc is boosting the on-line transaction processing capabilities of its Symmetry parallel processors with new storage and terminal interface products. The company has added a new high-capacity 8-inch disk drive for increased system capacity for large databases. The 988Mb capacity tops the current limit of Sequent's current 792Mb drive and gives a lower cost per megabyte of memory. Total storage on Symmetry systems is now 32Gb. Along with the drive comes a 2Gb, helical scan tape drive on 8mm cartridge, previously limited to 150Mb. And the company also has a distributed terminal controller to connect up to 1,024 terminals and printers to a Symmetry machine remotely, eliminating the need for individual connections to the system. Sequent claims to have installed over 1,900 systems since the launch of its first parallel processor in 1984.

INTEL CEMENTS COBOL PACT WITH STAKE IN MICRO FOCUS

Buying in the market Intel Corp took a 1.6% stake in Micro Focus Plc in June, the companies revealed on Friday. The investment was made to cement an agreement under which Intel is to disclose to the Newbury, Berkshire company the architectural details of future microprocessors so that Micro Focus can do implementations of its Cobol products for them in a more timely fashion. Intel says that it has identified major opportunities for Cobol applications on the 80860 and the 80486 and their follow-ons, and had been seeking a closer relationship with a specialist Cobol company. Cobol/2 for the 80860 is due by the middle of 1990.

ADVANCED MICRO HAS 25MHz 80286

Shut out from the 80386 microprocessor market Advanced Micro Devices Inc continues its campaign to steal lower-end 80386 business from Intel Corp with ever faster 80286 parts, and is ready with 20MHz and 25MHz ones, claiming they will kill the 16-bit bus 80386SX and the 20MHz version of the 80386. Newsbytes says the new versions are sampling now, with volume 20MHz ones set for first, 25MHz for second quarter 1990. AMD reckons the 20MHz 80286 will outdo the 80386SX by 25% and rates a 25MHz 80286 at 3.9 MIPS versus 2.35 MIPS for 20MHz 80386s.

NCR EXTENDS TOWER FAMILY WITH 32/700 USING 30MHz 68030

NCR Corp has extended its Tower Unix supermicro family by adding the Tower 32/700 model, built around a 30MHz Motorola 68030 processor-based system. The new machine has an entry-level price of \$33,245 and is generally available in the US this month. The company also introduced new desktop computers based on the 80286 and 80386SX microprocessors, including its first Micro Channel machine: prices go from \$2,000 to \$6,350.

TANDY TO BUY VICTOR TECHNOLOGIES FROM DATATRONIC

Victor is changing hands again: this time Tandy Corp has signed a letter of intent to buy the Victor personal and Micro Channel hand-held computer operations in Europe from Datatronic AB, of Stockholm, Sweden for an undisclosed cash sum - and also gets rights to the names. Sales of the two lines exceeded \$200m in 1988, and closing is set for December 1. Datatronic bought the company, which was created by Commodore Pet designer Chuck Peddle, and was Apricot Computers Plc's springboard into personal computers, after it filed Chapter 11 bankruptcy protection in 1984.

RELATIONAL EXTENDS LINKS WITH SUN

Relational Technology Inc, Alameda, California, is forging closer links with Sun Microsystems, Mountain View, agreeing to the joint engineering and market of Unix products based on the Ingres relational database. Relational hopes that by working with Sun's engineering and marketing people it can influence the design of Sun's workstation products and improve its own.

NIPPON SUN MICROSYSTEMS STAGES HIGHLY SUCCESSFUL COMPANY FAIR IN TOKYO

While its parent back home in Mountain View struggles with its growing pains and the myriad problems of success, Nippon Sun Microsystems held an overwhelmingly successful Sun Application Fair at the end of last month, Anita Byrnes reports. A Sun source said modestly that the high attendance, of over 11,000, surprised even Nippon Sun. Over 70 companies exhibited, including the company's major Japanese OEM customers such as Toshiba Corp, Fujitsu Ltd, C Itoh & Co's CI Techno-Science, and Nippon Steel, backed up by other companies selling both hardware and a range of software packages, many of which are Japanese versions of tools and applications originally developed outside Japan. A stand that attracted considerable attention was that of Nippon Timeshare, the new distributor for Relational Technology Inc's Sybase relational database. Three sales of Sybase have already been made to large Japanese financial institutions following its release in June, even though the Japanese version of Sybase will not be available until March next year (with a beta test version hitting the market in December 1989). Another newly released package in Japan is the Empress relational database developed by Empress Software Inc of Canada and distributed by MKC Corp. Other software that attracted the attention of attendees included artificial intelligence tools such as Nexpert, which is marketed for Sun workstations by Overseas Bechtel Corp, and IXLA, an artificial intelligence development language for Unix workstations that was originally developed by Intelligent Systems Research Pty Ltd of Melbourne, Australia and sold by CI Techno-Sales, another C Itoh subsidiary. Computer-aided design, manufacturing and engineering applications are perennially popular in technically-oriented Japan and Nissho Electronics with its newly-Japanised version of VersaCAD; MetalCAD, distributed by Shinagawa Corp in Japan; ProEngineer from Parametric Technology Corp, distributed by Tokyo Electron; and three dimensional computer-aided design package Solution 3000 from Famotik were all on display. Sun holds a 20% share of the Japanese workstation market, amounted to only 33,000 units in total last year but is forecast to double to about 60,000 this year, and price cutting has begun with Sony Corp, which also has 20% of the market, reducing its 1850 and 711 stations by between 22% and 25% last month. The merged Hewlett-Packard-Apollo Computer is the new market leader, with a combined 25% share last year.

OSICOM GOES TO DU PONT FOR RISC WORKSTATIONS

A new player is coming to the Risc marketplace - Osicom Technologies Inc, Rockaway, New Jersey, has signed an agreement with Wilmington, Delaware based EI Du Pont de Nemours for its Intergraph Clipper Risc boards and systems. As well as distributing the Clipper Risc based kit directly, Osicom is to manufacture its own workstations and parallel processing systems based on the boards, which originate from Du Pont Pixel Systems, formed when Du Pont acquired UK high performance graphics specialists Benchmark Technology Ltd (UX No 177, 213). Osicom says it has been shipping workstations to its own OEMs for several months now - its main offering being a 14 MIPS, 4.5 MFLOPS workstation priced at \$9,000. Formerly known as a supplier of hard disks and tape back-up systems, the company saw a net loss of \$2.98m on revenues of \$108m last year.

HARRIS BRINGS UNIX TO THE IBM 3274 MARKET WITH ITS SUPER CONTROLLER

Harris Corp's Data Communications Division - which is one of the units the Melbourne, Florida company has put up for sale - has launched what it terms its Super Controller as a high end alternative to the IBM 3174 Establishment Controller. Although not mentioned by Harris, the Intel 80386-based Controller is clearly also pitched at users considering the Memorex Telex 1174, which is based on the Motorola 68010. All companies involved in this market are banking on the converging of the intelligent and the dumb terminal markets - including IBM, which wants every 3270 screen replaced by a PS/2 in short order. At the moment approximately 10% of all terminals are interconnected in Europe, but large corporate accounts are likely to want to safeguard their investment in dumb terminals in the near future despite the pressure for increased functionality. In this sphere Harris has an ace up its sleeve, since it is able to offer a gateway between Token Ring and Ethernet, a feature that neither Memorex Telex nor IBM has yet bothered with. According to Mike Thatcher, Harris Data Communications' European Product Manager, around 70% of US corporate accounts use Ethernet and want to be able to attach personal computers to their networks via co-ax links. The Harris Super Controller will offer terminal users access to synchronous and asynchronous host sessions as well as to Unix and MS-DOS software applications via Coax A, and Harris is another company that is jumping on IBM's Systems Application Architecture bandwagon by offering Common User Access interfaces on this product. Acting as a 3270 gateway, the Super Controller provides up to 64 coax terminals, ASCII terminals and personal computers with multi-session communications to both Token Ring and Ethernet local area networks.

3270, MS-DOS and Unix

A user at a dumb terminal can consequently access MS-DOS applications such as Lotus 1-2-3 and Wordperfect and can switch between 3270 sessions, MS-DOS and Unix applications. The Super Controller's security is enhanced by the Unix System V.3.0 operating system on which it is based, and it offers up to 1Gb of storage, compared with Memorex Telex's 7.75Mb on the 1174. Harris says it will enhance the Super Controller so that it supports up to 96 Coax devices, (which Memorex Telex's 1174 does already, although IBM's 3174 only stretches to 32 at the moment), as well as support for IBM's OS/2 by the first quarter of 1990 and Apple Macs by the end of this year. The internal storage on the Super Controller will also be expanded to 2Gb. The Super Controller is delivering now and costs between £19,000 and £40,000. Harris expects to install 200 to 300 Super Controllers within the first year. Confident despite its uncertain future, Harris Data Communications has copyrighted the SuperNet name for the new network communications system it is building around the Super Controller.

MANNESMANN TACKLES "MID-MARKET" CAD WITH NEW PC WORKSTATION

Mannesmann Information Systems, the UK arm of the giant Mannesmann Kienzle, is moving back into the computer-aided design market with a new workstation, coupled with software bought in from France. The Mannesmann Group acquired Munich-based CAD experts PCS Cadmus back in 1986, but in the UK at least the Cadmus workstations disappeared from the marketplace after tentative introductory efforts (UX No 131) and is now limited to specialist printing applications. This time the company is relying on a 386-based personal workstation sourced from the US and running Conception 3D software, a package said to hold some 40% of the French micro-CAD market, produced by Paris-based Serb SA. Mannesmann's 4110 Personal Workstation is described as 'a heavy duty durable system' designed to act as part of a network or in standalone mode. It includes a 20MHz 386 processor, Math Co-processor and 40Mb hard disk, priced at £18,500 including 20" high resolution colour monitor, digitising tablet, A1 plotter and software. Conception 3D - known as C3D - is aimed at the middle sector of the market, underserved at present according to managing director Phil Claydon. "The CAD market is polarised, with high cost systems at one end of the market, and underpowered packages at the other". Users, said Claydon, find the cheaper systems limiting, but cannot justify the expense of more sophisticated packages. C3D includes facilities for 2D draughting and design, 3D visualisation, database and parts list, parametrics and macros. It also allows data exchange with other CAD packages supporting DEF, DXF or IGES interfaces, and has facilities allowing connection to any computer aided manufacturing system.

SIEMENS UK RAMPS UP THIRD PARTY SALES BUSINESS

Siemens Business Systems, the third party sales arm of Siemens Data Systems Group in the UK, has launched a new Partnership Programme to encourage value-added resellers, system houses and software developers to sign up for the Siemens range of MS-DOS and Unix hardware, which so far have made little impression this side of the channel. The company will offer three types of agreement to prospective partners: Computer Partners will sell on complete hardware and software solutions to customers, adding their own value and benefiting from hardware discounts from Siemens; Sales Partners will sell in conjunction with the Siemens direct sales operation, with payment for their own added value element; and Software Partners will sell their own software, going to Siemens for a hardware contract and getting commission on the hardware sale. All categories will have access to a full range of marketing support services and maintenance from Siemens, and a chance for an assisted entry into the wider European marketplace. Two computer partners - Synchro Systems and Penpoint Systems - are the first to sign, but the company expects more announcements over the next few weeks. The Siemens Unix-based MX 300 and MX 500 ranges are unusual in using National Semiconductor 32000 family processors throughout. The MX 500s are based on the Balance multi-processor from Sequent, currently supporting up to 96 users, but expected to be extended to a 200 user model in the near future. Siemens claims to be the largest supplier of Unix systems in Europe, with 35,000 units installed, although most of these have been sold in the domestic German market.

PHOENIX ENDS SPARC BUSINESS - WARNS OF "SUBSTANTIAL" LOSS

Phoenix Technologies Ltd is in worse trouble than it had hitherto suggested, and yesterday it announced that it expects to report a substantial loss for its fourth quarter to September 30, leading to a loss for the full year, on turnover up on what it recorded a year ago - but with sales for the fourth quarter significantly down on the year-ago figure. The company confirmed that it is terminating its embryonic business of doing implementations of Unix for Sparc-based workstations (UX No 247), but says that demand for its core OEM products remains strong. "We have increased our reserves in the OEM product lines as well as reduced our commitments and investments in the workstation market, writing off or down several existing contracts," said interim chief executive Ted Joseph. "We have also reduced our exposure in the packaged goods business by requiring product returns on several large orders where extended collectibility was not reasonably assured," he said, adding "Our commitment going forward is to run this company within its ability to generate cash. By using cash flow as the principal indicator of responsible investment levels, we will focus our efforts on those products of greatest importance and urgency to our customers." The company says it has improved cash flow by nearly \$8m since last quarter, and 95 people have left the company since May, bringing employment down to 320, and the Norwood, Massachusetts firm looks to return to profits in the second half of next fiscal. It will maintain a high level of investment in its personal computer system software building blocks, working on both Micro Channel and EISA buses for 32-bit systems.

MODCOMP HAS DEXTERITY ON TRI-D MINIS

Modular Computer Systems - or ModComp for short - has introduced an industrial software package for process control and factory automation systems. Dubbed Dexterity, it was designed and developed by Nucleus Software Systems, ported to ModComp's Real/IX Unixlike, and now runs on the firm's Tri-D series of real time computers launched last year, (UX No 195). ModComp has taken a licence for the product and is selling it on to customers. Dexterity combines a graphical user interface with windows, pull down menus and keypads - it can be configured to act as a centralised, distributed or host system, and offers Ethernet, TCP/IP, MAP and DECnet communication protocols. Although it has its own inbuilt relational database, the application can access Oracle, Ingres and Informix databases via its use of SQL. It can handle up to 32,000 data entries per node and is expected to integrate with computer integrated manufacturing - CIM - systems. The software will run on ModComp's Tri-D 9700 series of minicomputers, DEC VAX and Amiga machines - the majority of sales have been on VAXes up until now. Dexterity prices start at £50,000 for a full blown configuration, and ModComp has kicked off with an order worth \$250,000 from two South Korea companies. Dae-woo Motor Co, Incheon, and Hyundai Motor Co, Ulsan, will use the software for partly automating their car manufacturing plants. Warwick based Durr Ltd, and ModComp's Stuttgart, West German based division are to oversee its delivery and installation. ModComp is owned by German giant AEG, Nucleus Software Systems by the Dexion Group plc.

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The new IDC report on the state of the workstation market, briefly mentioned a couple of weeks ago, (UX No 247), reveals that king of the workstation vendors Sun Microsystems will start to lose market share to rivals from 1990 - and may actually relinquish its lead to DEC and IBM by 1992. Up 71% on 1987, the workstation market was worth \$4.5 billion last year according to the study, of which Sun took a one-third share. In the same period DEC replaced Apollo - now a division of Hewlett-Packard - as number two in the percentage of units shipped with a 22% share. But Apollo's 15.6% and Hewlett-Packard's 13.1% have projected the combined organisation back up to the number two slot. Meanwhile sleeping giant of the workstation world, IBM, with only 2.2% of the installed base is forecast to join DEC at the top of the shipments list by 1992 - but only if it gets its act together and makes the new RT a spectacular success that is.

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The US Defense Intelligence Agency has plans for a \$75m to \$100m requirements contract for Unix-based compartmented mode workstations that will allow different levels of security to be accessed on the same workstation. The DIA awarded competitive cost sharing agreements for product development last year, and machines from Apple, DEC, Harris, IBM and Sun Microsystems will be tested by the National Computer Security Center over the next few months.

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US press reports say that the Air Force Computer Acquisition Center obtained discounts of between 43 and 58% on hardware for the AFCAC Standard Multi-user Small Computer Requirements Contract, the largest Unix order in the company's history (UX No 204).

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Convex Computer Corp, Richardson, Texas reports that Royal Dutch Shell has ordered a Convex C210 minisuper-computer for installation in its exploration and production lab in Rijswijk, the Netherlands.

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Unisys Corp has bought rights to the source code of Informix Software Inc's relational database for use with its 80386-based U6000 Unix line in a deal worth nearly \$6m.

Nine Asia-Pacific organisations, including six Japanese companies and two universities joined Unix International Inc this month, to take total membership of the true-to-AT&T Unix club to over 100 companies: the software companies include NTT Data, now claimed to be the largest software company in Japan; Yokogawa Electric; Sumitomo Electric Industrial Co; Canon Inc; CSK Inc; and Sumitomo Metals Inc; the colleges are Keio University and Aoyama Gakuin, prestige private universities.

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As far as AT&T's proposed spinning off of Unix Software Operation from its Data Systems Group is concerned, AT&T is currently looking at ways of reorganising and deploying resources in light of such a move, but there are no plans at present to change its intrinsic operation.

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DEC is not the only company with a surplus of staff (page 3) now that hard times are coming: Hewlett-Packard is reported to be planning a shift of employees away from mid-range sales to other areas, due to disappointing sales of the Series 1000, 3000 and 9000 lines.

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Electronic News hears that it is "lack of application software" that has led to the delay of IBM's new generation RT workstation, which the paper (along with many others) originally expected to be unveiled on October 17th.

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88open's general meeting took place in Cambridge, Massachusetts last week, and two new members were immediately announced - Prometa AB, Stockholm, Sweden, which has a bus master board - Baltic WS/88K - for the IBM's PS/2 based on the 88000 chip, and communication specialist the Wollongong Group, Wilsonville, Oregon, which plans to market its TCP/IP and OSI based products across the range 88000 systems.

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X/Open spokesman Steve Lowen, over in the UK last week, said that the organisation had not been able to resolve the user interface issue of a common Applications Programming Interface: Lowen stressed the technical difficulties involved, and said he "would not like to put a timeframe on it" when asked to comment on Peter Cunningham's expectation that a solution was imminent.

Motorola Computer Systems Ltd, Maidenhead, Berkshire, is opening a new UK office in Slough next week, on September 26. The UK's Cambridge Micro Computers has launched the Vitesse M683, a multi-processor using up to four 68030 processors to support up to 256 users: tasks are distributed between the four processor cards by an automatic load balancing program.

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Novell Inc has shipped the first production copies of its Netware 386 Version 3.0, but users who want support for TCP/IP or AppleTalk protocols will have to wait until Version 3.1, expected early next year.

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ICL has opened a worldwide training development centre at Leopardstown, near Dublin in Ireland: the center shares the site with the Unix product development centre, set up there two years ago.

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Locus Computing Corp has signed its first UK distribution agreement with the Open Software Products division of the Kernel Group in Leeds: the company will distribute the Locus range of DOS and Unix connectivity software through VARs and dealers in the UK.

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AT&T SET "TO TAKE PYRAMID LINE OEM TO TOP OFF 3B UNIX FAMILY"

In the biggest boost yet to the Mountain View, California company's fortunes, Pyramid Technology Corp is expected any day now to win AT&T Co as an OEM customer. According to Computer Systems News, AT&T wants the Pyramid proprietary RISC-based MIServer line of products to top off its 3B line, likely replacing the 3B2/4000. AT&T particularly wants the machines as an alternative for System/36 users wavering over whether to go to the AS/400 or switch to Unix: AT&T has been marketing an RPG II compiler and conversion tools on the 3B line for a couple of years now. The Pyramid machines would represent a quick route up-market for the ill-starred 3B line, since they come with up to 12 processors, support up to 1,000 users and are claimed to deliver between 14 and 140 MIPS depending on the number of processors. Pyramid has been talking to Software Ireland Ltd about putting RPG II on the MIServers, and is keen to expand its business by signing major OEM contracts. Its most important up to now has been the one under which Nixdorf Computer AG markets Pyramid machines as its Targon/35 family.

ALTOS PINS REVIVAL HOPES ON NEW 80486 AND i860 SYSTEMS

Rather quiet of late after its disappointing last financial year which saw sales plummet 20%, Unix multi-user supermicro maker Altos Computer Systems Inc, San Jose, California, is staking revival hopes on a range of Intel 80486 and i860 RISC based machines for next year. Altos is currently waiting on volume shipments of the 80486 chip from Intel, and says the new CISC systems, scheduled for February, will start at around 80 users, but 100 MIPS, 512 user versions are in the plan for around the beginning of 1991. A 128 user version of the 386 based 2000 Series planned for this year is abandoned in the wake of these developments, (UX No 235), but existing machines should be upgradable to the new 486 architecture. A RISC machine is also reported to be under development - using Intel's i860 chip - for next year, which will utilise the Extended Industry Architecture Bus to accommodate peripherals, and a proprietary internal bus system to handle dual processor configurations. The company says it doesn't want to spend any more money on operating system technology for the RISC machine, it has its own System V/386 Unix implementation for existing ranges, and is waiting for an AT&T multiprocessing Unix to arrive: Unix International's multiprocessing workgroup met earlier this month and plans to deliver recommendations to AT&T's Unix Software Operation in November. Altos President Dave Jackson admits that 1988/89 was "not a good year," but insists that with restructuring having already taken place, (UX No 229), \$130m in assets and \$20m spent in developing new systems, the firm is now breaking even and that the recent reverses will be made good next year. He hopes the firm will be shipping the new 80486 systems at a rate of 2,000 a month when they are out, and is optimistic that Altos will reverse last year's decline in sales, and get back to \$150m this year.

...AS NCR UNVEILS GERMAN-DESIGNED 80486 BOX IN EUROPE

NCR Corp wants to shed reputation for tagging along a year or so behind technology, by unveiling an 80486 based desktop machine supporting DOS, OS/2 and Unix that it has been hard at work on ever since Intel unveiled the chip in April, (UX No 226). The NCR AT bus PC486 runs at 25MHz, is rated at 15 MIPS and will be out in November but is not yet priced. It comes in four versions, a 2Mb configuration with floppy drive and 100Mb hard disk, and two 8Mb variants with a floppy, and 100Mb or 200Mb hard drives. The fourth is unpopulated for resellers to configure as they wish, and server models are set to follow shortly after. It is being manufactured at NCR's Augsburg, West German based workstation division, and will be unveiled in the US next month. Last week's announcement in London came at the same time as the company revealed its UK plans for the new 80286 and 80386sx machines unveiled in the US last week, (UX No 249), along with a range of PC operating system software - NCR 386/ix, which is Unix V.3.2 compatible, NCR TR/ix - token ring software which gives Unix server support for DOS networks, VP/ix - DOS under Unix, NCR MS-OS/2 1.1, and NCR-DOS 4.01.

NEXT "AIMS TO HAVE 68040 MODEL OUT EARLY IN 1990"

NeXT Inc, which duly announced last week release 1.0 of the system software for the NeXT Computer System, is reportedly making up for lost time by hurrying a second generation version of the computer to market: word is that the 68040-based model may be announced as soon as the first quarter of next year. As well as the 4.3BSD-compatible Mach Unix, Network File System and Display PostScript, the operating system is bundled with the complete works of Shakespeare on the disk. See page 5 for NeXT software.

APPLE TAKES UNIX DOWN TO SE/30

Apple Computer Inc last week accompanied the launch of its Macintosh Portable and IICI with new releases of its Unix software, for the first time taking the A/UX Unix down to the Macintosh SE/30 and added AppleTalk for A/UX 2.0. The new A/UX 1.1.1 version of Unix System V.2.2 supports AppleTalk for A/UX 2.0, which will be both bundled with it and offered separately. The new AppleTalk release supports printing from A/UX shells and from Macintosh applications running under A/UX, and A/UX systems will be able to print via LocalTalk networks using the serial port built into the Mac, and eliminates the need for LocalTalk add-in boards. A/UX systems will also be able to print via EtherTalk Phase 2 networks using the Apple EtherTalk NB Card or a third-party Ethernet interface board, and the EtherTalk NB Card can be accessed by EtherTalk and TCP/IP protocols concurrently. AppleTalk for A/UX version 2.0 will be available as a \$100 upgrade later in the autumn. The IICI, with its 25MHz Motorola 68030 processor, is claimed to have a 45% performance increase on the old IICx and costs \$5,450.

INTEL DELAYS ITS 80486 MACHINES

The systems businesses of both Motorola Inc and Intel Corp are tired of being the poor relations when it comes to their parents' latest chips, and Intel Systems had hoped to have 80486 machines out in October. But in a development that casts doubt on the ability of other major vendors to get 80486 machines available before the end of the year, Intel now says it is pitching for a launch "late this year," and may not ship until early 1990. The company puts this down to manufacturing capacity constraints - it is making too many 80386 machines to find room, but observers suspect the true reason is shortage of working parts.

CAPITAL HOSTS EXPERT SYSTEMS SHOW

Traditionally held in the seaside resort of Brighton in West Sussex, the annual Expert Systems Show, like the autumn helping of party conferences, attempts to focus on problems of direction, definition and change. In a move to become something more than a melting pot for the exchange of ideas and a homing point for enthusiasts, the show came to London this year to seek fame and fortune. With the move to the bright lights of the City, the embryonic expert systems industry is hoping to combine what went before with a more mature, market orientated approach to its operation. The move appears both pragmatic and timely. Pragmatic because the financial services industry, headquartered in the City, is the biggest user of expert system technology. In this field, concrete competitive advantages can be realised within six months of installation, against a timeframe of a year or more for expert systems in manufacturing, engineering, government and other areas. The move is timely, because potential benefits differ between expert systems, decision support systems, artificial intelligence and neural networks, and their boundaries tend to become rather blurred when software outfits bring new products to the market - the show offers some distinctions.

AI Ltd, Watford, Hertfordshire was showing new versions of the Goldworks II expert system from Gold Hill Computers Inc, Cambridge, Massachusetts, on the Sun-3 workstation and Apple Macintosh. It is claimed to be the first LISP-based development application available on the Mac - both implementations cost around £8,000. AI says that other versions are planned for Sun-4 and Sparc platforms. AI's own parallel programming language, Strand88 is currently being rewritten for improved portability and speed to run on multi-transputer platforms, and possibly under the Helios transputer operating system.

Expert Edge Computer Systems, which operates out of offices in Cork, Dublin and London, was showing Experience, a new expert system development tool, which captures an expert's knowledge via an English language based editor, and graphical user interface. It has a data dictionary, an inbuilt relational database - as well as links to Lotus 1-2-3 and dBase III - and a communications facility for networking. Its inference engine is capable of supporting both forward and backward chaining techniques in its method of obtaining answers to enquiries, and it is written in C. On MS-DOS at present, a Unix version is planned, and as well as OS/2, MacOS and VMS variants. Experience costs £2,100, or £3,250 for a year long run-time licence. Three year old Expert Edge does 85% of its business in the financial sector, and predicts an annual growth rate of 30% over the next five years for the the UK expert systems industry.

US EXPERT SYSTEMS NEWS

Cambridge, Massachusetts based Gensym Corp's real time expert system - G2 - is now available on Apollo 3500 and 4500 workstations, the DECstation 3100 and Compaq 386/20s running Interactive Unix.

HP Prolog II - a Prolog implementation running on HP, Apollo, DEC, Sun and IBM workstations, supporting X-Windows, Presentation Manager and an SQL interface is out in January, priced \$4,000.

IntelliCorp, Mountain View, California, is to market the KLUE expert system diagnostic tool developed by 3Com Corp, St.Paul, Minnesota - it was developed using IntelliCorp's KEE system.

Version 2.01 of Mountain View, California based IBUKI's Common Lisp tool that is designed to integrate with CASE systems is out next week - on Sequent, Encore, MIPS Computers, Sun and DEC/Unix hardware.

DEPARTMENT OF TRADE AND INDUSTRY

GIVES OPEN SYSTEMS PROGRAMME A BOOST

The Department of Trade and Industry's Open Systems Technology Transfer programme - part of its Enterprise Initiative - got off to rather a lame start back in May, even former secretary of state Lord Young failed to kick life into the thing when he addressed UK industry bosses a month later. Trevor Benjamin of the DTI's standards unit came to an Open Systems briefing hosted by UniForum UK - previously /usr/group/UK - in London yesterday to give a progress report on the programme's development. Its first steps in the three year effort to 1992 are the publication of a brochure encouraging businesses to look at how they can benefit from open systems, and the availability for demonstration purposes of open systems sites at Aston University and Northants Regional Health Authority. These are to be followed by some practical standards, methodology and requirements guidelines in the form of a management report scheduled for the end of this year. An Open Systems group, with business and government representatives, is planned for the future, to investigate things like migration plans. More information is available on the programme by phoning the DTI on 01 215 2521.

PRESENTATION MANAGER/X - "WORK STILL UNDERWAY"

Also at the briefing, Sandy Duncan, Microsoft UK's OEM account manager gave away a few details of what will be on offer from the company over the coming weeks and months. Presentation Manager for OS/2 will be with us in two weeks time - an upgrade from Microsoft Windows will cost £35 - software applications are to follow. A version of the Excel spreadsheet for Presentation Manager will be out at the same time, and Aldus PageMaker a few weeks later. A new edition of AutoCAD running exclusively under the manager is under development, as is a version of WordPerfect - both for next year. As far as the X-Windows - PM/X - version of Presentation Manager is concerned it seems that work is still underway at Microsoft to translate the software from Intel assembler code into a C-based application programming interface - API - which will allow it run under X-Windows.

AT&T LICENSES LAN MANAGER/X FOR UNIX

AT&T has taken out a licence for LM/X - Microsoft and Hewlett-Packard's joint LAN manager for Unix venture - and is to licence it to OEMs. Although no-one has actually taken up on the networking software, AT&T is preparing an OEM kit for developers, including the code, which will be out in the first quarter of next year. Microsoft has said that LM/X will be migrated up to Unix V.4 when it released later this year.

RECITAL HAS MORE UNIX VERSIONS

Danvers, Massachusetts, based Recital Corp's relational database and 4GL is pushing on from its VAX/VMS base into Unix, its London based UK division has implementations now available for IBM AIX, DEC Ultrix, Apple A/UX and Acorn BSD Unix 4.3 in the UK. In addition Recital, launched last September, will now run without compilation on Intel 386 machines running binary compatible Unix V.3.2/386 and on the ICL DRS 300 range via an agreement with Lancashire based QCL. The move brings the dBase language to Unix, and with Recital's SQL interface, allows integration with other popular databases. The single user version is £795 - £995 for the unlimited user version.

NeXT BUNDLES WEALTH OF SOFTWARE WITH NEXT COMPUTER

NeXT Inc still has something to prove, although the credibility of the Cupertino, California company has been much enhanced by Canon Inc's decision to pump a whole \$100m of venture capital into it, and by the commitment of Businessland Inc to take machines to a similar value in its first year of marketing the NeXT Computer System through its rental outlets. And - at least a year after the company originally hoped to have it available, the operating software for the machine is finally out. Volume shipments of NeXT's workstation begin next Monday - in Asia through Canon as well as in North America, and higher education customers and registered developers will continue to buy systems directly from NeXT. All current owners of NeXT computers will have their system software upgraded for free - reward, no doubt for having struggled along with the bug-ridden pre-release versions. The NeXT Computer system software includes the operating system, the NextStep object-oriented programming environment and user interface, a whole host of additional development tools, and bundled applications. The array of software included in Release 1.0 comes on a read-only optical disk. With the Mach Unix BSD 4.3-compatible operating system, there are NetInfo, Network File System and TCP/IP communications and the Display PostScript language behind the screen. The NextStep user interface includes the NeXT Window Server, Workspace Manager, Interface Builder and Application Kit. Bundled applications include Digital Librarian; Digital Library; Webster's Ninth New Collegiate Dictionary; Webster's Collegiate Thesaurus, the Oxford Dictionary of Quotations; the Oxford University Press Edition of William Shakespeare: The Complete Works; Edit; Mathematica from Wolfram Research Inc; Preferences; Preview; Printmanager; Shell; Terminal; TeX from Radical Eye Software; TranScript; and WriteNow. The bundled programming environment includes Allegro CL Common Lisp from Franz Inc; ASM56000 from Motorola Inc; BUG-56 from Ariel Corp; Emacs; the GDB GNU debugger; NeXT Objective-C compiler and debugger; the NeXT SQL Database Server from Sybase Inc; Objective-C 4.0; and Berkeley 4.3 Libraries and Utilities. And in the fun-and-games department, there's a sound kit and music kit. The NeXT Computer System is \$10,000 at Businessland for 8Mb CPU, 256Mb optical drive, display and the software. A 400 dot per inch laser printer is \$3,500; a 330Mb Winchester is \$7,000 and 4Mb memory modules are \$2,300.

TELECOM'S £2.5m FOR PYRAMID

Pyramid Technology Ltd has won its biggest UK order to date, £2.5m for seven 9825s and two 9845s from the company's range of Unix RISC minicomputers, to replace a network of over 100 Altos microcomputers in British Telecommunications Plc's Resource Management and Planning System. The machines will be installed UK-wide and linked by an X25 packet-switched network. Telecom is standardising on Unix for its internal office automation needs.

MARTIN MARIETTA FILES AGAINST US FEDERAL GOVERNMENT OVER

US defence contractor Martin Marietta, Bethesda, Maryland, has filed a complaint against the US federal government over its huge contract awarded to Honeywell Federal Systems Inc last month, (UX No 246), which once again seems set to provoke a bout of industry squabbling over government favouritism in the allocation of lucrative defence contracts. Honeywell is to supply up to 80,000 Apple Mac II boxes running A/UX as part of the Worldwide Military Command and Control System Information System Workstation Segment - or Wimmix - programme. Federal Computer Weekly reports that the deal, worth \$164m over the next five years, could top the \$1 billion mark if all possible options were to be taken up. Martin Marietta, which claims to have tendered a cheaper package based on Sun Microsystems hardware filed its complaint with the General Accounting Office on September 5 - the project is stamped as critical by the department of defence - only the third time it has made such a protest in 20 years of competing on defence contracts. Whilst Marietta's subcontractors such as Informix, Claris and SecureWare appeared to be unaware of the fact that the complaint had been filed, Apple refused to comment. The fact turning Macs into workstations can prove to be an expensive business is thought to be a pivotal feature in the complaint - in addition Honeywell is to turn to other vendors for the monitors which are not included as part of the Apple deal. Government computer systems integrator C3 Inc, Reston, Virginia, which also put together a tender package for the contract based on Zenith Data Systems hardware is also reported to be considering a similar complaint.

UNISYS TO UNVEIL NEW IMAGING SYSTEMS

Unisys has plans for some new imaging systems which it is to unveil in New York on October 11. Understood to be image capture and processing Unix systems they are to be connected to PCs via distributed processing Local Area Networks to form 'image enabled management information systems.' Both IBM and Wang are already very interested in this market, which is expected to see high growth over the next year.

ANOTHER 1,000 PEOPLE ARE LAID OFF AT WANG
Wang Laboratories Inc is still continuing with the grinding process of reducing its workforce to levels consonant with its attenuated business, and reportedly laid off 1,000 people two weeks ago, with another 2,500 expected to go over the next few days; the cuts were set before Richard Miller moved in as president. Wang, with 31,000 people at the end of March and 28,300 before the latest round of cuts, is believed to want to be down to 25,000 or fewer by its year-end in June. US analysts say 8,000 more jobs could be under threat.

TFB GROUP LTD BORN IN BUYOUT

Technology for Business Plc - and the Rental Maintenance Ltd business - have completed their management buyout from CLF Yeoman Plc, creating a new TFB Holdings Ltd. The property is not as undesirable as many believed - the management team says that there were bids for the businesses from "many other companies". The company, whose core business is computer systems for the legal profession, starts life with 80 employees. Financial terms were not disclosed, but the management group has control from Day One; outside finance was provided by the Hungarian International Bank.

Welcome to the Scandinavian UNIX-Exhibition
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THE PRIVATE BATTLE BETWEEN INTEL AND MOTOROLA THAT LOOMS OVER THE ENTIRE INDUSTRY

by Tim Palmer

Almost unnoticed, the semiconductor manufacturers have wrested control of the industry from the computer manufacturers and technology has far outrun the ability of manufacturers to harness it. There can be very few computer manufacturers that yet want the Intel 80486 chip - most of them have scarcely amortised their investment in developing 80386 machines, but once IBM and Compaq have 80486 machines in the market, every other manufacturer still serious about its business has to have bring them out too. As for the system software developers, the 80486 is splendid for those in the Unix camp that are already on the Intel track, but a disaster for those building Unix machines around proprietary hardware.

It makes life tougher for even the strongest companies like DEC, and is sheer misery for the likes of Wang Laboratories, since machines built around it will outperform all but the biggest VS machines while costing getting on for an order of magnitude less to build.

Worst aspect

The worst aspect of the 80486 for all those who have decided to move on from the Motorola 68000 family and on to RISC is that the part has a head start of something like 18 months over machines built around any of the emerging RISC architectures because all the software that has been developed for the 80386 or has migrated up from the 80286 and 8086 is out there ready to run, whereas companies using the 88000 or Intel's 80860 still have to worry about definition of applications binary interfaces and all the other little tricks that are needed to make the myth of portability more of a reality. The extent to which technology is outrunning the industry's ability to master it is underlined by the fact that at the leading edge, the 80386 has come and gone - yet Microsoft Corp still doesn't have a full 32-bit version of OS/2 ready, the Extended Industry Standard Architecture camp still doesn't have its first EISA machine out. And those who comfort themselves with the thought that at least the 80486 should mark a pause, since it integrates so much into a single chip that it contains almost the entire known processor universe and there is not much more that Intel can do in an 80586 are whistling in the dark - Motorola Inc took a breather when it introduced the 68030 and many 68020 users decided to sit the part out, dismissing it as an 18-month less-than-wonder because offered so little over the 68020 to anyone that had designed a proprietary memory management unit. But now that Motorola has come out with a 50MHz 68030, many of those companies are having to think again. And even if the 80486 architecturally shoots Intel's bolt for the next two or three years, the current versions of the part are going to look very pedestrian in 1992, when versions clocked at 80MHz or more are likely to be available.

Undreamed of

And even companies that are currently thriving because of the edge their proprietary technology still gives them - Tandem Computers Inc, IBM itself - still have cause to worry about the 80486. The Sequent Computer Systems Inc parallel multiprocessor transaction systems through a great deal of work very economically when fitted with 80386s - but it the marginal cost of replacing 80386s with 80486s in the Sequent machines will lead to a quantum leap not just in performance but in price-performance, so that few manufacturers will be able to feel confident that their proprietary systems are not under threat.

And if Sequent begins to loom large, IBM, for all its insouciance in public, must in private be devoting enormous resources to resolve the problem of coming up with something to neutralise the threat to DB2 under MVS posed by Teradata Corp with its DBC1012 once it fits the back-end parallel database processor with 80486s. Upgrading the original 80286-based version with 80386s proved no problem, dropping in 80486s should be a cinch. Already the effects of the accelerating revolution are being seen in the way that DEC - alone among the majors, although Hewlett-Packard Co is catching on fast - is renewing its product line at a hitherto undreamed-of rate, but that has been the way of things at the lower end in Japan for a decade or so now, and the pace at which the chipmakers bring new technology to market dictates that the whole industry will have to do the same to survive. For IBM, the salad days of the AS/400 are already over, and from here on in, it is going to be uphill all the way, because machines intelligently configured around the 80486 - perhaps with copious help from California Software Products Inc - will very soon prove a much more cost-effective alternative to going to the AS/400 for the vast army of System/36 users that have yet to take the plunge and are still very far from convinced that there really is an AS/400 in their future. A striking feature of this revolution is the fact that the companies that set the rules are essentially small ones - Intel, at a mere \$2,000m a year, is dictating the pace of change to IBM at \$60,000m, and there is no prospect of Intel knocking even on DEC's door on the back of its current businesses: it will have to move into systems in an enormous way to achieve that, or make acquisitions of much faster-growing companies than itself.

Major blunders

Motorola Inc is a bigger company - yet Apple Computer Inc's annual business, with machines exclusively built around Motorola chips, is bigger than Motorola's entire semiconductor business. Indeed Motorola is so disenchanted with the semiconductor business that it intends to grow its telecommunications equipment businesses at the expense of what it sees as an essentially slow-growth, painfully cyclical activity. All of which means that the industry is now being led by the nose by two companies that have no real clout, but which have to up the ante every six months simply to minimise the danger of falling behind the other. One way and another, IBM has made a quite astonishing number of major blunders in the past decade, but in retrospect, the company's biggest mistake of all could be seen as selling out its Intel shares and not nailing down the company when it had it at its mercy: with IBM running the show, the break-neck progression of the iAPX-86 family could have been kept in check, Motorola, as the only other serious microprocessor contender would happily have allowed the pace of development of the 68000 family to moderate, instead making more profit out of each generation, and IBM's prospects of keeping RISC architectures and Unix confined to a techies' ghetto would have looked a whole lot brighter today.

IBIS SYSTEMS HAS SUPER-HIGH-SPEED DISK SUBSYSTEM FOR VMEBUS MACHINES

Ibis Systems Inc, the Westlake Village, California company that hoped to become a major force in the IBM-compatible mainframe disk business and has had to settle for rather less, has fulfilled its promise to diversify with disk products for the VMEbus market. The new Triad parallel transfer disk storage subsystem comprises a high-speed 32-bit VMEbus controller that resides in the host; the Ibis 1012 12Mbyte-per-second transfer rate - using two 6Mbps recording channels - 1Gb unformatted disk drive, and a proprietary software device driver for Unix and other VMEbus machines. Using disk striping techniques where parts of each byte are recorded on different disks, four Triads can be run in parallel to achieve a 48Mbyte-per-second transfer rate to 4Gb of on-line storage. The Ibis-1 VME controller consists of two standard VME double-height circuit boards that need two adjacent backplane slots, and the controller circuitry supports burst rates of up to 28Mbytes-per-second across the VMEbus, and an on-board first in- first out buffer enables data to be transferred across a secondary high-speed port where the VMEbus needs to be freed up for processing in data intensive tasks. There is also a standard 256Kb intelligent cache for speed matching, and further cache can be added in 256Kb blocks. The device driver is written to be supported by SunOS, AT&T Unix System V and Berkeley 4.2 BSD, and can be adapted for other Unix implementations, full source code is supplied, and all control functions can be programmed in C. The speed of the Triad leads Ibis to hope that it will find favour with users of Sun Microsystems' workstations and of minisupercomputers, and in high speed array and real-time image processing applications such as medical diagnostics. The drives have a three platter head-disk assembly and uses a thin film medium that the company manufactures itself. Single quantity pricing is \$34,420, which includes the 1012 drive, VMEbus controller and Unix/VME device driver. A cabinet that can house two drives costs \$2,900. Cresta Marketing Ltd of London SW is handling the Triad in the UK.

ANVIL EXPANDS INTO SOFTWARE WITH UNIX MONITORING TOOLS

Brisbane, Australia based Anvil Designs Pty Ltd, better known as a intelligent input/output board manufacturer, is moving into the software market with the release of two performance monitoring applications for Unix system users in the UK, via its deal with PC Distribution Ltd, Birmingham. First up is Crocodile, which monitors disk activity, and using idle system time rearranges the disk layout to allow faster access times. Data is pulled off disk, optimised, then the most frequently used files written back to the front of the disk in a continuous fashion, overcoming Unix's haphazard system of disk file arrangement, whilst leaving the file structure itself intact. Crocodile has a menu controlled interface, user defined parameters and a graphical on-line reporting system - it costs £395. The Monitor application was developed out of Crocodile's front end, and is a higher level diagnostic tool which evaluates system performance and identifies bottlenecks, with statistical information on a range of system routines and processes. Monitor has a graphics driven menu interface - but no price yet. Both applications run on any AT or PS/2 compatible Unix host, and will ship in eight weeks. Anvil is currently working with AT&T to put Streams functionality on its board products, and the Santa Cruz Operation to implement TCP/IP and X-Windows.

MOTOROLA 68302 CHIP DOES HDLC, SDLC, DDCMP, ASYNC

Motorola Inc has used the 68000 microprocessor core to create what sounds like a very attractive device - a single-chip communications controller that is designed to support five communications protocols, any three of them concurrently. The MC68302 is the second member of Motorola's 68300 family of microcontrollers, and supports HDLC for X25 networks, SDLC for IBM's SNA, DDCMP for DEC's DECnet, plus bisync, UART for asynchronous communication, and V110 for transferring data between terminals running at different speeds. The chip has three synchronous communications channels, making it possible to use any three of the protocols concurrently. Designed for use in network gateways, bridges, multiplexers, switching equipment, packet assembler-disassemblers, concentrators, modems and input-output subsystems, the 68302 is seen as a key component in the thrust towards Integrated Services Digital Networks. As well as the 68000 core the part integrates a RISC communications processor to manage the three serial channels, and includes six direct memory access controllers for the three channels. A serial communication port provides a synchronous communications channel to other chips and there is 1,152 bytes of on chip memory, used as a memory-mapped register bank. The part, clocked at 16.67MHz with a 20MHz version planned for first quarter 1990, is to start sampling next month, with volume in the first half of 1990; samples are \$55, and the 68302 in a surface mount package will be \$25 in volume. In the meantime, there is a 68302ADS application development system now and Applied Microsystems Corp, Redmond, Washington has an emulator for the part as a member of its ES1800 family for delivery in fourth quarter at from \$12,000, \$8,000 if you already have an ES1800 - which runs on MS-DOS, VAX, Sun and Apollo kit. And in Santa Clara, California, Microtec Research Inc has a version of its XRAY source-level debugger for the part. The toolkit, with ANSI C cross compiler, relocatable macroassembler, linker and librarian is \$3,500 for the MS-DOS version, \$1,750 for those having Microtec C.

SCO PORTS APPLICATIONS TO SUN

The Santa Cruz Operation has ported its SCO Professional spreadsheet package to the Sun-3 workstation, to be followed by Sun 386i, Sun-4 and Sparc versions by mid-October. A single user licence is \$600, multi-user licences begin at \$1,300. Once this is complete SCO is to press on with similar ports for Ashton-Tate's FoxBase database package, which it distributes, despite the 'look and feel' copyright suits that were filed against it by Ashton-Tate back in November of last year, (UX No 207). SCO is also getting together its first network licensing policy, initially for these two packages, under which a server licence is bought, followed by 'bundles' of licenses. And mid-October is being suggested as the release date for Open Desktop, SCO's \$1,000 user interface.

STILL NO DATE - BUT IBM SHEDS MORE LIGHT ON AIX, NEW RTs AND CONNECTIVITY

A couple of the reasons IBM has given for the delay in announcing AIX 3.0 and the new generation of RTs according to William Filip, assistant general manager of the advanced workstation division in Austin, Texas, which has responsibility for development, are firstly not enough software support is yet in place, and secondly that distribution channels for the new kit haven't been finalised. This comes as no surprise given the fact that as yet not one software developer has one of the new machines with which to work - though there are reported to be over 80 anticipating arrival of advanced versions sometime next month. And in the US IBM is reorganising its reseller channels so that the new RT is positioned within its the marketing operations division - outside of the national distribution division - focusing primarily on the small systems side of its business, and looking remarkably like an attempt at nicheing the thing. It is clear at least that the majority of IBM's outlets will not be selling the system. The new RTs - they don't have a name yet, except second generation RISC technology - will be micro-channel affairs, though not necessarily identical to the implementation on the PS/2 Model 70, but the two will have common input/output capabilities for add-on cards, and the same bus mastering for acceleration. IBM has not yet made a decision as to whether the new RISC technology will be licensed in the same fashion as the Sparc chip from Sun. On the software side, Open System Interconnection protocols will be implemented on AIX in the future, TCP/IP will appear on MVS, OS/2, OS/400 and in Standard Network Architecture, which is a part of IBM's Standard Application Architecture platform. For users who want a single interface across all architectures, including AIX, IBM says that X-Windows and the Motif graphical user interface will be available if required. To fulfill this an X server capability will be implemented to reside on OS/2 under Presentation Manager, the X facility also being an optional extra under SAA, of which Presentation Manager is a part. In addition, Computer Reseller News suggests that more porting centres are to be established in every country in Europe, in the US, Canada, Australia and Japan to enable developers to port applications to AIX. Filip said that IBM currently has a taskforce of 1,700 working specifically on the development of AIX and the new RTs - the whole project has swallowed up \$1 billion this year, or one sixth of IBM's total research and development budget, a figure projected to double next year.

COMPAREX ENDS TALKS WITH HITACHI ON BUYING NATIONAL ADVANCED EUROPE

The negotiations with Hitachi Ltd for Comparex Informationssysteme GmbH to acquire National Advanced Systems Europe have been terminated, and Comparex will to continue to operate under its former rolling agreement with Hitachi, although it will now be competing against a company calling itself Hitachi Data Systems, the planned new name for National Advanced. Comparex also announced that Nixdorf Computer AG is to add the Comparex 8/8x models to its 8890 IBM-compatible line in an extension of a six-year-old agreement whereby Nixdorf acted as a direct agent for Comparex. Nixdorf is trying where possible to move its customer base onto its Targon Unix line, but knows that some of its larger 8890 customers will want to remain in the 370-compatible world.

MOTOROLA TO DO FDDI FIBRE NET CHIP SET WITH DEC'S HELP

DEC and Motorola Inc's Microprocessor Products Group yesterday announced that they were teaming on design of a Fibre Distributed Data Interface chip set which Motorola will manufacture and market. This partnership marks Motorola's entry into the 100Mbps fibre optic local net technology and marks DEC's affirmation of its interest in the area. DEC, which is providing the protocol portion of its FDDI implementation, will buy a portion of Motorola's output; the four chip set is to be out next year.

UNIWARE UNVEILS UNIDESK LINE FOR INTEGRATING DISTRIBUTED UNIX SYSTEMS

Berlin software firm Uniware GmbH will shortly be bringing out a new five-product Unidesk family - the first module, Unidesk/Config, has already been announced at the 1989 German Unix User Group conference earlier this month. The Unidesk modules form an object-oriented, system for integrating Unix systems that can be installed on distributed computer networks. It is not a ready-to-use software package, but is designed to form the basis of a system that can be integrated with third-party applications such as editing. Uniware's aim is to be able to support not just individual activities but all the work needed to be carried out. The Unidesk/Config server is the heart of the system, but can also be used independently. Problems associated with standard Unix such as user classification and data security are solved by the configuration module, says Uniware, which provides facilities for user authorisation and authentication. The server has a step-by-step instruction path to guide users, and the user identification process, which extends over the whole system, is provided by a token that carries all the information relevant to identification. Also soon to appear on the market is an interface called OFE that displays a panel on which data and documents can be controlled with the desk module, along with the four remaining products - Unidesk/Time, which records the time a specific feature was used, Unidesk/Desk, and Unidesk/Reg, which orders objects and facilitates search processes in the system.

AEG TO BUY 50% OF MATRA'S MATRA-MHS CHIP BUSINESS

In a further consolidation of the European semiconductor industry, which started with SGS and Thomson pooling their interests and the resultant SGS-Thomson Microelectronics BV acquiring Inmos International Plc, and has seen Plessey Co buying Ferranti International's chip business and that in turn passing into 50% ownership of Siemens AG, AEG AG joined forces with Matra SA yesterday. AEG's Telefunken Elektronik GmbH will take a 50% stake in Matra-MHS SA, the company born out of the Matra-Harris Semiconductor joint venture with Harris Corp of Melbourne, Florida. AEG is looking for chip sales of \$650m or so this year, while Matra-MHS had sales of about \$75m last year. The German semiconductor company has about 6,000 employees, Matra MHS about 750. AEG AG is itself owned by the car maker Daimler-Benz AG.

X/OPEN'S USER INTERACE DECISION AWAITS COMPROMISE BETWEEN WARRING UNIX CAMPS

Faced with the choice of adopting one or other, or some combination of two graphical user interfaces, Open Look and Motif, whose respective proponents are engaged in mortal combat, the X/Open group's flow of oil - which it has been pouring on the troubled waters for some months now - seems to have run dry, and with it the selection process come to a grinding halt. In getting both Unix International and the Open Software Foundation into its stable a few months back, (UX No 231), the group finally brought these horses to water - but now it can't get them to drink.

As reported last week, (UX No 249), X/Open's interface selection meeting culminated in a stand-off, however it has now emerged that agreement was reached, but only in part, at the lower levels of definition, on the adoption X-Windows 11 version 4 as a standard, and on up to the level of intrinsics. On the application programming interface - API - the toolkit which will reinforce the look and feel of the interface, there is reported to be "less agreement," and as X/Open is not a developer there is now no question that it might choose to configure its own. The Unix camps then are divided along both political and technical lines.

Style guide is the key

The issue hinges on the style guide - on how the screen and windows will behave - and a merger of Open Look and Motif would require some compromise from both sides, and one API for both is proving too difficult to develop. The result of such a developemnt would be that the interface will look like one or the other - or unlike both - a compromise it seems neither side is prepared to countenance at present. Open Look in its present guise has three APIs, one for each of the versions available, one style guide and one desktop manager. Motif has an API and style guide - but no desktop manager, which is left up to developers to buy in or design. The two on the market are the much in the news X.desktop from IXI, and Looking Glass from Visix. At the moment it is being left up to the two camps to see if they can thrash out some sort of arrangement between them, and a some sort of resolution is reported likely "over the next two months." Although even in X/Open's judgement the camps "are going to have to reach some decision," the process as X/Open euphamistically reports, "is taking overly long."

Inspiration

Not wanting to alienate one or other of the groups within it, X/Open is now casting around in other directions for inspiration, to the IEEE for instance - which was holding a meeting of its windowing and interface committee as we went to press - always maintaining that it is quite prepared to support and adopt other standards if and when they emerge. To some degree this move must have been provoked by reports coming from all quarters which suggest that users are tired of the wrangling, and want a decision one way or the other rather than to no decision at all. Moreover independent software vendors even more so are clamouring for action so that they can get on with the business of developing applications.

INTERGRAPH BUNDLES LOOKING GLASS WITH ALL WORKSTATIONS

As suggested a few weeks ago, (UX No 245), Intergraph Corp, Huntsville, Alabama is to bundle the Looking Glass graphical user interface from Visix Software Inc with all its workstations - starting immediately - in a deal thought to be worth \$10m. Icon and mouse-driven Looking Glass runs on graphical Unix workstations and X terminals, providing users with a more intuitive method of managing files and directories, manipulating the Unix environment and launching applications.

...AND H-P'S OWN MANAGER MAY COME IN DIFFERENT VERSIONS

Following Visix's announcement, sources at Hewlett-Packard have revealed that its own desktop manager project, (UX No 246), is still in the requirements definition phase, and is being run out of its Corvallis, Oregon division that is also handling the company's Motif developments. Chances are that the company will go for a high level manager that sits on top of New Wave - which itself resides above Motif - perhaps even several of the market areas. Presently H-P is looking at the possibilities of developing interfaces for engineering and hospital administration systems.

UCL GROUP LOOKING BRIGHTER AHEAD OF ITS ACQUISITION BY FERRARI

London SE-based UCL Group Plc, which is in the process of being acquired by Ferrari Holdings Plc of Egham, Surrey, has reported something of a turnaround figures with pre-tax profits up 213% at £50,000 on turnover that fell 3% to a little under £10m because of the disposal of the facsimile, photocopier and microcomputer businesses. The company's computer systems division Universal Computers is beginning to recover from the market crash of October 1987 and contributed £169,000 to the group's pre-tax profits during the interim period, while the computer maintenance division saw revenues rise by over 11% to £3m, but saw profits cut by an increase in the cost of sales - a problem that should be somewhat alleviated by economies of scale when the Ferrari merger goes ahead. The Computer Factors division was knocked back by the sale of the Micro Division seeing its turnover drop by 6% to around £3m, but its gross margins have been improved by this disposal. UCL's Unix business which was put into its new Universal Systems division in January has seen margins eroded so that turnover fell by £150,000. Meanwhile, UCL's Northern Computing Pick business in Northern Ireland is flourishing with net profits reported to be "above expectations". According to Ferrari's chairman Bob Woodland these two divisions will gradually become one in the expanded group as Pick systems are moved onto Unix hardware and the Unix business is built up through the applications market.

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X/Open's Prospectus of Market Demand, thrashed out by users and manufacturers in Montreal, (UX Nos 236, 237), is still being pursued by members, but it is now clear that the document, to be published by the end of the year, will form the basis of most of X/Open's work over the next year or so, including version 4 of its portability guide - XPG4 - which is also under review by the member companies.

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Sun Microsystems vice president William Avery from its Boston Development Centre has returned to former company Encore after less than a year in the job.

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The Carnegie Group, Pittsburgh, Pennsylvania, has signed up two new European software distributors - in the UK, Business Systems, and in Finland, Inteltech.

- o -
More news from 88open's general meeting - Dr Paul Huray, advisor to the White House Office of Science and Technology, reported that the US government is planning a \$1.9 billion initiative in high performance computing, to be shared between universities, industry and government.

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SPSS UK arm, Walton-on-Thames, Surrey, has launched new versions of its SPSS-X Capture data analysis and 3D graphics system for use with Informix and Sybase databases - prices start at £805 for a single user Unix workstation edition, going up to £8,400 for IBM 3090 and NCR Tower 800 versions.

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London, W1 based Omicron Management Software's Power 'C' accounting software is now available on ICL DRS machines running Unix.

- o -
Maximum Strategy Inc, San Jose, California, has a new board controller for the Fujitsu 2380A disk drive, which it claims provides up to 1.6Gb of formatted storage with a transfer rate of 15Mb per second for Sun, Silicon Graphics and other Unix workstations - the SDC Disk Controller for VME backplane slots is at \$12,000.

- o -
On the communications front, Banyan Systems Europe, Croydon, London, has introduced a new configuration of its virtual network operating environment for up to 10 simultaneous users - Vines/386 Team supports Banyan's communications adaptor board and most of its existing networking facilities, including the applications toolkit, network manager, mail and printing options - it costs £2,500, and is upgradable to a full blown Vines/386 system when tools become available at the end of this year.

- o -
Chicago, Illinois based Cimline's CAD/CAM software is now available in the UK for the HP 9000 Series 300 workstation running under HP-UX, for £3,000 - in addition its computer integrated manufacturing software can be integrated with HP's ME10 CAD package.

Intergraph Corp has won a monster \$84m contract to supply the US National Aeronautics & Space Administration's Space Station Freedom programme with a CIE component for the technical and management information system: the CIE database will take digital design files and data from contractors, and integrate and store it for review and management; communications links will make it accessible from 12 locations across the US during the Space Station's 30 year lifespan.

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AT&T Co is set to allow universities and colleges to make binary copies of its C++ version 2.0 language system for distribution to students for just \$25 each, with a licence for the C++ source code to be offered at \$300 per processor.

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The UK's Cambridge Micro Computers Ltd has launched the Vitesse M683, a multiprocessor using up to four 68030 processors to support up to 256 users: tasks are distributed between the four processors by an automatic load balancing program.

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US press reports say that the Air Force Computer Acquisition Center obtained discounts of between 43% and 58% on hardware for the AFCAC Standard Multi-user Small Computer Requirements Contract - the largest Unix order in AT&T Co's history.

- o -
Oracle Corp, Belmont, California has become the first relational database vendor to join Semi/Sematech, an association of US suppliers to the American semiconductor industry: the new body provides a forum for the exchange of information between its members and the Sematech chip technology cop, and Oracle reckons that "Relational databases and the Oracle database in particular play an important role in Sematech's stated goal of helping America regain leadership in the semiconductor industry."

- o -
Hewlett-Packard Co has announced a Motif-based application that delivers more than 20,000 pages of Unix documentation and support information on a Compact Disk Read-Only-Memory: the LaserROM/UX provides on-line access to operating information for HP9000 Series 800 and Series 300 HP-UX computers, and includes user manuals, software status bulletins, application notes and catalogues, and will be updated on a bimonthly basis at \$1,740 for a 12-month subscription; software to use it is \$800 for the initial eight-user licence and users can be added in groups of four at \$400, with ships in first quarter 1990.

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Tandem Computers Inc has signed DMR Group Inc, Montreal, Quebec to develop integration software that will address the need for internal communications among multi-vendor computer systems within major financial institutions.

Progress Software Corp, Bedford, Massachusetts will support Novell Inc's Sequenced Packet Exchange and Internet Packet Exchange and DEC's DECnet protocols in its Progress relational database and software development environment: Progress already includes built-in support for NetBIOS, TCP/IP and OpenNET.

- o -
A new company called Computer Investments Ltd has been established in a £2m management buy-out of the Software Sales and Datex divisions of Milton Keynes, Buckinghamshire-based CIL Group: the investment group 3i has backed the new venture with a £950,000 equity package, and County NatWest is also providing equity funding; the company will operate as a Unix-based systems house designing and supplying software for legal and construction markets, and it will also market the computerised video display system developed by the Datex division

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The US Defense Intelligence Agency has plans for a \$75m to \$100m requirements contract for Unix-based compartmented mode workstations that will allow different levels of security to be accessed on the same workstation: the Agency awarded competitive cost sharing agreements for product development last year, and machines from Apple Computer Inc, DEC, Harris Corp, IBM and Sun Microsystems are to be tested by the National Computer Security Center over the next several months.

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Basingstoke, Hampshire-based Plessey-Telenet Ltd - whose future is uncertain now - has a £3m contract to supply National & Provincial Building Society with a UK-wide X25 data network: the system is to link 327 branches and will carry mortgage applications and automatic teller machine control packages, which are currently on the society's Unisys Corp mainframes; the requirement was a network able to function all year round, 24 hours a day, and to accommodate increased traffic and interconnection with other disparate computer systems.

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OPEN SOFTWARE FOUNDATION WILL ADD MACH CAPABILITIES TO OSF1

The Open Software Foundation has had second thoughts about how soon features such as symmetrical multi-processing and improved security should be included within its operating system environment, and is now planning to include those features in OSF/1, due out next year. The Foundation is currently investigating the feasibility of incorporating technology from Carnegie-Mellon's Mach operating system for integration with the "almost finished operating system component based on IBM's AIX 3.0 kernel. The move was prompted by discussions which began at the mid-May OSF meeting held in Monte-Carlo, where members expressed the feeling that such features were too important to be held back until the second release of the OSF environment, unlikely to surface until late 1991. According to OSF director of European operations Henning Oldenburg, AIX 3.0 as delivered from IBM consisted of 1.8 million lines of code. From that OSF took out IBM specific code, and is currently in the process of adding the Mach memory management code. The new features would require the replacement of another 55,000 lines of code, said Oldenburg. The Foundation is currently evaluating its options, and will report to members at a Boston meeting between November 6-10th. If the OSF takes code direct from Carnegie-Mellon, the final scheduled release for OSF/1 - mid 1990 - might have to be put back. However, said Oldenburg, the possibility of taking more developed code from companies who have already worked on Mach, such as Encore, NeXT or Sequent, might speed the process up, he said. Members will vote on which course to take at the meeting. Oldenburg said it was unclear at present when the first version of the OSF developers kit, due out at the end of October, would now be released.

...AS HP SAYS IT WILL WAIT FOR OSF2

Hewlett-Packard, one of the original Open Software Foundation sponsors, says it does not see the OSF/1 operating environment having all the things it needs before 1991, and will therefore continue to offer its two versions of Unix, HP-UX and Domain/OS for another few years yet. Hewlett was originally one of the few OSF sponsors to publically commit to using the operating system. It will still take OSF/1 to sell to those customers looking to add their own value, such as Universities and research organisations.

...ADDS ENTRY RISC WORKSTATION, X WINDOW PRELOADED

Hewlett-Packard Co has lowered the entry point for its HP9000 800 line of RISC Unix workstations with the 834CH, which is rated at 14 MIPS and 2.02 MFLOPS and comes in at \$22,500 with the X Window System preinstalled and configured. It comes standard with 8Mb CPU, 19" colour monitor, integrated CH two-dimensional colour graphics, and support for up to seven manipulation devices, plus one slot. Memory goes to 48Mb and it costs \$19,375 with optional 16" colour monitor. US delivery is eight weeks. To get the software pre-loaded, users need to order the 304Mb hard disk: when switched on, a log-in screen based on OSF/Motif and X Window appears so that work can start at once; pre-loaded software also includes HP-UX, NS/9000 and NS/ARPA networking services and the Starbase Graphics Library. The software option is available with all new HP9000 300 as well as the 834CH workstations. The disk costs \$6,725 for the 834CH, and for the 300s, a 161Mb drive with software is \$3,800; a 323Mb is \$5,600; with 67Mb quarter inch tape back-up those prices rise to \$5,800 and \$8,600, while the 323Mb disk with a 133Mb tape costs \$8,600.

UNIX JAMBOREE AT UNISYS

Unisys Corp looks to have a whole host of Unix tricks up its sleeve at the moment - in addition to the imaging systems which are due for a US and European launch on October 11 in New York, (UX No 150), the company also has plans for other systems, and PCs, over the next few weeks. Most interesting of the bunch is the Independent Software Platform - already incorporating two new high-end network servers - systems designed to support all standard operating systems. The two - known as the ISP 30 and ISP 50 - are at present supporting Novell Inc's SFT NetWare v2.15 and NetWare 386. A driver is also offered so that SFT NetWare v2.15 users can use the servers' SCSI drives, and similar platforms are under development for Xenix and OS/2. The 80386-based ISP 30, with up to 12Mb memory, and ISP 50 with up to 64 Mb, run at 16MHz and 20MHz respectively, and can support networks of between 40 and 60 users. The machines are being developed by Unisys' Network Computing Group, formerly the Convergent side of the business, and are built upon the same architecture as U6000 systems. The ISP 30 costs \$7,500, the ISP 50 is \$16,500. According to Unisys spokesman John Chen, the long-term aim is to develop the family to become processor independent as well as operating system independent, with a common OSI and communications software layer for all Unisys server applications. Motorola 68000 and low-end 88000 servers are likely to surface within a year, he said. Also in the pipeline is a new addition to the 68020-based S/Series, due for launch in Europe this week, and in the US next month. The S/280 Unix system can handle six, 14 or 22 users, and is built around a 25MHz version of the Motorola processor. A six user system with 4Mb RAM and 80Mb hard disk is \$12,400, the 22 user system has 16Mb RAM, 740Mb disk and costs \$33,850.

PRIME WITHDRAWS FROM MULTI-PROCESSING GROUP

Ravaged Prime Computer Inc is desperately cutting costs after its fight against the hostile MAI bid and its subsequent acquisition by J H Whitney Co, and one of the projects to suffer the company's involvement with Intel Corp, Olivetti, and Unisys Corp to develop a multi-processing version of Unix System V.4. Although Prime could not find a spokesman to comment by the time we went to press, it now appears to have withdrawn from the Consortium, which was first set up in the middle of 1988, though only revealed last March (UX No 222). Jerry Popek of Locus Computing Inc, who is heading a Workgroup on Multi-processing for Unix International, confirmed that Prime had dropped out of the Intel-led consortium, but said that work had not slowed due to Prime's non-participation. "If anything, the pace of work is increasing", he said. Popek's Workgroup (UX No 223) is due to submit a report on multi-processing to Unix International and AT&T's Unix Software Operation within a month. "We are coming to a crisp solution, and will be delivering our report on time", he said.

DESKTOP GRAPHICS CONTENDERS JOSTLE FOR MORE CUSTOMERS

Following the completion of its deal with Intergraph last week, (UX No 250), Visix Software Inc, Huntsville, Alabama, is piling the pressure on arch rivals IXI Ltd, with the announcement of new marketing deals with MIPS Computer Systems and Network Computing Devices for its Looking Glass Unix desktop offering. The two companies will be showing Looking Glass on their hardware and promoting it as their preferred graphical user interface shell. Whilst Visix also numbers Pyramid as its OEM partners, Cambridge based IXI Ltd's X.desktop product has found favour with Acorn, Locus Computing Corp, which has developed an Xhibit version, Santa Cruz Operation, which has Xhibit in its Open Desktop interface application, Motorola, BiiN, Uniplex - which has X.desktop as the interface to its X-Windows office automation software and is to announce it in the UK shortly, NCR Corp and Parallel Systems International. IXI says that X.desktop will be shown on a range of 88open member hardware platforms, and on DEC systems at the forthcoming Unix Expo show in New York. The other players in the the same game, rounding off the quartet, are the Paris-based company Non-Standard Logics, which has a desktop manager called Wish, and the UK's Torch Technology of Cambridge, which was showing off its own, overlooked offering - the curiously named Y Open Top - at London's Personal Computer Show last week. The product is now available running under the Open Software Foundation's Motif interface. It costs £295 and will also run on Sun Microsystems, Hewlett-Packard Apple and Acorn Unix based hardware.

ARIX BIDS FOR \$1 BILLION TREASURY CONTRACT ALONGSIDE UNNAMED PRIME CONTRACTOR

Arix Corp says that it "and a prime contractor to the US government" have put in a bid for the \$1 billion-plus Treasury Multi-user Acquisition Contract, known as TMAC. As subcontractor, Arix would supply multi-user, Unix-based computer systems, while the prime contractor would provide "other requirements including hardware, program management and systems integration. Sources suggest that the prime contractor is none other than IBM. TMAC is expected to be worth more than \$1 billion dollars over a five year period to the winning bidders, and originally called for the supply of some 2,500 Posix compliant systems to the US Treasury Department's twelve divisions. Although at the beginning of the year IRS spokesman Henry Philcox told Unigram.X that the contract would be awarded in the Spring of 1990 (UX No 213), Arix is now saying that "due to the scope and complexity of the project, no specific estimate of the date of the award can be made".

ACORN IN £2.1m UNIX AGREEMENT WITH OLIVETTI

Acorn Computer Group Plc saw an extraordinary leap in pre-tax profits at its interim stage: up 193% to £2.1m. This performance was, however, bolstered by a £1.2m payment from Olivetti Systems and Networks (a division of the majority shareholder in Acorn) for the acquisition of "certain sales and marketing rights related to a development project". The two companies are said to be developing new products together and it seems likely that this agreement will cover Unix opportunities in the educational market, presumably using Acorn's RISC. Under the agreement Olivetti will have exclusive distribution rights to the new product on the continent, but will share the distribution with Acorn in the UK market.

AMDAHL RELEASES UTS 2 UNIX

Amdahl Corp yesterday announced the general availability of UTS Release 2.0 version of Unix, which complies with AT&T's System V.3.1 and is the only Unix that runs native on IBM 370- type processors. It is offered native or running in a domain on the Amdahl 580, 5890 and 5990 CPUs and as a VM guest on any 370. The new release offers portability, device independent input-output, and file server support; support for TCP/IP, Network File System, Ethernet and Hyperchannel are integrated, as well as symmetrical multiprocessing. It also has an enhanced mail router, Streams, and Berkeley Sockets implemented as a layer on top of STREAMS. It is £20,000 and from \$4,000 to \$14,000 a month.

INTEL MAY INVEST \$3m FOR STAKE IN ALLIANT

Alliant Computer Systems Corp, Littleton, Massachusetts says that it is in talks with Intel Corp that could lead to Intel making a \$3m investment in Alliant to further both companies' interest in parallel computing technologies. Intel builds multi-microprocessor Hypercube machines and Alliant manufactures parallel minisupercomputers.

MULTIFLOW COMPUTER BRINGS ITS TRACE MINISUPER TO THE UK MARKET

Branford, Connecticut very long instruction word minisupercomputer manufacturer Multiflow Computer Inc has arrived in the UK in its own right (its machines have nominally been sold across Europe by Ing C Olivetti & Co SpA for a couple of years now), hanging out its shingle in Basingstoke, Hampshire. It is late coming to the UK: its Multiflow Europe SA unit in Louvain, Belgium looks after sales operations in France, West Germany, Switzerland, the Netherlands and Italy. UK general manager is Bill Griffiths, and the company says that it has identified a number of prospects in the UK.

SCO EXTENDS UNIX APPEAL WITH XENIX FOR AMSTRAD PCs

Unix is pushing on further and further into the reaches of the mass computer market - and now SCO Xenix V/386 is available on the popular Amstrad 2386 PC, which with 4Mb of memory is just about sufficient to run the operating system. All software written for Xenix is said to be compatible with the Amstrad, and extra software is provided to overcome differences in the way the Amstrad 2386's memory management unit operates in comparison to other 386 based PCs. It is also there to ensure that early versions of the 2386, which had a number of hardware problems associated with them, will also run Xenix without difficulty. To make doubly sure, SCO and Amstrad have established a joint support partnership to deal with any problems that might occur. Run-time Xenix on the 2386 is £650, the extra support software is free of charge. The Xenix development system is an additional cost, the PC itself retails at £1,999, and Xenix/286 now runs on the 80286 version of the machine. Amstrad is looking to the 2386 as a means of pushing into the lower end of corporate marketplace where standard system technology is pushing companies towards price, rather than brand decisions in their acquisitions.

ALTOS LOWERS ENTRY POINT WITH SERIES 600

After news that Altos Computer is planning an upwards push with new high-end 80486 and i860 systems last week, (UX No 250), the company is also expanding at the other end, introducing a new entry-level machine, the 386 Series 600. Designed for six users, it is based on 25MHz version of the 80386, comes with 4Mb RAM, 32Kb cache memory, eight RS-232 ports and disk capacity going from 90Mb up to 380Mb. It runs Altos' Unix compatible System V/386 operating system and is shipping in the US now, in the UK from October 11 - no prices were given. Also introduced is a new storage expansion unit for the 386 Series 1000 allowing up to four 630Mb hard disk drives to be attached. On the software side the accounting package Solomon III is now available on Altos systems - claimed to be the first Unix implementation of the software.

LOTUS BUYS INTO SYBASE

In its most determined effort to diversify yet, Lotus Development Corp announced on Friday that it had agreement to buy 15% of privately-held relational database developer Sybase Inc with options on 10% more. Terms were not disclosed. The two firms plan to integrate the 1-2-3 Release 3 spreadsheet and the Sybase relational database. Observers estimate that Lotus is paying about \$25m for its stake in the Emeryville, California relational database software firm. Apple Computer Inc and Ashton-Tate Corp each has an undisclosed minority stake in Sybase.

IEEE DECIDES COMMON WIDGETS FOR MOTIF/OPEN LOOK ARE VIABLE

News on the informal IEEE windowing meeting which was mentioned in the piece on X/Open last week, (page 7, UX No 250), unfortunately did not reach us until after last week's issue had been printed, although it was included as a late addition in electronic versions. At the meeting, representatives from Unix International, the Open Software Foundation, AT&T and other companies decided that developing a widget set for an application programming interface supporting both the Motif and Open Look toolsets would be a "viable approach." This now paves the way for a formal meeting of the IEEE windowing committee in Brussels, in October, which is to choose, then design and draft a standard to achieve this, based on the MIT X-Windowing toolset. X/Open will have to meet to consider its response, but sources suggest there is a strong possibility the group will adopt a similar approach, at last resolving the choice of a graphical user interface standard, and defusing the squabbling within its own ranks.

HARRIS PROMISES 88000 NIGHT HAWK, EXPANDS TO EUROPE

Harris Corp's Computer Systems Division, which hasn't exactly been blazing all guns on the European front, is planning a serious offensive this side of the Atlantic over the coming months, and is on the prowl for potential partners to help push the process along. Starting with its Night-Hawk family of real-time minicomputers - which are now being launched over here from its European offices in Wokingham, Berkshire, and the Paris based European headquarters - Harris is seeking to establish a significant base in the run up to 1992. In addition the Computer Systems Division, which is part of Harris' Electronic Systems Sector, has a high-end, Motorola 88000 based RISC machine under development, which it plans to unveil before the end of the year. Whilst Harris may be a major supplier to the US aerospace and defence industries, it has never really had much presence in Europe, with perhaps 100 large and 200 small systems installed, and no more than 10% of the Electronic System Sector's \$1 billion annual revenue is thought to come from European sales. The 1000 and 3000 Night Hawk families, which first appeared in the US at the end of 1987, (UX No 158), use tightly coupled 68030 processors and start out at £45,000 for a one processor 6.5 MIPS machine, rising to £170,000 for an eight processor 52 MIPS configuration. They support three real-time operating systems, CX/RT, CX/UX and CX/SX, each of which complies to AT&T's System V Interface Definition for Unix - SVID. CX/UX supports both AT&T and Berkeley, BSD Unix, and CX/SX is a secure Unix implementation to the US Department of Defence B-1 level. Harris is also offering a secure local area network from Verdix Corp, Chantilly, Virginia, in an OEM deal signed last week, which has been designed to B-2 level and is currently in formal evaluation by the National Computer Security Centre. Harris will be marketing it as LAN/SX, part of its SX Secure Computing Environment, and is also working with Oracle Corp to put version 6.0 of its relational database into the same trusted environment in a deal signed last year, (UX No 190). In Europe Harris is thought to have been talking to Hewlett-Packard about a possible partnership. It has just appointed Emillo Dalle - formerly vice president of Gould's western European division - to the position vice president of Harris Computer Systems Division's European operations.

IBM TOUTS MICRO CHANNEL FEATURES, TWEAKS PS/2s

IBM last week accompanied limited new models in the PS/2 family and price cuts on some Model 30s and 70s with a pre-emptive strike against the Extended Industry Standard Architecture bus: the company revealed that the existing Micro Channel can run at 160Mbytes-per-second against the originally announced 20Mbytes-per-second - without the need for any new generation Micro Channel Two. A Synchronous Channel Check and Subsystem Control Block Architecture in the Micro Channel also enables a fault to be isolated on a multi-user system without bringing the whole thing down - but observers say that the features are not likely to be widely used for a long time. There is a 20% price cut on the Model 70 with 120Mb disk to \$6,400, and a new 20MHz 80386-based Model 70, the 061 with 60Mb disk and 2Mb memory, costing \$5,800; a 25MHz A61 model with the same disk, plus 64Kb cache is \$8,400.

AT&T, STRATUS SIGN PACT

Stratus Computer's decision to put Unix up on its fault-tolerant supermicros has won the Marlborough, Massachusetts company an agreement with AT&T Co under which the two will ensure compatibility between AT&T Definity PABXs and Stratus' XA2000s. The two will develop a software interface between the two, designed to enable software developers to write applications combining the processing capabilities of the Stratus kit with the voice and data capabilities of the Definitives, basing it on AT&T's Adjunct Switch Application Interface under Unix.

INTEL CLAIMS iRMX III IS FIRST REAL-TIME 32-BIT SYSTEM

Intel Corp has updated its iRMX real-time operating system to support its 32-bit 80386 and 80486 processors, in a move that it hopes will bring it into competition with minicomputer-based real-time systems from the likes of DEC, Encore, Data General and Norsk Data. And along with the new iRMX III software, the company also extended its Multibus II bus architecture with a new modular interface extension - known as Mix - which should facilitate the building of high-performance input-output subsystems, according to Intel. iRMX III remains compatible with previous releases, but supports larger segment sizes (4Gb rather than the previous 64Kb limit), will run in 80386 protected mode, and also supports the 387 maths co-processor. Existing 16-bit software will run after re compilation, but "performance-critical" segments of code can be converted for 32-bit operation gradually, running alongside the older code. It is available on Multibus I, II and AT bus architectures and is supported by existing iRMX development tools. Intel claimed that iRMX III was the first true 32-bit real-time system available, dismissing products from Motorola, Wind River Systems and Ready Systems as "real-time kernels", and claiming that real-time Unix implementations of Unix were inflexible, needing to be re-written with every new release of AT&T Unix. iRMX III can connect with standard operating systems such as Unix V.3 or MS-DOS on adjoining processors via Multibus at the Transport layer, allowing real-time results to be displayed or stored using standard software. The Mix interface for high-end input-output-intensive operations is processor- and bus-independent, and consists of a 386/020 baseboard with 80386 CPU, DMA controller, message passing co-processor and from 1Mb to 16Mb of DRAM. It will support up to three Mix modules for custom input-output solutions: Intel itself has produced the first three for wide area networks, local area networks and terminal connections. Mix development kits are available now, iRMX III next quarter: no tags.

THE UNIX DISASTER FOR ARMONK CONTAINED IN INTERNATIONAL TECHNOLOGY GROUP'S FORECAST

by Tim Palmer

Unmitigated disaster in the Unix world faces IBM if a new report on the company is to be believed. As far as we can tell, the scenario the report - from International Technology Group, Los Altos, California - projects is not presented as a disaster, but that is what it would be. Because the group forecasts that the forthcoming RTs will outsell the 9370 in 1990 (that shouldn't be difficult), but will also be outselling the AS/400 by 1993 or 1994 - disaster number one.

Because that forecast is accompanied by a graphic showing IBM generating \$4,100m from Unix systems in 1993. That's not bad, is it - a four billion dollar business from zilch in only four years. But that \$4,100m should represent only about 5% or 6% of IBM's total business by 1993 - even less if the company manages 10% annual turnover growth overall. In other words, by 1993, IBM's high margin AS/400 business will be well on the way to being wiped out by what by definition will be low quality, very low margin business.

Crippled

And that \$4,100m is not concentrated in a single market sector, where there would at least be economies of scale. Instead it is split over four segments - AIX on the PS/2 accounting for \$470m sales in 1993; RISC workstations representing \$1,360m, 33.2% of the total IBM Unix business; Unix on RISC-based mid-range systems - multi-user machines competing with the AS/400 - only \$1,220m, 29.8% of the Unix total; and Unix on large systems, \$1,050m, 25.6% of the total. That last figure would be superb news for Amdahl Corp, which currently does only \$300m out of Unix on its IBM-compatible mainframes. Actually, \$300m is very good, but the growth rate of Unix systems for Amdahl Corp implied by the International Technology Group forecast is nothing less than phenomenal. Because Amdahl offers a native implementation of Unix for its 5990 machines where the best that IBM can offer is a crippled version that runs under VM, so that it is only likely to appeal to users with a small Unix requirement, who are happy to put the thing up in one partition of a PR/SM system. Amdahl would have to be the most hapless marketing company in the computer industry not to outsell IBM's mainframe Unix systems two-to-one, which would mean that if IBM were to be doing \$1,050m in mainframe Unix systems in 1993, Amdahl, currently a \$2,000m-a-year company overall, would be doing \$2,000m in Unix alone in 1993 - an annual growth rate of well over 100%. There's no reason to suppose that it would not continue to grow its core MVS-based mainframe business at its current rate, which means that Amdahl is going to be a very substantial company indeed by 1993 - time to rush out and buy the company's shares. The figures for RISC workstations for IBM are equally good news for the likes of Sun Microsystems, DEC and Hewlett-Packard Co, because according to the International Technology Group figures, IBM will still be doing less in workstations in 1993 than Sun Microsystems alone did in the year to June 30 last.

Pitiful

So on the projection, IBM is still going to be a pitiful also-ran in the workstation business in 1993 - and its strategy of confining Unix to a technical ghetto will have failed completely. Not that International Technology Group does not point in that direction in its qualitative analysis - it talks of a desk-top system in January 1990 "at under \$20,000" - but \$5,000 is now the marker price for low-end Unix workstations - ask DEC, Hewlett-Packard or Sun. Elsewhere the group looks for two tower models and a first mid-range model delivering up to 30 MIPS, with a 45 MIPS model following later in the year. "AIX is being set up by IBM as a complete parallel environment to SAA, and will be coupled with Open Systems Interconnection networking to pose a real alternative for IBM users," says executive director at the group, Robert Simko. But on that scenario, that sentence should read "to pose a real threat to IBM's most profitable businesses". Is IBM really going to allow it to happen? The answer to that has to be "not if the \$1,500 report 'IBM Strategies for the 1990s' makes it to Armonk and IBM's top brass takes on board the forecasts contained in the Unix section. IBM has had to pay lip-service to a commitment to Unix because workstations are a major new market, and so much government business around the world is now specifying the Unix operating system, and IBM can't turn its back on that business with equanimity. It has to have a Unix capability, and it has to find ways of pricing its bids so that they are competitive with those from the true believers while still making money for the company.

Intolerable

But if it allows IBM Unix to make big inroads into the System 36 base, in five years' time it will again be faced with the intolerable situation from which the AS/400 and Systems Application Architecture were conceived to liberate it - two completely incompatible product streams becoming increasingly expensive to maintain and develop at the rate the market demanded. Why should the company willingly recreate such an unattractive state of affairs - especially when this time around, one of those two product streams will be at best marginally profitable in IBM terms. Because make no mistake about it, DEC and Hewlett have bitten the bullet and recognised that to remain successful, they have to get right down there in the gutter and mix it with the dirty-fighting discounters that will do anything to make a quick buck, and are having to rely on achieving enormously increased volumes to keep their margins up - and that is a game that IBM still shows no sign of being willing to play: its PS/2s are still hideously expensive by comparison with a string of reputable brands of high-end personal computers and this week's price-trimming exercise and new models in the US were no more than an earnest that IBM is not prepared to sacrifice margins for the sake of putting the discounters out of business. And Armonk will allow the Unix scenario outlined by International Technology Group, with the ravaging of its mid-range systems base that it implies, come to fruition only over its collective dead body.

CARL AMDAHL'S NETFRAME SIGNS FOR ORACLE

Carl Amdahl's new company NetFrame Systems Inc has signed to have Oracle Corp put its database management system onto its new family of 80386-based network servers, the NF100, NF300, and NF400, which the Santa Clara, California-based company is dubbing "network mainframes". NetFrame says that Oracle Server for the NetFrame computers will bring distributed database users "the reliability, security and compute capacity of mainframes, with the simplicity, flexibility and compatibility of personal computers"; Oracle Servers will be available on NetWare 386, and on OS/2, Banyan Vines and Unix V.386 as NetFrame's support expands to include these operating systems. The first two servers will be available through Businessland in November, the NF400 in January. An NF100 with input-output server having SCSI-II interface, Ethernet adaptor, RS 422 LocalTalk port, RS232, 8Mb memory and 380Mb disk is \$22,500. The NF300 starts at \$35,000, the NF400 at \$45,000.

CONCURRENT OFFERS "FASTEST" REAL-TIME UNIX IN RTU 5.0

Concurrent Computer Corp has launched v5.0 of its RTU Real-Time Unix, claiming a guaranteed response time of less than 1mS. The company says that response times of 300 microseconds have been measured, and claims that this means that for the first time, a real-time Unix can compete head-to-head with the fastest proprietary operating systems - promising that within 12 months its offering will match the speed of the fastest proprietary system. The implementation supports multiple processors via global memory and complies with AT&T's System V.3 with task-critical real-time extensions. These include a three-fold improvement in response time, a symmetric disk driver for multiprocessor applications development, and use of multi-threading. RTU runs on the (former Masscomp) 5000 and 6000 series Motorola 68000 family machines, and runs over as many as five processors. At the same time, the company launched multi-processor versions of its Micro 3200 models running the proprietary OS/32 operating system.

FORCE OFFERS 88000 BOARDS WITH REAL-TIME CAPABILITY

A new CPU-8X family of Motorola 88000 based VME RISC boards from Force Computers Inc. Campbell, California, are being offered with 17 MIPS of single board performance, 34 MIPS in a tightly-coupled configuration, or 340 MIPS in a ten chip VME backplane board. Aimed at high-end real-time and transaction processing systems, each use 20MHz versions of the 88000, and Force claims to have eliminated wait states to dynamic RAM. The CPU-80 has a single M88100 CPU processor and two M88200 cache memory management units with either 4Mb or 16Mb memory. It supports the VMEbus interface, has a SCSI interface, two serial and one parallel board. The CPU-81 is similarly configured but has a VME subsystem bus interface in place of the SCSI interface and parallel port. The CPU-82 is an expansion board to the CPU-80 and -81, with one 88100 processor, up to five 88200 memory management units, 8Mb or 32Mb of memory, a VME subsystem bus interface and optional Ethernet interface. The extra memory management units implement a "lock and load" function for real-time operation. The CPU-8X series' message exchange capabilities are compatible with Force's VME/Plus line of 68030-based boards, meaning they can be integrated into existing CISC systems, allowing message exchange software to work without modification. The RISC boards come with Forcebug/88K, an Eprom based monitor that includes driver code and support for embedded control applications, as well as an introductory support program - Running Start. Real-time operating systems will become available on the boards from next year - amongst them OS-9000 from Microware, PDOS from Eyring Research, Wind River Systems' VxWorks, Software Components Group's pSOS and the VRTX32 system from Ready System. The 20MHz, 4Mb CPU-80 and CPU-81 are to ship this quarter, the 8Mb CPU-82 at the beginning of next year, along with 25MHz versions. CPU-80 and CPU-81 are priced at \$9,900, the CPU-82 is \$8,900 and the Running Start program is \$990. Force is aiming its sights on revenues of \$45m this financial year.

UNIX TAKES A BACK SEAT IN MAJOR TOSHIBA SHAKE-UP

Toshiba Corp has been quietly restructuring its US operation and this week it all becomes official. Toshiba America Inc is no more. In its place will be the rechristened Toshiba Information Systems Corp to stress its computer side. In the upheaval, Don Anderson, vice-president, OEM Division Advanced Systems, the executive who has been ultimately responsible for the company's Unix efforts, has lost all product and strategic product planning responsibility in an internal coup d'etat that will see newcomer Bill Johnson, formerly Hewlett-Packard Co's Personal Computer Group marketing manager and now head of Toshiba's Computer Systems Division, pick it up. Insiders say Johnson, who also has responsibility for the operation's \$500m-a-year MS-DOS business, is unlikely to pay much attention to Unix, at least in the immediate future. Not only isn't it the big money winner MS-DOS is, but Johnson has also got staffing problems, having lost marketing director Dave Crain, and, just last week, sales vice-president Phil Vertin. Despite being shifted aside, Anderson gets to keep his title of vice-president and has been given the job of strategic planner for Unix corporate issues. That way he stays on as Toshiba's liaison with Unix International and the Open Software Foundation. Toshiba's OEM Division, sans Unix, will now pick up some other products like optical character recognition systems, Smart Cards and a touch-screen personal computer. Insiders blame Anderson's lack of management skills for his eclipse.

INFORMIX SIGNS WITH STERLING FOR IBM MAINFRAME LINK

Informix Software Inc, Menlo Park, California, has done a deal with the Answer Systems Division of Sterling Software Inc, Dallas, Texas for a joint development that will enable users of Informix databases to access IBM mainframe databases. The software will make it possible for Informix users to select, download and store data from mainframe databases such as IBM's own IMS, DB2, and IDMS, Total and Datacom/DB, and file formats such as VSAM and SAM. Informix is developing the end that will reside with the Informix database application on MS-DOS or Unix systems, and Sterling will license application program interface software to Informix that will enable its new product to interface via Structured Query Language with Answer Systems' Answer/Extractor server software on the IBM mainframe. The software will be compatible across Informix's full SQL-based line - but Informix doesn't expect it to be ready until the second half of next year.

...ADDS PC/TCP TO INFORMIX-NET PC, SQL FOR DECNET-DOS

Separately, Informix announced that its Informix-Net PC now supports the PC/TCP network software from FTP Software Inc, and that Informix-Net PC for DECnet-DOS now supports the latest MS-DOS versions of the company's line of SQL application development tools, which take advantage of extended memory. Informix-Net PC enables users to configure a database application in a distributed processing environment linking MS-DOS-based client workstations to powerful Unix- or VMS-based servers. Support for PC/TCP provides inter connection using the TCP/IP network protocol, and it runs on interface boards that support Token Ring, Ethernet and StarLAN networks. It also supports asynchronous connections over a modem and telephone line. Informix-Net PC costs \$200.

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James Cannavino has got it all now, although there is no evidence that he had any promises ahead of time from the weird women: the president of IBM's Entry Systems Division has been moved up to become general manager of the IBM Personal Systems line of business while retaining the Entry Systems post, reporting to senior vice-president and general manager of United States, Terry Lautenbach, and is a further beneficiary of the trend for people with technical rather than sales backgrounds to accede to high positions - IBM's new president, Jack Kuehler also has a technical background; Cannavino succeeds Richard Gerstner, who suffers from chronic back trouble, and has been given an unspecified special assignment.

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Solbourne Computer Corp is moving apace to sign up resellers for its low-cost Sparc-based workstations: five more have been added to the US with expected commitment of \$9.4m over the next year, bringing the total up to 22 - they are AI CAD, Madison Heights, Michigan; Creare.x Inc, Hanover, New Hampshire; Orlando Technology Inc, Orlando, Florida; Terminals Unlimited, Vienna, Virginia; and Simulation Associates Inc, Newport News, Virginia; and Solbourne Computer Europe, Swindon, Wiltshire appointed Logitek Plc, Manchester, and 4GL Computing Ltd, Edinburgh as first UK resellers.

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Hewlett-Packard Co's Apollo division has a \$7.5m contract to supply workstations and Series 10000 personal supercomputers to the US Department of Transportation for use in an air-traffic management system developed to minimise flight delays and improve air-traffic safety: the firm has already shipped more than 60 personal workstations and RISC-based Series 10000 to the Transportation System Center in Cambridge, Massachusetts in the first phase of the new workstation contract, which follows a \$2.6m contract awarded to Apollo by the Department in 1987; the system enables every en-route FAA-monitored aircraft US-wide to be viewed from a single screen.

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ICL Ltd has come out with a new Oslan High Speed Intelligent Bridge designed to simplify integration of increasingly large local area networks. The new bridge is claimed to have self-earning and advanced security features, and a data handling rate exceeding 2Mbps, as well as handling up to 1,024 addresses. No prices or delivery data given.

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Adobe Systems Inc has licensed the Chelmsford, Massachusetts-based Optronics division of Intergraph Corp, Huntsville, Alabama, to use the PostScript page description language in its products: the two will work together to implement PostScript with Intergraph's Clipper raster image processing chip set in the Optronics ColorSetter 2000, which is claimed to be the first low-cost, high-resolution laser imagesetter that provides fast, professional-quality colour separations of text and graphics from desktop publishing systems.

IBM is tipped to use a 5.25" 600Mb Compact Disk Read Only Memory from Toshiba America Inc rather than a floppy disk drive for delivering and loading software on the forthcoming RT workstations: Computer Systems News looks for the machine to use IBM's 320Mb 3.5" Winchester as the primary disk storage device.

Welcome to the Scandinavian UNIX-Exhibition
in Stockholm, Sweden
November 14 - 16, 1989



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Motorola Computer Systems Inc has signed with Oracle Corp for the Belmont, California relational database company to do a version of its software for the 88000 RISC and seek certification of the products under the 88open Consortium's Software Initiative compliancy standards: both Motorola and Oracle will market the new software products, starting with Oracle 6.0 on Motorola's Delta Series 3000 supermicros.

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MIPS Computer Systems Inc, Sunnyvale has signed Gain Corp of Seoul, South Korea to a 12-month OEM pact to market MIPS' RS-2030 RISCstations: under the \$15m agreement, Gain will do Korean language conversions on the workstations and then resell them to its customers in the steel, securities and publishing sectors.

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Stratus Computer Inc, Marlborough, Massachusetts has been hit by the usual kneejerk shareholder suit following the company's warning last week of a slowdown in its business: the suit alleges that the company's officers artificially inflated the share price by misrepresenting the company's prospects.

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Highlighting the waste of time and money involved in those nuisance class-action lawsuits brought by disaffected shareholders, a case where holders are suing Apple Computer Inc alleging excessively optimistic noises from the company over the prospects for the long-defunct Lisa computer is still churning its way through the courts six years after the event; although the share price dropped 75% in the wake of Apple's 1983 woes, if Apple holders had simply done a bit of averaging and hung on in there, they would be sitting pretty now.

The Interbase database is now available on Apollo's 3500, 4500 and 10000 systems, following a marketing agreement between Hewlett-Packard and Interbase Software Corp, Bedford, Massachusetts: the database is intended for use by system developers dealing with complex and dynamic data environments, prices range from \$2,000 to \$60,000 depending on configuration - Interbase is part-owned by Ashton-Tate, and its database has also been integrated into the PowerHouse fourth generation language by Canadian software house Cognos Inc, (UX No 211).

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The twelfth Personal Computer Show took place at Earl's Court in London last week: Commodore was making noises about its Unix machine that has been promised for years (UX No 16, 174 etc) - according to a spokesperson the UK operation now has development versions of a Unix box, and a launch is planned over the coming months - though whether this is the 68030 based 2500UX Amiga machine which was spotted in Canada in May, (UX No 223), or the more publicised 68020 based T 2500, no-one was sure.

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Dickens Data Systems, Norcross, Georgia, is to begin marketing the MultiView Desktop windowing system from JSB Computer Systems Ltd, Macclesfield, Cheshire, priced at \$145 - the package allows DOD and Unix based applications to run concurrently.

- 0 -

Following the hardware boosts given to its Symmetry line of parallel multi-processing Unix systems a couple of weeks ago, (UX No 249), Sequent has ramped up the software side with two new enhancements - the LISP and Prolog programming languages. Both are designed to encourage artificial intelligence and object orientated application developments, and are tuned for parallel processing. The availability of Allegro CLiP - Common LISP in parallel, and the Quintus Prolog Multiprocessing package are the result of technical and marketing agreements with Franz Inc and Quintus Computer Systems.

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INTEL, SIEMENS PULL PLUG ON BIIN

Intel Corp and Siemens AG yesterday threw in the towel on their BiiN Inc 50-50 joint venture on real-time multiprocessor systems and are actively seeking a buyer for the technology, which sounds a forlorn hope. In the meantime the 450-employee company is winding down operations. It says that after start-up investment in staff and operations, the costs to complete a competitive marketing infrastructure would render commercial success too distant a goal. Siemens does plan to use BiiN's technology in its next generation of real-time board systems.

STRATUS BRINGS FAULT TOLERANCE TO NEW MARKETS WITH LOW-END UNIX BOX

In what it describes as breaking the price barrier to fault tolerant computing, Stratus Computer Inc has launched its new XA2000 Model 30 transaction processing family, available in limited volume later this quarter. The basic configuration comes in at £29,400, rises to £32,400 for the selectable fault-tolerant model, and increases to £39,500 for a fully fault-tolerant machine. All three use Motorola's MC68030 processor and the MC68882 co-processor, both of which are duplexed on each board. The Model 30 runs under VOS, but Unix System V will be available from the first quarter 1990. The company claims that the Unix option, although not providing the same performance and capacity as VOS, is increasingly important to the low-end retail and telecommunications markets, both new found targets for Stratus. Selectable fault tolerance means that the machines can be configured according to the users needs, but according to Bill Thompson, senior vice-president of marketing, only a small percentage are expected to entertain the idea of selective fault-tolerance. Single-board memory starts at 8Mb rising to 32Mb, and the peripheral package includes a disk, tape adaptor card, and choice of five 5.25" mirrored hard disks. Capacity ranges between 152Mb and 638Mb, with a 1.3Gb version due in first quarter of next year. The single board Input-Output processor has a Motorola MC68010 microprocessor and controls the optional communications input-output adaptor boards. These include Ethernet, Token Ring, Multicomm, Remote Service Network, Universal Communications, and a number of wide area connections. The quarter inch 150Mb cartridge tape drive cannot be duplexed, but is user replaceable, as are all of the above. Stratus say that the Model 30 has created new markets for distributed fault tolerant computing, and it intends to focus on securities, manufacturing, telecommunications, retail, and banking. Its direct sales operation will handle volume accounts, and value added resellers will concentrate on low-end and untapped markets. As regards the company's relationship with IBM, Stratus believes that the partnership will continue indefinitely since IBM still lacks a fault-tolerant machine, and it fully intends to market the Model 30 family. Stratus also dismissed the notion of a fault-tolerant AS/400, saying that a machine cannot be turned around overnight, and there are varying degrees of fault-tolerance. IBM's Stratus offering - page3.

SOLBOURNE ADDS SERIES 5 WORKSTATIONS USING 33MH CYPRESS SPARC

Moving the pace of workstation development along at its usual breakneck speed, Lonmont, Colerad-based Solbourne Computer Inc has come out this week with a new generation of its Sparc-based Sun-compatible workstation family. The Solbourne Series 5 machines include a new CPU board using the 33MHz Cypress Semiconductor version of the Sparc running at 33MHz, giving Solbourne a top rating of 65 MIPS for a four processor system. The announcement is the fourth major product launch since Solbourne's initial market introduction back in January (UX No 214).

HOSKYN'S TO BUY INSTRUCTION SET

Hoskyns Group Plc is to acquire the North London training and services house The Instruction Set Ltd, which majors on Unix, for an initial £3.5m and up to £12.2m. Full story - page7.

BULL TO BUY ZENITH FOR UP TO \$635m

Catapulting itself into the front rank of personal computer manufacturers worldwide and leapfrogging Ing C Olivetti & Co SpA to become the biggest European company in the business, Compagnie des Machines Bull SA is to buy Zenith Data Systems and Heath/Zenith from Zenith Electronics Corp by the end of the year. The businesses being acquired have combined annual turnover of about \$1,400m and the purchase price is to be based on the net asset value of the computer business at time of closing, expected by year-end - current value is put at \$635m, but the eventual price is likely to be lower as inventories fall during the peak autumn selling season. Zenith sees a net gain of about \$22m from the sale, and will use proceeds to repay short-term and some long-term debt, investing anything left over in further high resolution colour display and high definition television development.

AT&T PACT WORTH "HUNDREDS OF MILLIONS" TO PYRAMID

Pyramid Technology Corp says that the agreement under which AT&T Co will market Unix systems based on its RISC technology (UX No 250) which was formally announced late last Tuesday, will involve \$30m of MIS servers at end user prices in the first year, and \$400m of systems to be developed under the pact over its five-year term, again at end-user prices. The Mountain View, California RISC systems pioneer did not reveal the value of the pact to itself, but AT&T said it would be paying "hundreds of millions of dollars" - very significant in the context that Pyramid's total turnover this year will be only about \$110m. Under the agreement, AT&T will initially take MIS servers for internal use and to offer to a limited range of customers, while the partners jointly develop the next generation Pyramid Unix system, a multi-processor range that will run Unix System V.4. The AT&T range now consists of Intel machines at the low-end, AT&T 3Bs as mid-range systems, and the new Pyramids at the top: sources say that the development of the promised Sparc range has been on hold over the last six months, and will be released only when there is some demand for them from the marketplace. Meanwhile the 3B systems are though to be near the end of their life (UX No 242).

MIPS CLEANS UP IN PERFORMAMCE STAKES - OFFICIAL

The Systems Performance Evaluation Cooperative - or SPEC - was set up at the end of last year, (UX No 206), with the intention of developing a sensible benchmarking suite for comparing the performance of various RISC technologies. It claims that existing measures like MIPS are often manipulated by manufacturers and misinterpreted by the press and users. SPEC has now come up with its first set of bechmarks, and the all important results of testing them on various architectures. The initial Release 1.0 set consists of a Unix- based suite of 10 Fortran and C becnhmarks that examine the performance of both integer and floating point computation in scientific and technical applications. These are available on a tape from SPEC for \$450, and SPEC also is also publishing a quarterly newsletter containing benchmark results, which costs \$150. Future suite will measure other aspects of system performance, such as disk, graphics and communications, and will measure system performance in networked and multi-user environements, as well as applications.

The SPEC Reference Time is the average time in seconds that it takes a DEC VAX 11/780 machine to run the complete set of tests. A SPEC Ratio is derived from dividing the SPEC Reference Time by each machine's corresponding run-time, and the single figure that summarizes the ten tests is the SPECmark, which is the mean of the SPEC Ratio result for each of the 10 benchmarks. The table below is compiled from the test results of all the benchmarks -

Machine	Processor	Reference Time	Machine Time	SPECmark
MIPS M/2000	R3000-25MHz	3867.7	235	16.5
Motorola Delta Model 8864DP	Dual MC88100-20MHz	3867.7	511.8	15.1
Apollo DN10010	PRISM-18.2MHz	3867.7	267	14.5
Sun SPARCstation 330	CYC7C601-25MHz	3867.7	343.7	11.3
MIPS M/120-5	R2000-16.67MHz	3867.7	345.3	11.2
DECstation 3100	R2000-16.67MHz	3867.7	381.4	10.1
HP9000 Model 834	PA-RISC-15MHz	3867.7	408	9.5
MIPS RC2030	R2000-16.67MHz	3867.7	417.6	9.3
Sun SPARCstation 1	MB 86901-20MHz	3867.7	468.5	8.3
Motorola Delta Model 8864SP	MC88100-20MHz	3867.7	473.3	8.2
Motorola Delta Model 8608	MC88100-20MHz	3867.7	496.5	7.8
DECstation 2100	R2000-12.5MHz	3867.7	518.7	7.5
HP9000 Model 370	MC68030-33MHz	3867.7	980.3	3.9
HP9000 Model 340	MC68030-16.67MHz	3867.7	2432.4	1.6

The MIPS Computer M/2000 emerges as a clear winner in the performance stakes. Not surprisingly the Motorola Delta 8864DP machine comes in at second place - it has two processors. What is surprising however is DEC's standing - down in sixth place - its DECstations use the same MIPS chip, as MIPS' own M/120-5 system, yet perform less well, suggesting DEC's implementation is not all it could be. Meaningful comparisons between the machines listed are still difficult to draw because each use chips of different clock speeds - from MIPS' 25MHz R3000 down to H-P's 15MHz PA architecture - its 9000 Series Models 370 and 340 both use a Motorola 68030.

Apollo, Hewlett-Packard, MIPS Computer Systems, Sun Microsystems and Electronic Engineering Times were the original founders - they have since been joined by AT&T, Control Data, DEC, Data General, IBM, Intergraph, Motorola, Multiflow Computers and Stardent.

APPLE ESCHEWS RISC FOR MOTOROLA 68040, 68050

Despite its comprehensive evaluation of RISC microprocessors, Apple Computer Inc has no plans to use RISCs in future versions of the Macintosh, Electronic News reports. The company is doing preparatory work on an 80486 version of the Macintosh while it awaits parts from Motorola, and plans to use the 68050 when that arrives. Its interest in RISC is mainly for use in peripherals.

McDONNELL BUYS ITS PICK BASE DOWN UNDER

With AWA Pty Ltd getting out of the Pick systems business Down Under by selling its AWA Computers business to Sanderson Electronics Plc and General Automation Inc, McDonnell-Douglas Information Systems has taken back what it reckons was its own: AWA distributed the McDonnell Reality Pick systems until mid-1987, when the planemaker moved into the Australian and New Zealand markets in its own rights, and it is now buying back its user base.

TEKTRONIX ADDS LOW-END WORKSTATION TO XD88 FAMILY

Tektronix Inc, still pushing hard in its attempt to enter the workstation market has added a new low-end model to its XD88 family of Motorola 88000-based Risc systems, first introduced last April (UX No 226). The XD88/10, rated at 17 MIPS, has up to 32Mb memory and 3Gb disk storage, has a VME bus, and runs the Tektronix Utek System V implementation of Unix. Shipping in the first quarter of next year, the new machine costs \$15,450 with 8Mb memory, 156Mb disk and colour monitor. Other members of the XD88 family include the 2D 88/20 and 3D 88/30 workstations, as well as the XD88/01 applications processor and 88/05 file server.

ORACLE AND PYRAMID OFFER MULTI-THREADED DATABASE

COMBO FOR TRANSACTION PROCESSING

Adding a transaction processing monitor to Version 6.0 of its Oracle relational database management system and implementing the combination on Pyramid Technology Corp's MISserver line of RISC multiprocessors, Oracle Systems Corp, Belmont, California claims that it can now offer a multi-threaded multi-server Unix database system. The key element of the new system is the /iTi Transaction Manager, an enhanced version of the AT&T Co Tuxedo System/T transaction monitor from Independence Technologies Inc. The partners claim that the combination represents a "unique client-server architecture" providing "superior throughput" for transaction processing environments in banking, insurance and telecommunications, supporting a greater number of users than systems without multi-threading. The addition of multi-threading to the multi-server architecture of Oracle means that each server can service multiple clients more efficiently by sharing common processing resources, increasing the number of users each server can handle. The /iTi Transaction Manager adds distribution of System/T features over a distributed heterogeneous network, the ability for multiple processes to participate in the same SQL transaction, and intelligent device support to the communications management and routing features of System/T, which directs client processes to available servers. In addition, System/T provides prioritisation and centralised administration services. Servers can also be added or dropped as the system load changes. Multi-threaded, multi-server Oracle and /iTi will be jointly marketed by Oracle and Independence on Pyramid's MISservers. First ships are set for November and versions for other Unix systems are planned for second quarter 1990. Pricing is dependent upon the system configuration.

ALLIANT "TO SWITCH FXs ONTO INTEL 80860 RISC"...

Amplifying the reasons why Intel Corp may be ready to make a \$3m investment in Alliant Computer Systems Corp, Littleton, Massachusetts (UX No 251) Alliant is understood to be working on a successor to its 64-bit FX minisupercomputer processors that is to replace the proprietary CPUs - which implement the Motorola 68020 instruction set - with Intel's 80860 RISC microprocessors. The new version is expected to use up to 16 80860s, and Alliant is expected to have the new machines out in the next 12 months.

HEWLETT KEEPS UP THE PRESSURE

WITH BIG CUTS ON HIGH-END UNIX MODELS

Hewlett-Packard Co is slashing US prices on some Unix systems, cutting the HP9000 Model 855S by 29% to \$241,000, the Model 850S by 20% to \$176,000. Terminal expansion products for the machines were cut 25% to 50%, and the 16Mb memory board is reduced to \$23,900. It also continued a special offer on the mid-range Model 835S that saves up to 24% to the end of November. The 835S is bundled with an additional 16Mb, 32-user HP-UX licence and is offered at \$61,338 with a 600Mb disk, \$66,338 with 900Mb disk.

IBM GETS CLOSER TO STRATUS, ADDS ENTRY SYSTEM...

IBM is becoming more and more dependent on Stratus Computer Inc and for the first time last week announced its own version of a new Stratus machine on the same day as Stratus itself. The new 68030 model, which in the Stratus version starts out non-fault-tolerant, is the System/88 4593 Integrated Entry System, which comes with a new Group 5 category for software pricing. From IBM, prices range from \$48,800 to \$95,000. Under the new five-year agreement signed with Stratus last year, IBM is also to take Stratus' fault-tolerant implementation of Unix System V.4 on the System/88 so as to have something it can sell to AT&T - which means that the company's Unix strategy will be further muddled since the new version won't be compatible with AIX. The Stratus Unix should be available within 90 days, Stratus said.

...OFFERS TRADE IN TERMS TO UNANNOUNCED RTs...

In the US, IBM also announced a limited period migration assistance trade-in credit on a one-for-one basis for benighted users lumbered with the original RT and who want to upgrade to the less than compatible "designated IBM second generation reduced instruction set computer system that will be announced by IBM at a later date". The value of the trade-in credit is based on the date the RT was bought, and is up to 80% of the initial IBM invoice value of the RT bought on or after July 1, 1989, and on or before June 30, 1990; and up to 40% for RTs bought on or after January 1, 1989; the credit is limited to the tag on the new RT.

SYBASE CLAIMS STRING OF FIRSTS FOR NEW SERVER RELEASES

Sybase Inc describes its new 4.0 release of the Sybase SQL Server as the first open relational database, claiming that with the new Sybase Open Server communications product, it uniquely enables users to develop on-line applications that span multiple servers; integrate data and functionality from non-Sybase sources; and provides a generic communication mechanism between clients and servers. In particular, the company is claiming a first for the fact that users can make SQL queries on remote data transparently through the SQL Server. Server-to-server communication is implemented through Sybase's database remote procedure calls, and Sybase says that these differ from other such calls in providing high level support for accessing and retrieving tabular data. Developers, it says, no longer need to know the database design at the remote location; they need to know only how to use a database remote procedure. The Sybase Open Server, that includes a server application programming interface that facilitates the integration of non-Sybase data, applications and application services with Sybase, and complements the existing Sybase Open Client. Sybase is licensing its open client and server interfaces and the communications protocol between them to other vendors in both object and source form, and is proposing them to the Open Software Foundation as a standard for client-server communications. Companies supporting the interfaces include Lotus Development Corp and Ashton-Tate Corp, both Sybase shareholders, and Microsoft Corp, NeXT Inc, Novell Inc, Pyramid Technology, Stratus Computer, Tandem Computers and MIPS Computer Systems Inc. Sybase also announced two versions of Open Client for the Apple Computer Inc Macintosh, and versions of the Sybase system for the Hewlett-Packard HP9000 300 and 800 Series, the AT&T 3B2 and 6386, and the IBM RT. Sybase Version 4.0 is in production release on all Sun Microsystems machines, and is in beta test under VAX/VMS, with all other supported systems to be available in first quarter 1990. It's \$3,000 to \$192,000, Open Server object code is \$800 to \$40,000.

OPEN SYSTEMS CONNECTION MAKES STRONG SHOWING AT InterOP '89

The InterOp '89 technical conference and exhibition has traditionally been a premier forum for the TCP/IP user and vendor community. Not this year. In a sign of the times that TCP/IP's days are (eventually) numbered, it was the rival Open Systems Interconnection camp that drew all the attention. A group of 13 systems manufacturers, communications vendors, and other interested parties used InterOP '89 - held last week at the San Jose, California Convention Centre, in the heart of Silicon Valley - to prove that OSI is real.

Although each vendor has its own booth, they banded together and rented a separate booth for a joint demonstration of the interoperability of their respective OSI products. In addition, they held a special press briefing to offer technical details and answer questions about the state of the OSI market. The main idea was to demonstrate that OSI was capable of true interoperability. To that end, the network consisted of not just multiple hardware platforms, operating systems - Unix, Ultrix and PrimOS for example - and network media - IEEE 802.3, 802.4 and 802.5 - as well as connections to TCP/IP networks and X.25 wide area networks.

Lagging sales

At the press briefing vendors admitted that OSI sales have lagged, but insisted that as more products become available, user demand increases. Retix, considered one of today's big winners in the OSI marketplace, said the majority of sales have come from OEMS and a few major corporate customers that happen to be technological pioneers. Vendors admit that the OSI market has been slow to take off, a fact they attribute to its relative immaturity, when compared to TCP/IP and that some important specifications are as yet undefined. Still, they agreed the biggest potential customer for OSI gear now is the US federal government. With the US federal government now pushing the GOSIP specification - based in large part on OSI - they say there's little doubt OSI will take off soon. Some even claim it should achieve dominance over TCP/IP in five years.

Management problems

The joint OSI demonstration, under the banner "OSI Open For Business," did prove what its creator hoped: that OSI has matured into a real multi-vendor connectivity option. However, it also highlighted the real problem users will face in multi-vendor networks: network management. Each vendor was using their own network management scheme. Although most are based on the industry standard, Simple Network Management Protocol - SNMP - none are exactly alike, and the phrase "we didn't agree to demonstrate that" kept cropping up during the press briefing. Then no one could agree that SNMP would be the ultimate or only network management protocol standard for OSI environment. Quite the contrary, as vendor after vendor said they would offer OSI's own network management protocol, CMIP, when the specifications had matured. After a discussion that ran on much too long, it was finally agreed that both vendors and users will be living in a multi-protocol, multi-o/s, multi-network management world for the foreseeable future. Indeed, there seemed to be a common nod of approval at the prospect that OSI communications systems and equipment vendors will support both the SNMP and the OSI-based CMIP network management standards.

SUN'S SunNET MANAGER GAINS BACKERS

Nineteen communications vendors used the InterOp '89 show to disclose their support for Sun Microsystems' SunNet Manager, a network management solution or multi-vendor, distributed computing environments that the workstation manufacturer hopes will become an industry standard. Those supporting SunNET Manager at the InteOp show with new products include: BICC Data Networks, which introduced a SunNET interface to 802.1; Brixton Systems, which introduced a SunNet interface to IBM's NetView; CMC, with an interface to SNMP; Computer Network Technology, which promised to integrate SunNet into its ChannelLink high-speed extended networking products; and Independence Technologies Inc, which promised to use SunNet Manager to monitor hardware and software elements in its transaction processing systems. Others voicing support include BICC Data Networks, Cabletron, Canaster, cisco Systems, Comdisco Systems, Concord Communications, FiberCom Inc, Make Systems, Netlabs Inc, Network General, Network Research Corp, Raycom Systems, SynOptics Communications Inc, Wellfleet Communications Inc and Xylogics Inc.

AUSPEX SPEEDS UP SERVER TECHNOLOGY WITH OPTIMISED UNIX SYSTEM

Venture capital start-up Auspex Systems chose the InterOP show to reveal its first product - the first of a new line of Unix servers specifically designed to boost data throughput on a network, while reducing the cost per seat. The Auspex NS 5000 will process up to 1000 8Kb NFS operations per second, and connect up to eight Ethernet local area networks for an I/O capacity of 80Mb per second - 10 times the network I/O performance of conventional server architectures, according to the Santa Clara, California-based company. The secret is a new architecture - dubbed Functional Multiprocessing architecture - which takes the network, file and storage processing functions normally performed by the CPU and distributes them around the system. Four Motorola 68020 processors with local memory and supported by bit-sliced processors and custom ASIC devices are used for this task: a host processor which supports Sun's SunOS Unix implementation, and an Ethernet, File and Storage processor each dedicated to its task. A Sparc-based system is being considered for future release. Auspex claims to be the first company to separate the Unix file system from the operating system, and optimised its performance with a large, directly addressable primary data cache memory. As a consequence, the machine can support over 100 diskless clients per server, rather than the 10 to 20 clients on typical systems, supports multiple Ethernet segments, has greater disk capacity with faster disk access (16Gb in the base system cabinet), and simplified network and data management. Price for a base configuration is \$114,900, including 2.6Gb memory and two Ethernet ports. Auspex is going after the Unix/NFS compatible market rather than the personal computer market targeted by Carlton Amdahl's NetFrame Systems Inc highlighted last issue (UX No 251) - a market set by Dataquest at \$1.6 billion in 1990, growing to \$4.3 billion in 1994. Auspex executives include chairman Jim Patterson from Quantum Corp, Larry Boucher from Adaptec Inc, Dick Bush from Bridge Communications, and Jerry Clancey from Tandem. The company, which has received \$7.8m of funding, could pose a considerable threat to Sun's own network server business, a particularly profitable sector of the workstation market.

SUN ADDS FIVE NEW NETWORKING PRODUCTS IN SUNNET FAMILY

Sun Microsystems Inc has rechristened its networking product line the SunNet family and added five new packages to it. SunNet Manager is a multi-function network management package for TCP/IP networks and looks after computers, bridges, network applications and services - but also provides a migration path to OSI-based networking standards once these become established. SunNet License is a program for managing data collection for determining usage of licensed concurrent usage packages so that vendors and departments can charge for software on an actual usage basis. In the UK it costs £8,950, reducing to £3,600 for ten or more copies. The FDDI-Dual Attach Controller, FDDI/DX is a VME board for users wanting to put their Sun workstations onto a high performance Fibre Distributed Data Interface 100Mbps optical net; price is £11,200. SunLink Channel Gateway is described as the first complete hardware and software combination for connecting Sun stations to IBM mainframes, enabling file interchange with 370-type machines using and to submit jobs and commands using the IBM Network Job Entry protocol, NJE. It costs £17,900 for a single unit. The High-speed Serial Interface is another VME board to link to T-1 lines in the US or CEPT lines in Europe, costing £5,400. The new SunNet line includes all the existing TCP/IP, Ethernet, X25 and other products, with Sun's Open Network Computing products at its core.

InterOp Exhibition - see page 6.

SOLBOURNE DESCRIBES 64-BIT VERSION OF SPARC

Solbourne Computer Corp, Longmont, Colorado says that its 64-bit implementation of the Sun Microsystems Sparc CPU, developed with its majority shareholder Matsushita Electric Industrial Co, will be clocked at 40MHz, and the 1m transistor part will include integrated integer and floating-point processors, on-chip memory management, and separate instruction and data caches. The firm is promising a 20 MIPS workstation using the part in the middle of next year, although it claims that the chip has the potential to deliver 40 MIPS and 20 M-FLOPS. The chip will be used only by Matsushita and Solbourne, and not offered outside.

MEIKO, REAL WORLD HAVE NEW INTEL 80860 SYSTEMS

Two UK companies, Meiko Scientific Ltd, Bristol and Real World Graphics Ltd of Hertford, introduced new products based on the new Intel 80860 RISC at London's Intel Fair 89 last week. Meiko is using the chip to boost the vector capabilities of its Transputer-based Computing Surface (UX No 186): the MK086 Vector co-processor board has two 32MHz 80860s and two 25MHz T800 Transputers to provide communications, all sharing 4Mb or 8Mb of dual port RAM. Multiple boards can be configured into a single machine. The new CPUs were transparently integrated into Meiko's parallel machine using its CS Tools software - also used to integrate Sun Sparc CPUs with the Computing Surface in Meiko's In-Sun product line (UX No 228). And Real World Graphics has a plug-in card designed to turn an AT-alike into a "three-dimensional graphics supercomputer". Reality PC follows the firm's recently launched Reality graphics supercomputers (UX No 239), using two 80860 processors in the MS-DOS box, laid out in the AT format with a 16-bit bus. It has 3.5Mb video RAM, 4Mb or 16Mb main memory and can display up to 16.7m colours; it is £12,000; Simulation Technologies Inc of Millis, Massachusetts distributes Real World's kit in the US.

UP-COMING MICROPROCESSORS: IBM LIFTS RT VEIL...

IBM revealed a few details of the new RISC processor to be used in the forthcoming successors to its RT Unix line at last week's Microprocessor Forum in San Jose last week. According to Microbytes Daily, the company said that the chip would include integrated 64-bit floating point and 32-bit integer arithmetic, and branch processing units, with more overlap in the operation of the three, so that as many as three instruction words may be issued per cycle where the software is able to detect parallelism. It will have separate data and instruction caches, with 64-bit and 128-bit interfaces, for a memory bandwidth of up to 400M-bytes per second. The set has been implemented in 1 micron CMOS with parts having densities of 300,000 to 1m devices per chip. IBM also commits to doubling performance every 12 to 15 months and says "the press will be very surprised at what we've got".

...INTEL COMMITS TO 80386 INTO 21st CENTURY...

Also at the Microprocessor Forum, Intel Corp said it was committed to 80386 architecture into the next century and is already working on the 80586, which will have multi-level memory caches and integrate about 4m transistors. By the end of the decade, it is promising the "Intel Micro 2000," integrating more than 50m transistors, but still fully compatible with the 80386. It also claimed 57% of Unix systems shipped today use Intel CPUs.

...SONY GETS RIGHT TO FABRICATE MIPS R-SERIES...

Sony Corp, which said in February that it would have a workstation based on the R3000 RISC processor from MIPS Computer Systems Inc by the end of the year (UX No 218) has firmed up its agreements with the Sunnyvale, California company, signing for rights to fabricate its own version of the part. Separately, Sony said it would start volume production of 1M-bit statics from January, investing \$36m at its Nagasaki plant to make 100,000 a month.

CYRIX CLAIMS 10-FOLD PERFORMANCE GAIN OVER INTEL 80387

Cyrix Corp, Richardson, Texas is claiming the world's first numeric processor fully compatible with the IEEE-754-1985 extended double precision standard, and 100% software- and pin-compatible with the Intel 80387 - but with up to 10 times the performance and power dissipation as low as 35mW at 20MHz. Cyrix rates the FasMath 83D87 at 5.5 MFLOPS peak and it attains its speed by implementing its floating point primitive operations in hardware rather than in a microprogrammed sequencer so that it can do simple floating point operations as fast as the 80386 can do integer additions. Square root, elementary and transcendental functions are correspondingly faster. It uses an 80-bit internal format for storage and computation and all 117 Intel floating point instructions are implemented, with computations performed to 91-bit internal accuracy. The FasMath is \$471 at 20MHz, \$585 25MHz, \$773 33MHz for 100-up, now.

SOLBOURNE'S NEW SERIES 5 -

FASTER THAN ANYTHING UNDER THE SUN?

Less than a year after putting its first box on the market - a minor historic event considering it was the first and as yet the only Sun clone available - Solbourne Computer Inc is now bragging about how it has leapfrogged the original by a generation. This week Solbourne debuts its brand new Series 5 family, promising to set a new standard in price/performance. The box, identical to its predecessor, the Series 4, except for the CPU board, is based on a 33MHz version of Sun's 32-bit Sparc chip that Solbourne gets from Cypress Semiconductor. In a maximum four-processor configuration, the company says the thing is good for 65 MIPS, making it faster than anything under the Sun label. A simple single-processor model is rated at 22 Sun-style MIPS. When it becomes available in 30 days, the line will more than double the performance of Solbourne's Series 4 products, all of which are field-upgradable to the Series 5. Solbourne is packaging its new baby in five models: everything from a desktop workstation to a large network server.

Aggressive

The company is taking a competitive price position at every level, tagging its Series 5/501 diskless desktop workstation at \$28,900. However, Solbourne claims its prices become more aggressive with its servers. For instance, a Series 5/532 offers 40 MIPS, 16Mb RAM, and 661Mb hard disk storage for \$50,300, while the same kind of money spent with DEC will only buy you 16.6 MIPS and 400 Mbytes of disk space on a DECsystem 5400. Against a Sun Sparcserver 390, a Solbourne Series 5/802 offers 40 MIPS, 32Mb RAM, 1.6Gb of disk for \$92,800. At that price Sun will give you 16MIPS, 32Mb of RAM, 2Gb disk space and a bill for \$108,900. In this case that means a difference of \$2,300 versus \$7,200 per MIPS. The top-of-the-line 65 MIPS workstations and servers cost \$2,000 per MIPS and \$3,000 per MIPS respectively. Of course, it's important to remember that Solbourne achieves much of its price/performance edge by bundling one-year's worth of maintenance in with its systems. The new boxes, while reportedly maintaining strict Sun compatibility, are claimed to incorporate several technological firsts. Besides using the first 33MHz Sparc chip, Solbourne boosts performance via a 33MHz/4.9 Linpack MFLOPS Weitek 3171 floating point coprocessor, a 128K purely physical cache, doubling what is available on the Series 4, and some cache-supporting gallium arsenide I/O RAM technology from Vitesse Semiconductor. In addition, Solbourne is upping the memory capacity of both the Series 4, which it will continue to supply, and the Series 5 to 160Mb by supplying some new \$21,000 32Mb ECC boards, available immediately.

EUROPEAN COMMISSION ENDORSES OSF/MOTIF AS USER INTERFACE

The Commission of European Communities has decided it can't wait any longer for X/Open to make up its mind whether or not to endorse a graphical user interface - GUI - specification. The Commission, which specifies X/Open compliance for its computer procurements, is forging ahead with the choice of OSF/Motif. If however X/Open eventually recommends a GUI specification that excludes OSF/Motif, deputy director of informatics Dieter Koenig claims the CEC would eventually toe the line. Kibbitzers wonder whether the CEC's move - something of a coup for Motif - will hasten X/Open's decision any. After all, the CEC's computer chief Waltre De Backer is head of X/Open's User Advisory Council!

IN BRIEF

A new training course aimed at sales and marketing staff working within the computer industry is to be held in London towards the end of November. The focus is on providing information about the industry coupled with enough technical detail (and jargon) to give an understanding of the key features of products and technological developments, rather than an in-depth description of how computers work in detail. The 2 day introductory course starts on November 23rd, but more detailed courses on subjects such as Unix, standards and distributed computing are also available. Cost is £375 plus VAT: contact Bill Carey-Evans on 01 422 7227.

Unix and server versions of Advent Desktop Publishing Ltd's 3B2 publishing system were shown at the 1989 Desktop Publishing Show held in London's Docklands last week. The enhanced Version II of 3B2 from the Swindon, Wiltshire based company now runs on Apollo's 4500, 3500 and 2500 workstations and over a network of Hewlett-Packard Vectra PCs. Both versions of the software will become available on MS-DOS, and in addition to Unix will be developed to run in the OS/2 environment. 3B2 Version II costs £1,200, Version I is reduced by 30% to £695.

Sequoia Systems Inc, Marlboro, Massachusetts, is to set up a business and marketing venture with The Ultimate Corp. Ultimate will take Sequoia hardware under an OEM agreement, and will act as a sales and support organisation for the Pick-based market. Sequoia has high hopes that Ultimate's distribution channels will increase its sales in the Pick marketplace. Sequoia's Motorola 680X0-based machines have a "native" Pick operating system built around its Unix operating system kernel, Topix.

X/Open's Independent Software Vendor Council now has a seat on the main X/Open board, the organisation announced last week. The move should give users more influence in determining the future direction of X/Open. And representatives from the Santa Cruz Operation and Tecciel SpA have joined X/Open's Independent Software Vendor Council.

Graffcom Systems' Lotus 1-2-3 compatible Quintet Spreadsheet is now available on ICL DRS300 kit running the NX operating system, allowing transfer of worksheets from PCs on to the ICL system - Quintet has its own window management system and is now claimed to run across the complete range of ICL equipment: the Isleworth, Middlesex based firm says that there is now a complete upgrade path for its existing DRS300 CDOS users to migrate over to the NX Unix environment.

The SAS Institute is now offering a further three statistical, management and analysis tools under SunOS and HP-UX - SAS/ETS, SAS/OR and SAS/QC - annual licences start at \$395 for a single workstation, and go to \$7,500 for 500 devices.

MIPS Computer Systems' Marlow, Buckinghamshire division has appointed Applied Telematics Group Ltd, a Tunbridge Wells based VAX specialist to resell its M Series RISC equipment to communication and display system companies in the UK.

PRIME EXPECTS 2,000 REDUNDANCIES TO FOLLOW REORGANISATION

Prime Computer Inc's number two, Bob Fischer, has been talking to 01 Informatique about the sighs of relief going around the company after months of tension over MAI Basic Four's controversial bid for Prime in a battle MAI finally lost to J H Whitney Co. Despite being an investment organisation, Whitney is the principal shareholder in numerous computer companies, and Fischer believes that Whitney will take an active interest in Prime's three areas of business - CAD/CAM, technical support and minicomputers - whose present total turnover is running at around \$1,800m. Whilst the market for CAD/CAM products has grown by 18% to 20% in the last year, and the technical support has had an annual growth rate of about 5%, the market for its 50 Series minis has stagnated. Nevertheless, Prime is aiming to maintain its present turnover in the minicomputer market for the next few years and Bob Fischer insists that the minicomputer is still an important product for the company. To achieve its objectives, Prime is going through the business with Whitney, and some 2,000 people working on projects Prime intends to abandon will be laid off. Prime will reorganise into three principle business units, and the Computervision name will be attached to the whole of the CAD/CAM business, regardless of origin. In addition, Prime is working on a new generation of CAD/CAM software for workstations and its minis, and plans to bring together as a single system the two versions of Medusa, one developed by Prime, the other by Computervision, for late 1990.

NIXDORF, MANNESMANN: "NO TAKEOVER"

A report in the West German paper Der Spiegel last week that Nixdorf Computer AG was about to be acquired by Mannesmann AG was dismissed by the Paderborner as "pure speculation" - IBM's favourite smokescreen phrase when it wants to deflect attention from a suggestion that may well be true. Mannesmann said it was not aware that Nixdorf wanted anyone to take a stake in it, but if that were the case, it would certainly take a look. The suggestion cannot be dismissed out of hand because although with all the voting shares are with Nixdorf family trusts, Nixdorf's destiny is ultimately in the hands of Deutsche Bank AG, and the report said that it was the bank that wanted Mannesmann to buy Nixdorf to avoid it falling into foreign hands - and the bank declined either to confirm or deny the story.

HEADLAND TO BUY MULTISOFT FOR £11m IN CASH, SHARES

Headland Group Plc - the former Compsoft - yesterday announced that it had finally won agreement to acquire Multisoft Plc, one of the two companies with which Compsoft had hoped to merge before the Hoare Octagon management buy-in team arrived on the scene. Headland is paying £2m cash and the balance in ordinary and preference shares, and wants the company, which is strong in accounting software under Unix, to further its ambitions to become the leading supplier of accounting software right across the spectrum from MS-DOS micros up to mainframes. Multisoft derives 65% of its turnover from accounting software, against competition from its closest rival Tetra. Its main packages are Multisoft Premier for large Unix-based users and Multisoft Standard for the middle market MS-DOS-based user. The move will boost Headland's stake of the UK accounting business to £15m, making it the largest in the market, according to chief executive Nicholas Birtles, who emphasised that it was not interested in the "unfocused vertical Unix markets" that acquisition rivals Mysis Plc is to find.

HOSKYNYS TO PAY UP TO £12.2m FOR UNIX VETERANS THE INSTRUCTION SET

Hoskynys Group Plc has agreed to acquire Inset Ltd, holding company for The Instruction Set Ltd and The Instruction Set International Ltd, for an initial £3.5m, to be raised via a vendor placing of 654,439 new shares at 535 pence. Plessey Co Plc, which currently owns about 75% of Hoskynys shares, is taking up 370,770 of the shares being placed, so that following the placement, 25% of Hoskynys share capital will be in public hands and Plessey will own 70%, the balance being with Hoskynys principals. The agreement also includes an enormous earnout of £8.7m if The Instruction Set's meets preset targets between now and March 31 1991. For example, by March 1990, Geoff Unwin, chairman of Hoskynys said he expects Inset to produce £7m in turnover and £500,000 in profits, payment again being in Hoskynys shares. The Instruction Set, which had turnover of just under £5m for the year to March 31 1989 will join Hoskynys' Systems Integration division but will exist as a separate Unix entity within the division alongside the IBM, DEC, Hewlett-Packard and ICL technology units. Each of these units feeds into the market sectors in which Hoskynys is active - these being the manufacturing, distribution, financial, public and services sectors. The Instruction Set was set up in 1984 and it initially gained its reputation through specialist consultancy and technical projects, later establishing itself as a market leader in Unix training. Employing 130 people in London and the US, it still offers open systems consultancy services (it has long been established as technical consultants to the X/Open Group) and develops Unix systems and application software, and recently set up US offices in Boston, Massachusetts and San Francisco, California. In the year to March 31 1989 it made a pre-tax profit of only £18,000 on revenues of £4.9m, compared with £514,000 from £3.7 million the previous year. The slump was attributed to investment in both its US operation and its new OS/2 course curriculum. Unwin said that the OS/2 development would remain part of Hoskynys' new open systems division for now. Both Inset and Hoskynys see the merger of the two companies as sensible, given the growing need to provide consultancy and training services to users wishing to move to Unix from proprietary systems.

SUN "WILL RETURN TO BREAK-EVEN IN CURRENT QUARTER" - ADDS \$250m FUNDING

Sun Microsystems Inc is looking to return to about break even for its fiscal first quarter to September 30 on sales of over \$530m, compared with a loss of \$20.3m on sales of \$431m for the last quarter of last fiscal. The Mountain View, California company attributes the turnaround primarily to two factors: higher unit volumes of the company's array of new products; and expense and employment controls that have slowed the growth in the company's costs compared with recent quarters. Meanwhile, the company's need for capital is insatiable, and unable to turn to 20% shareholders AT&T for any more money for the time being, has turned to two other sources. The first is a group of insurance companies for \$126m with the issue of 10.55% Senior Notes due 1996 and warrants for 882,000 shares at \$25.03. And in addition, the company has filed with the US Securities & Exchange Commission to offer \$125m face amount of convertible subordinated debentures. The Mountain View firm plans to use the net proceeds of the offering for general corporate purposes, investments in property, plant and equipment, and as working capital to finance accounts receivable and inventories. The paper will be offered by Goldman, Sachs & Co.

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'Fraid this will pass by those unacquainted with the ramifications of English soccer, but the (Michael) benighted Simod Cup - "what's a Simod," everyone used to ask, (its a sports shoe) - this season becomes the Zenith Data System Cup, which with the proposed acquisition by Bull SA of the Zenith business means Bull will be intimately involved with football as well as cricket in the UK, and the move holds out the prospect that the thing will in due course be rechristened the much more appropriate Bull Cup - whereupon every Wolverhampton Wanderers supporter will instantly start calling it the Steve Cup, assuming it has been named for their star striker.

Prime Computer Inc, Natick, Massachusetts has packaged its computer-aided engineering, design and manufacturing software with the WS40C and WS42C Sparc-based workstations it buys OEM from Sun Microsystems to create 17 CADDsolutions, offering savings of up to 39% on the price of the elements unbundled. Prices for the CADDsolutions go from \$39,500 to \$139,900.

NEC Corp is taking full control of its super-computer destiny in North America, buying Honeywell Inc out of their HNSX Supercomputers Inc joint venture marketing company.

In the biggest lay-off in its history, Cray Research Inc is cutting 400 manufacturing jobs in Chippewa Falls, Wisconsin following completion of the shift to the Y-MP from the X-MP: in the past it has been able to redeploy people, but sales are now too slow. It will take a \$3m charge with 1989 figures and looks to save itself \$10m a year.

And Motorola Inc wants to cut 2,500 from its 105,000-employee workforce by what it calls an "enhanced voluntary severance" programme, and the Schaumburg, Illinois company will take a \$43m pre-tax charge with its third quarter figures to cover the cost of it.

DEC has re-vamped its computer-aided software engineering environment with the launch of the DECdesign product for analysing, designing, prototyping and generating application software using a choice of the Yourdon EER (Extended Entity Relationship), and Ward-Mellor methodologies, for availability in the Spring of next year: it has also announced new versions of the existing VAXset and Datatrieve CASE tools, adding a Program Design Facility with reverse engineering capabilities to VAXset, and has a new Ada compiler, XD Ada 1759A, jointly developed with SD-Scicon.

And the first products to emerge from DEC's collaboration with software house Systematica Ltd, Bournemouth have been announced: HOOD-SF, available from November, supports the European Space Agency's Hierarchical Object Oriented Design method used for Ada-based projects, while SSADM-SF is available now for users of the SSADM methodology, mandated by the Central Computer & Telecommunications Agency for all UK civil government projects.

In the future, DEC says it will be supporting the proposed CASE repository standard - known as ATIS, A Tools Integrated Standard - which will be added to DEC's CDD/Plus repository, paving the way for an integrated support environment.

The combination of Bull SA's personal computer business with that of Zenith Electronics Corp will create a major new force in the market if Bull can manage the merger successfully: Bull is expected to produce 150,000 machines this year, Zenith Data Systems 550,000, giving the combination over 3% of the world market and 6% of the European; adding in Zenith's \$1,400m, Bull will become a \$7,000m a year company worldwide, with over \$2,000m in US.

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IBM is desperate to claim leadership of the 80486 market, and the company now that it has shipped its first 80486 Power Platform processor upgrade for the PS/2 Model 70 to Continental Bank Corp in Chicago, and began shipping the thing to customers and dealers throughout the US: sounds as if it has cornered the market in good 80486 chips; in Europe, the first one has gone to Norwich Union here in the UK, but availability is still limited by the parts available from Intel.

ICL Espana SA has landed a £2m contract from the Spanish Social Security Department for 300 DRS300 Model 362 Officepower Unix systems to link to Unisys Corp hosts via SNA.

The legal battle between Motorola Inc and its former second source partner, Hitachi Ltd, is getting more and more acrimonious, and Hitachi has entered a new lawsuit, this time alleging that the MC88200 cache controller for the 88000 RISC infringes a US patent held by Hitachi, and seeks an injunction stopping Motorola selling the thing.

Mountain View X-terminal pioneer Network Computing Devices Inc reports euphorically that it logged \$2m of business for the month of September, when it moved into profit for the first time - but then it was formed only 20 months ago; it expects annualised sales to be running at \$30m by year-end.

Siemens AG is to bundle Cambridge, Massachusetts-based Interleaf Inc's core text processing software with ever WS-30 workstation, calling it Siggraph-Docu-K, for the UK, Austrian, Belgian and Danish markets.

Scanvest Ring Data A/S and Olivetti Norge A/S have a contract to supply the Norwegian Post Office with 1,300 M300 and M380/XP-based workstations in a \$7m contract: the personal computers will be connected via LAN Manager in a data processing system based on the Italian's Open System Architecture.

DEC yesterday went on the warpath against Sun Microsystems Inc - in the US only - announcing a trade-in programme that covers Sun-3/50 and Sun-3/60 workstations as well as its own VAXstation 2000. Sun-3/50 users get \$2,000 towards the cost of a VAXstation-3100 or a DECstation-3100 and 3/60 users get \$4,000 off. VAXstation 2000 users get \$2,000 towards a VAXstation 3100. The company also announced a Qbus adaptor and 32Mb memory for the VAXstation 3520 and 3540 to give three Qbus option slots. The DWFQA adaptor is \$4,000, the new 32Mb memory module costs \$26,400.

No details, but Unisys Corp has enlarged its open systems interconnection offerings with File Transfer, Access and Management communications for the BTOS operating system and an Asynchronous Terminal Server for Unisys U Series Unix systems, supporting up to 32 terminals or MS-DOS micros via Ethernet; it also announced Layer 4 Open Systems Interconnect Transport Services software for use on its distributed communications processors.

Oracle Corp, Belmont has unveiled Oracle Core Manufacturing, a full-function manufacturing product family tightly integrated with its Oracle Financials package; it comprises Oracle Inventory, Oracle Bill of Materials, Oracle Work in Process, Oracle Master Scheduling, Oracle MRP, and Oracle Order Entry and is currently available for DEC VAX/VMS, Sequent Computer Systems and Pyramid Technology machines.

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AT&T RELEASES UNIX SYSTEM V.4 - WITH REDUCED LICENCE FEE

At the end of last week AT&T Co's Unix Software Operation began licensing the latest release of Unix - Unix System V release 4.0. At \$100,000 the new version is \$27,000 cheaper than System V/386 3.2. The basic system software components are the Posixcompliant System V 4.0 base system with the Virtual File System and Streams, and kernel extensions, including virtual memory, and utilities. The new version also includes, as add-ons, Network File System and X/11 News from Sun Microsystems, and products from Lachman Associates that previously had to be licensed separately. Other features are Remote File Sharing, Internet Services, Open Look, TCP/IP, the XWIN graphical windowing system and XVIEW/Typescaler. And in order to encourage vendors to offer products compliant with X/Open Group Ltd guidelines, a standard sublicensing option is offered under which vendors are eligible for reduced fees if they conform to the Portability Guide Issue 3, implement and conform to AT&T Streams, and provide device driver interfaces. Minimum fees are \$60 for a single user version, \$170 for a multiuser system, as for System V/386 3.2, the maximum per copy fee is \$10,000. The percopy fees will be either 1% of the price of the basic entry model of the computer or 10% of the list price the vendor charges for a sublicensed product based on Unix System V.4. The pricing and new rules were set after discussions with the Unix International Inc club, (UX No 249.)

BULL AND NIXDORF TAKE UP MIPS-BASED RISC POSITIONS

Market recognition of Mips Computer Systems' top of the league position in the RISC performance stakes has arrived swiftly, with both Bull SA and Nixdorf AG announcing that their RISC future lies with the MIPS R-Series RISC family. MIPS rates Bull as its biggest catch yet, and the new endorsements of its architecture come just a week after Mips scored best in the first independent benchmarking of workstations, (UX No 252). The OEM deal with Groupe Bull, said to be worth an initial \$50m, has the Sunnyvale particularly excited because as UK managing director Dave Black put it, "everyone wanted to get this one." Competing Sparc and 88000 RISC technology from Sun Microsystems and Motorola is believed to have been edged out by Mips, which agreed to supply not only its R Series of processors, but complete systems, compiler software and its implementation of the Unix operating system. The agreement comes in two parts, the first being a ten year commitment by Bull for Mips' R3000 architecture - but thought not to include the older R2000 chip - the second is a three year deal for Mips' future technology, based on the forthcoming R6000 chip. Bull's new Unix machines - see page 3. Nixdorf Computer AG's agreement with Mips runs for five years and should bring Mips \$35m in business over its term. The agreement, covering products, operating system, compilers and manufacturing rights to some unspecified MIPS products, will enable the Paderborner to extend its Targon Unix line upwards. The first RISC machines from Nixdorf could be revealed as early as next year according to the firm, suggesting that Nixdorf will follow its OEM supplier Pyramid Technology with low-end RISC systems originating from Mips' Systems Division. As the R6000 is concerned, Mips' Didier Benchimol said that systems based on the new processor are also expected to hit the streets by the middle of next year.

SUN PUTS ITS TOPS DIVISION ON THE BLOCK

Sun Microsystems is reportedly ready to sell the TOPS networking division it bought two and a half years ago for \$20m, (UX No 115). Although Sun acquired TOPS - then known as Centram Systems West - in an effort to extend its networking capabilities towards PC and Macintosh computers, little integration between the proprietary TOPS offerings and Sun's mainstream Network File System and the Open Network Computing development efforts have so far been achieved. Sun is currently cash hungry, and looking to a variety of sources for additional funding to fuel its explosive growth plans, (UX No 252). Despite slow sales and technical difficulties recently, including the non-appearance of the expected new 2.2 release of TOPS, the company is third in line after Novell Inc and IBM in the number of nodes installed. Sun officials declined to comment on the reports. 3Com Corp has ruled itself out as a buyer, Novell Inc is thought to be too busy digesting Excelan Inc, so that a smaller player or management buyout are thought to be the most likely solutions for the firm.

HP RUSHES OUT 80486-BASED VECTRA USING THE EISA BUS

Last week Hewlett-Packard Co became the first of the majors to announce an 80486-based EISA bus machine in its Vectra personal computer line, pitching the machine at computer-aided design, multi-user business computing and server applications. The Hewlett-Packard Optimised Architecture in the case of the Vectra 486 PC means that the memory subsystem communicates with the CPU at processor speed - the 80486 is clocked at 25MHz - and comes with 2Mb standard, expandable to 64Mb on the system board, and 108Mb to 670Mb disk drives for a maximum of 1.3Gb, with 16mS access time and 2.5Mbytes-per-second transfer rate. Eight 32-bit EISA slots, which take existing AT boards, are available. In the UK, the machine with 1.2Mb 5.25" floppy is £10,000, in limited numbers this quarter, volume shipment begin first quarter 1990 and the same configuration is also offered with a 152Mb, 330Mb or 670Mb disk. The firm has also confirmed that it plans to use the EISA bus in future workstations, starting in the first half of next year, and that eventually all its personal computers and workstations will use it. US prices for the Vectra 486 PC go from \$14,000 with 2Mb and 150Mb disk to \$20,000 with 670Mb disk. In addition the Santa Cruz Operation Inc says that its SCO Unix System V/386 Release 3.2 supports Hewlett-Packard's new Vectra 486 micro-computer.

UNISYS UNVEILS OPTICAL IMAGE SYSTEMS

Unisys has made it clear that it has no doubts about the viability of the image processing market - predicted to be worth up to \$800m in value by 1992 - with a major investment in image systems aimed at financial and industrial accounts. These are the Unisys Image Item Processing System and Image Cheque Processing System software, for high-speed image processing of payments for banks; and Unisys InfoImage Engineering Document Management System for engineering drawings, blueprints, charts and such. Imaging subsystems and software are separated from the V Series mainframe hosts, and run on Unisys U6000 Unix boxes, with the desktop machines being Unisys PW2 workstations. The Image Item Processing System has a camera into its DP1800 payment processor, with both sides of cheques captured at a rate of 1,800 a per minute. It is \$1.5m to \$3m, first quarter 1990. The InfoImage Engineering system is available immediately, at from \$500,000. To glue these bits and pieces together, Unisys revealed that it has signed up for Costa Mesa, California based FileNet's Image Access Facility software that manages image data on multiple optical disk subsystems, and has taken an undisclosed stake in FileTek Inc, Rockville, Maryland - Unisys is to use the firm's Storage Machine Software in its image processing systems. Customers already signed up include Rolls Royce in the UK for the InfoImage EDMS system, and US banks including Chase Manhattan, Huntingdon and Northern Trust for IIPS.

OPEN SYSTEMS INITIATIVE HAS TOP UNIX BRASS ALL EARS AND TAKING NOTES

Maureen O'Gara reports

The week before last a group of high-powered computer executives and industrial-strength users met for three days in a hotel room in San Francisco. The occasion was Nina Lytton's Open Systems Initiative seminar, the first of what is undoubtedly destined to become an annual industry "event." For those unacquainted with Nina, she is the winsome ex-Yankee Group analyst who earlier this year went out on her own to start up her own brand of industry watchdog, The Open Systems Advisor. This Open Systems Initiative thing was Nina's first outing under her own banner and she certainly proved she is able to get the top brass in one room and make them pay attention. From the vendor side, there were folks there like David Tory, president of OSF; Larry Dooling, president of USO; Geoff Morris, president of X/Open; Ralph Ungerman, president of Ungerman Bass; Dean Morton, CEO of Hewlett-Packard; Gil Williamson, president of NCR; Rich McGinn, president of AT&T Computer Systems; Bill Heffner, VP of the Systems Software Group at DEC; Eric Schmidt, VP of the General Systems Group at Sun; Paul Maritz, VP of Advanced Operating Systems at Microsoft; and Cyril Yansouri, president of Network Computing Group at Unisys. What was interesting about their attendance, perhaps, was that most of them were actually participating. They didn't just fly in and fly out, give a speech and depart in a cloud of dust, trailing their retinues. There was some of this, of course, complements of IBM and OSF, but a lot of these guys actually carved two days, at least, out of their schedules to attend. And they didn't spend their time out in the hall on the phone. They were actually in the hall listening - and taking notes. (Dean Morton, HP's Mr Insider, must have the voluminous set in case anyone wants to crib from them.) The users who came and filled 60 percent of the seats represented some real money as in Bank of America, Scott Paper, DHL and American Airlines. Their primary message to the vendors seemed to be that interoperability with installed systems is what they really want and that open systems is a lot bigger than just Unix. They came to hear the vendors explain their various strategies for implementing open systems. Maybe next time around, the vendors can oblige them a bit more clearly.

TAKE YOUR PICK WITH GA8000, SAYS GENERAL AUTOMATION

Anaheim, California-based General Automation Inc has added a high-end GA8000 Series to its line of 68000 family-based Pick systems, extending the "design-it-yourself" versatility made available in the GA3000 Series. The GA8000 Series uses the GA's new 3.8 release of the Pick operating system, which includes 512 byte or 2,048 byte variable data frame size feature - the user can extend the operating system to maximise system performance or to leave the thing as it is. The GA8000 Series offers either an MC68020 with 256Kb of RAM operating at 20MHz, or an MC68030 with 64Kb of cache operating at 20MHz, 25MHz or 30MHz; other features include 4Mb memory expandable to 32Mb; support for from 16 to 256 terminals; up to eight disk drives of 340Mb, 510Mb, 720Mb or 1.1Gb; magnetic tape drives - 60Mb or 150Mb; and parallel printer support. The GA8000 Series also offers a 5.25" floppy disk for media and data interchange with personal computers, extensive data communications, including X25, 3270 SNA and bisync, 3780 bisync and the company's own local area network. A representative GA8000 Series with all base system features including the standard uninterruptible power supply, a 25MHz MC68030 with 16Mb memory, two intelligent disk controllers, four 510Mb disk drives, two MC68010-based input-output processors, 128 serial ports, half inch drawer-mounted 1600/3200 BPI magnetic tape drive, 2.2Gb DataS-tor 8mm cassette tape subsystem and a licence for the General's new 3.8 version of Pick, plus word processing, business graphics and spread sheet applications sells end user for a suggested \$236,800 in the US.

ORACLE EXPANDS ITS APPLICATIONS PORTFOLIO WITH CORE MANUFACTURING SUITE

Oracle Corp, Belmont, California has extended its applications offerings with Oracle Core Manufacturing, a full-function manufacturing product family, including Oracle Inventory, Bill of Materials, Work in Process, Master Scheduling, Manufacturing Resources Planning, and Order Entry (CI No 1,275). The company claims that Core Manufacturing will enable manufacturers of any size and type achieve world-class manufacturing by improving productivity, lowering costs and reducing production time. Oracle notes that a manufacturing operation is a distributed system and that companies have found that they cannot run a distributed manufacturing process on a centralised computer, but need a computer hierarchy to manage the manufacturing process. And Oracle claims that Core Manufacturing offers the first set of full-featured, portable, decentralised manufacturing software products designed for distributed manufacturing. The company cites a Gartner Group report on Computer Integrated Manufacturing that suggests manufacturers are increasingly going for products that are based on an SQL database, offer hardware independence, integrate tightly with each other, and enable strategic alliances among Computer-Integrated Manufacturing vendors, and Oracle claims that Core Manufacturing is the only available product that meets these criteria, since it will run on all the systems supported by the Oracle database management system. Designed to be very easy to use, Oracle Core Manufacturing has Lotus or Macintosh-style menus, pop-up windows, graphics, on-line Help, and other options to reduce keystrokes. Inventory is designed to help manufacturers control inventory levels to improve product quality and throughput, make better pricing decisions to maximise profits, and improve cash flow by reducing their inventory investment. Bill of Materials is conceived to give engineers a tool to configure products quickly and accurately; Work in Process is designed to enable production to be scheduled for maximum throughput and to facilitate just-in-time techniques; Master Scheduling is designed to link marketing schedules tightly to production schedules. The Manufacturing Resources Planning module is conceived to save money and improve control over production cycles by minimising inventory, and tightly linking materials plans to production schedules; Order Entry is designed to give the sales department immediate, accurate price and delivery commitments. Core Manufacturing works with the existing Oracle Purchasing member of Oracle's Financials product family, and with other Financials modules - General Ledger, Payables, Assets - to provide a tightly integrated manufacturing and accounting system.

No date for MVS, MS-DOS

Core Manufacturing is going only to favoured customers until May next year, when it is due to go on general release on the US - but the claim that the thing enables users to set up a completely distributed system provided only that they use machines that run Oracle is stretching things a bit - the initial versions are for DEC VAX/VMS, Sequent Computer Systems and Pyramid Technology machines, next up are Sun Microsystems and BiiN machines - although that one may go on the back burner until the company's future is decided. As for IBM mainframes and MS-DOS micros, both widely used in manufacturing, those are among the generality of "other mainframe, minicomputer, workstation and microcomputer systems" for which there is no date.

**BULL REVEALS INTEL, MOTOROLA
AND MIPS BASED DPX/2 FAMILY
OF UNIX SYSTEMS...**

The Mips news - page 1 - comes on top of Bull's other announcements last week, of a new DPX/2 series of Unix machines and enhancements to its DPS 6000 minicomputer line. The DPX/2 100 is the 25MHz 80386-based Micral 600/ix; the 210 is a 25MHz 68030-based machine; the 320 has one or two 25MHz 68030s, the 340 takes one to four 33MHz 68030s and prices go from \$11,000 to \$66,000. A 68040-based model is to be added as soon as volume shipments of the part begin to trundle off the Motorola production line. The Intel and Motorola systems are intended as entry-level and mid-range offerings, to be topped off by Mips R3000 based systems due for the middle of next year. They are to be complemented by Bull's newly revealed Open Software platform - a bundle of software including Oracle 6.0, Informix, Uniplex, Unify, Alis and Motif - which will run right across the range, the ability to support all of these being instrumental in the choice of the Mips processor, according to Bull's M.Caputti.

**...AND ENHANCES DPS 6000 MINIS
WITH FOUR NEW MODELS**

The company has also enhanced its DPS 6000 minicomputer line with new 32-bit departmental systems that are claimed to deliver three times the performance and many times the number of users - from four to 300 - as its DPS 6 Plus predecessor. The 6000s support Open Systems Interconnection, SNA, X400 messaging, MS-DOS micros as terminals, the Oracle database and Unix, and 17 models in three families are included in the French launch. The DPS 6000/200 comprises four models with single and dual processor versions, with 4Mb to 16Mb main memory, delivering 0.7 to 1.7 MIPS. It supports 142Mb to 1.2Gb on disk and four to 30 communications lines. The seven-model DPS 6000/400 line comes in single to quad processor models with 8Mb to 64Mb memory delivering 1.1 to 5.6 MIPS, taking up to 9.52Gb on disk, and up to 160 lines. And the 6000/600s also come with one, two, three or four CPUs, rated at from 3 MIPS to 10.1 MIPS, 16Mb to 64Mb memory, up to 9.52Gb disk and 272 lines. Prices range from \$17,000 to \$340,000, in the US, £10,000 to £200,000 in the UK. The 200s arrive in France at year-end, the 400s follow in early, the 600s in mid-1990.

**...AS NEC SHIPS 20 MIPS VERSION
OF THE R3000, WITH WORKSTATION
PLANNED FOR NEXT SPRING**

NEC Corp is now shipping its VR3000 version of the MIPS Computer Systems Inc R3000 RISC chip in a 25MHz version claimed to deliver 20 MIPS, and plans to unveil an engineering workstation using it next spring: the part is in 0.8 micron CMOS, and a BiCMOS version of the R4000 and an ECL version of the R6000 are planned for the second half of next year; samples of the VR3000 are \$500 apiece, of the VR3010 floating point processor \$715 in Japan, now.

**DEC OPENS UP ALL-IN-1 BEYOND VMS -
BUT ULTRIX USERS MUST WAIT...**

DEC has put the first meat into the vaporous July announcement of its Network Application Support (NAS) strategy, (UX No 240), with the introduction of the first products under its All-In-One Phase II umbrella. Built on top of NAS services, All-In-One Phase II opens up DEC's widely used office automation software suite to include support for MS-DOS, OS/2 and Macintosh PCs, DECwindows workstations running VMS and Unix, and DEC video and IBM 3270 terminal users. DEC claims to have over three million All-In-One users, all currently running on VMS-based hardware. New versions of the software under Phase II will support existing NAS services such as DECwindows and Compound Document Architecture, using the client/server model, and future elements as they are released. The schedule includes All-In-One Desktop releases for MS-DOS next January, VMS DECwindows in July, and Macintosh, OS/2 and terminal support "within 12 months." However, Ultrix users will have to wait, as DEC would give no indication as to availability of that version, although it did say that the VMS compound document editor for DECwrite would be available to Ultrix users by November. DEC has similar plans to open up its popular electronic mail services to MS-DOS, DECwindows, Macintosh and OS/2 users over a similar timescale. The launch in New York was considered important enough to merit the attendance of DEC founder Ken Olsen, who called the move "just common sense."

...AS VETERAN JOHN SHIELDS DEPARTS

John Shields, a veteran of 27 years service at Digital Equipment Corp has resigned from the company, reportedly "to pursue personal interests." Shields was at one time regarded as the most likely successor to DEC's founder and president Ken Olsen, but in recent years appears to have lost favour at DEC, especially since the recent decline in the company's sales and profits, which took place in spite of an aggressive and well received series of product launches. Last January, the day to day running of DEC's sales and marketing passed to corporate field service vice president David Grainger. Shields has been credited with a major role in DEC's giant international sale and service organisation, but his departure did not come as a surprise to many of his colleagues at DEC, according to insiders.

**GROWING TIES BETWEEN AT&T
AND NIXDORF FUEL TAKE-OVER RUMORS**

It could be that Deutsche Bank AG is right to be worried that Nixdorf AG might end up in foreign hands. Following rumors - denied in all quarters - that Nixdorf was about to be acquired by Mannesmann AG (UX No 252), it is now being whispered that the Paderborn-based company is currently being visited by numerous executives from AT&T, who are having a very close look at the company. Nixdorf spokesman Ian Robb confirmed again that the structure of Nixdorf - largely owned by the family trust - would make a leveraged buy out unlikely, but it is the Deutsche Bank stake that could turn out to be the crucial factor in any takeover bid. Such a move would make sense for AT&T, which is now committed to use hardware from Pyramid Technology in its own Unix line, and could therefore integrate Nixdorf's Pyramid-based Targon operation in Europe with ease. And even if a takeover move does not emerge, it seems that AT&T could well strike up a deal with Nixdorf to supply it with Pyramid/Targon systems direct for the European marketplace, something which could explain the AT&T visit, according to Ian Robb. Pyramid spokesman Doug Free said it "would make no difference to Pyramid" if AT&T used Nixdorf as the European source for systems".

MILAN'S SMAU SHOW REVEALS STATE OF UNIX MARKETPLACE IN ITALY

Mike Faden reports from Milan

The death of the monolithic, all-encompassing, overwhelming and all but impenetrable trade show may have been widely predicted in the US and the UK, but in Continental Europe events such as Cebit in Hannover and Sicob in Paris seem to roll on forever, leaving in their wake thousands of exhausted exhibitors and visitors - and journalists.

Each year, similar hordes of visitors - a claimed 155,000 in 1988 - converge on Milan's central trade fair for Smau, a suitably sized, (135,000 square meters housing over 800 exhibitors), national information technology jamboree featuring everything from superminis to paper for fax machines, wide area networks to portable telephones. Prospective visitors quailing at the thought may at least take heart from the fact that compared with the intensely oppressive atmosphere of most comparably sized shows, Smau has its advantages; the early October scheduling now used means the temperature is tolerable, and the setting in a dozen buildings instead of the more usual giant concrete bunker provides the visitor with more time to sun themselves at the open air cafes dotted around the fair.

Sprinkling of Unix

Most of the heat and light at the show was generated by non-Unix products, but there was also a fair sprinkling of Unix hardware and software, most of which however was US sourced and already seen elsewhere. Lack of central Government support has been regarded as a factor in limiting the growth of the Italian market to date, although there have been a fair number of cases where Unix has been specified for individual contracts. At local government level and in the small business sector the picture has been somewhat brighter, but the market size is still reckoned to lag far behind Germany, the UK and France.

Olivetti tops up LSX line

Olivetti and its Unix product line seemed to attract a degree of malicious gossip befitting a dominant national vendor; nevertheless Unix was much in evidence at Olivetti's Smau stands, and not only among the computer products; Unix was also a component of PABX and other communication products on show. Chief Unix announcements were an overhaul of the LSX line, with seven new models following a 30x5 nomenclature as opposed to the 30x0 of the original systems: broadly similar to the original line, the 30x5 range stretches from models based on the 68020 and 68030 to the high-end 3075 and 3085; the latter are due to ship next January, and are single and dual processors, said to deliver 5 and 9 MIPS respectively, based on technology from US manufacturer Edgecore, itself now acquired by Arix. The addition of the new products brings the LSX line to eleven models in total; some will be phased out next year as the new systems come on stream. Also finally announced, and due to be rolled out in localised versions elsewhere in Europe and worldwide, was the Integrate Business and Information System, Unix-based office software for the LSX line. Talked about by Olivetti since not long after the launch of the LSX line two years ago and previewed at Smau last year, IBIS is designed to provide highly configurable foundation and uniform interface for networks networks of LSX Unix servers and DOS PCs, integrating PC applications and other Unix software such as Oracle. IBIS modules include X-Manager for controlling access to, managing and passing information between applications; others include word processing, file management, mail, print management, notepad and system administration tools.

On the other hand, Bull's Italian operation - Honeywell Italia until recently - is not your average country subsidiary; it was responsible for the development of several Honeywell systems including X-Superteam, the first generation Honeywell Unix line and subsequently several of the development team were recruited into X3S - now known as the XS Division - the effort based in Massy near Paris to develop a new common line of Unix systems to succeed the desperate Bull and Honeywell ranges. The highly integrated and modular DPX/2 200 and 300, on show at Smau. (see page 3), are the first models in this new line which will later expand to embrace products based on the MIPS RISC processors. The entry level DPX/2 200 is based on 25MHz 68030 with up to 16Mb memory the DPX/2 300 will support up to four 33MHz 68030 processors - when Bull gets the symmetrical multiprocessing version of the system V.3.1 based operating system to the market, which it hopes to do early next year.

Italian jobs

Bull has been strong in local government and has also been reasonably successful in the very large Italian small business sector; it reckons it sold around 1,000 Unix systems in 1988. There has also been some interest from other Government departments - customers include the Carabinieri branch of the police - and Bull is likely to step up its efforts to use its considerable local software resources to develop the specialised applications needed for large Government contracts. The parent company's influence was evident in DPX/2s connected to Bull's CP-8 smart card systems, and the company noted that at least one of Italy's many banks is considering Unix based branch systems. On the technical side, much of the action as usual centered on the Sun stand where the company played host to numerous resellers and OEMs including Prime and previous sole distributor Delphi - which also announced a deal to distribute Acorn's RISC workstations, (Acorn's owner Olivetti has a sizeable minority stake in Delphi) Sun, which like the Italian subsidiaries of several other manufacturers also handles Yugoslavia, Greece, Turkey and the Middle East from its 50-strong Italian operation, boasts an installed base of 2,000 systems including over 400 SPARC machines. It claimed that all but 400 of the systems had been installed since the Italian subsidiary was set up in mid 1988. Sun's Italian sales organisation reflects its perception of the market; a reliance on many small VARs, often companies importing US software to resell with workstations, rather than the emphasis on large OEMs seen in some other countries. The company also sells direct and, feeling that the 80386-based 386i may be a straight forward enough product to be handled by PC dealers, is trying to establish a dealer network for the low end workstation.

CONVEX OVERHAULS C SERIES WITH OPEN SUPERCOMPUTING PROGRAMME

Convex Computer Corp, Richardson, Texas, is giving its C Series of scalar, vector and parallel processing supercomputers an overhaul, with new hardware and software enhancements under the umbrella of what is dubbed as its Open Supercomputing strategy. The Enhanced Scalar Processor CPU - ESP - is object-code compatible with the present C2 line and is claimed to boost performance from 34 to 56 MIPS. A C240 system is now reckoned to deliver 200 MFLOPS and 224 MIPS - an ESP upgrade is \$75,000. Also introduced is an Integrated Disk Channel for high-performance systems. Based on an IPI-2 - Intelligent Peripheral Interface - it is designed to provide the highest possible bandwidth between the processor and storage subsystem for data intensive applications, with 20Mbps throughput it supports up to 32 IPI-2 disk drives and costs \$48,000. Convex also says that its BSD/Unix variant ConvexOS operating system is now available in a POSIX compliant version for all its C Series machines, prices go from \$7,500 to \$37,500. Other parts of Convex's Open Supercomputing strategy include a new process scheduler developed at the University of Sydney and Bell Laboratories which allocates CPU time slots where many groups of users are competing for resources, prices start at \$7,500 rising to \$12,500, and OSF/Motif which is to be offered as the standard user environment on its range of systems. As far as communications are concerned in addition to HYPERchannel, its supercomputers can now connect to mainframes and DEC VAXes over UltraNet, from Ultra Network Technologies via an OEM deal signed recently. The VME/UltraNet interface, COVUE - Convex To VAX User Environment - can be integrated into the new ConvexOS and costs \$28,000. Connectivity to minis is also made easier with connection over Ethernet now available, supporting both TCP/IP and DECnet protocols, and Convex says emerging technologies such as High Speed Channel and Fibre Distributed Digital Interface will be supported as they emerge. X-Windows, NCS and NFS are all supported, and connection to IBM's SNA networks can be achieved using TCP/IP and Oper.Connect from Mittek Systems Corp.

TEKTRONIX ADDS LOW-END WORKSTATION TO XD88 FAMILY

Tektronix Inc, still pushing hard in its effort to make its mark in the workstation market, has added a new low-end model to its XD88 family of Motorola 88000-based RISC systems, first introduced in April, (UX No 226). The XD88/10, rated at 17 MIPS, has up to 32Mb memory and 3Gb disk, a VME bus, and runs the Beaverton, Oregon company's Utek System V implementation of Unix. Shipping in the first quarter of next year, the new machine costs \$15,450 with 8Mb memory, 156Mb disk and colour monitor. The XD88 family also includes the two-dimensional 88/20 and three dimensional 88/30 workstations, as well as the XD88/01 applications processor and 88/05 file server.

MEIKO HAS 64 PROCESSOR VERSION OF COMPUTING SURFACE

Meiko Scientific Ltd, Bristol says it is currently having "advanced discussions" with a client for the supply of a 64-processor configuration of its 80860-enhanced Computing Surface, delivering up to 1.5 GFLOPS sustained performance (UX No 252): the company says it will continue to supply pure Transputer boards for "high MIPS" applications, but expects the new board to win it signal and image processing business from military, industrial and scientific users; at the 1989 Intel Fair at London's Novotel Hotel in Hammersmith, the system was demonstrated simulating an advanced airport baggage check system, applying image techniques to X-Ray images in real time; deliveries should begin early next year, but the company gave no prices.

GEC PLESSEY PICKS TANDEM TO ADD UNIX TO SYSTEM X

With plans already in place to tie the elements of the System X exchange together with a Fibre Distributed Data Interface high-speed optical network, GEC Plessey Telecommunications Ltd has revealed that it is to couple a fault-tolerant Unix computer, understood to be from Tandem Computers Inc, to System X in a bid to bring Advanced Intelligent Networks into the public domain. The company believes that the 1990s will see an explosion of advanced intelligent line related services which will create a demand for decentralised databases and processing power at the local level. It says that the flexibility and power offered by Unix will allow both public and private operators to develop and tailor their own services. The computer will run under a fault-tolerant version of Unix System V.4, although it was prototyped under System V.3. Tandem is expected to unveil its first foray into fault-tolerant Unix at the end of the year: it has developed a workstation code-named S2 that is built around a fault-tolerant configuration of three MIPS Computer Systems Inc RISC processors, using both the R2000 and R3000, with versions to use the forthcoming R4000 and R6000 in the works. Earlier this year, Tandem was reported to be negotiating a monster agreement with AT&T Co for 40,000 of the S2 workstations, wanted by the phone company for monitoring long-distance telephone lines; AT&T would pay \$25,000 apiece. The Cupertino company has invested heavily to become a major player in the telecommunications market majoring on telephone companies, and has a separate Tandem Telecommunications unit in Plano, Texas.

...AS TANDEM REVEALS ITS OWN HIGH-END PLANS

And ahead of the launch of its MIPS RISC-based machines, Tandem is expected to unveil a new top-end machine running under its proprietary Guardian operating system that will further turn the heat on IBM in the transaction market next Monday. According to Electronic News, a configuration of the machine, code-named Cyclone and delivering three times the performance of its current top-end NonStop VLX, has been handed over to the Securities Industry Automation Corp arm of the New York Stock Exchange; others are in beta test at Electronic Data Systems Corp and at Ultimate Corp. The machines are said to be built around an improved system bus and use Advanced Micro Devices logic chips.

NEW TOOLS AND X SOFTWARE FOR HELIOS

Proof that the Unix lookalike Helios operating system environment is establishing itself as a de facto standard in parallel computing comes from the range of support strategies and applications that are coming on to the market for it. Bristol based Distributed Software Ltd is getting in on the act by offering two new tools - a Helios source debugger, and X-Windows graphics support - both of which have been developed by Perihellion Software Ltd, designers of Helios. The debugger is claimed to allow software developers to debug parallel programs running simultaneously on any number of processors via high level source code objects, and source windows which are opened for each particular task. It includes a command language and user interface. Initially supporting the Helios C compiler, future versions will also support FORTRAN and other compilers. Graphical windowing support is also offered to users of Helios on PC based transputer systems via an implementation of X Windows for Inmos G300, Paracom GDS, Quintek Harlequin and Tektite XTRAM transputers. Available this month, both products are priced at £485.

NEWS ROUNDUP

Hewlett-Packard is the latest company to disclose plans to release X-Window display products for its future product lines: Electronic News reports that HP executive vice president Dean Morton revealed the company's intentions to release a family of X terminals at the recent Open Systems Initiative Conference in San Francisco recently.

The first conference of the European Information Industry Association - EIIA - will be held in Luxembourg on 6-7 November, which will consider the problems of the industry, and how best to represent the European view in the IT world - contact Pascale Auquier +352 43 4183.

Dataguild Ltd, Basingstoke, Hampshire, has been appointed sole UK distributor for the Advance range of terminal servers from Able Computer Communications, Irvine, California.

Unisys has introduced ARGIS 4GE, a Unix based geographic information system combining graphic and alphanumeric data to provide a decision-making tool and planning aid for managers - it runs on top of Oracle, and a fourth generation environment, 4GE, allows the development of end-user applications.

Dynatech Computer Systems Inc, the Mountain View, California firm that is still much better known as Cromemco, and is now owned by Dynatech Corp, Burlington, Massachusetts, is to adopt Stockholm-based Diab Data AB's D-NIX real-time implementation of Unix, which is Posix and System V Interface Definition-compliant.

Intergraph Corp is diversifying in to artificial intelligence languages with definitive agreement to buy Quintus Computer Systems Inc, Mountain View, California. Quintus is a leader in Prolog-based software development tools, has 37 employees and did \$3.3m sales in 1988. Terms of the acquisition were not given.

Things are not going well at the enlarged Daisy Systems Corp following its acquisition of Cadnetix: the Mountain View company says that it will report an operating loss for its fiscal fourth quarter to September 30 because sales for the period fell well below the \$44.9m of the third quarter and that in the absence of additional funding, this has caused a significant liquidity problem; it says it is moving to cut expenses, and negotiating with its lender of bridging finance to secure additional funds, and the news sent the share price into a tailspin that saw it lose more than half its value, slumping \$1.25 to \$1.125 in heavy trading.

Gallium Arsenide pioneer Vitesse Semiconductor Inc, Camarillo, California, whose circuits are used in the new Solbourne Computer Series 5 workstations and servers to speed memory operation, reports that Convex Computer Corp, Richardson, Texas has replaced an ECL error checking and correction chip with a version implemented on a 15,000 gate Vitesse VSC15K GaAs array in its C2 minisupercomputers.

The government funded Natural Environment Research Council - NERC - has installed a Convex C210 supercomputer at its Keyworth, Nottingham headquarters to support growing demands from its scientists throughout the UK for more processing power - NERC hopes that it will also allow new services such as seismographic modelling to be offered to industry.

The RISC implementation of Informix Software's relational database is now available on Data General's Motorola 88000-based AViiON Unix systems - customers will be supported by Informix under a new marketing agreement signed by the two companies.

Language Processors Inc, Framlingham, Massachusetts, is porting its compiler and debugging technology on to Sequoia Systems' Series 300 Motorola 68030 based Unix fault-tolerant system - Sequoia will have marketing rights to LPI's Cobol, New C and CodeWatch software.

Siemens Business Systems, Sunbury-on-Thames, has signed up DataFlex Services Ltd, and financial and accounting specialist Uniform Data Systems Ltd, Nottingham, under its new Partnership Programme for developers and resellers launched in September, (UX No 249).

A new company - IQ 150 Ltd - has been formed by Vision Computer Products Ltd, Reading, Berkshire, and Second Computer Ltd, to amalgamate their respective product and development operations - also in Reading, IQ 150 will build new systems around Vision's 286 and 386 based file servers for up to 16 users.

Nixdorf Computer Ltd, has won a contract to supply 80 Unix based Taragon /31 Models 5, 15 and 45 supermicros and 500 terminals to the Crown Court service in England and Wales. The deal, worth £1.6m over the next three years is part of the Crown Court Electronic Support project - CREST - for automating administrative procedures at its 400 locations, and a centralised database will be updated each month the regional centres. After each court hearing the system will generate orders depending on the result, for fines, probation and imprisonment, as well as providing management and accounting functions.

The Stepstone Corporation has enhanced version 4.0 of its object orientated Objective-C compiler with releases for MS-DOS and OS/2 priced at \$249 and \$495 respectively: in addition the Sandy Hook, Connecticut based firm has an X-Windows version of its object orientated user interface toolkit - ICpak201 - initially for Sun and IBM RT workstations, with DEC and Hewlett-Packard versions planned for the future.

Unisys Corp announced last week that it is reorganising its marketing operations, eliminating layers of management layers and combining four of its marketing divisions into three: a layer of management is cut from the field organisation and the Financial Systems Division, Industrial and Commercial Division, Public Sector Systems Division and Federal Information Systems Division have been reorganised into three units - Commercial Systems Division, Financial Systems Division and Government Systems Division; a new customer technical services group will support users in all sectors.

Data General Corp is laying off 700 more people immediately, 2,200 all told, closing two plants, and will take an \$80m restructuring charge for its fourth quarter to September 30; operations were near breakeven.

Chips and Technologies Inc, San Jose yesterday added the 82C235 Single Chip AT System Controller that enables AT-alike mother boards to be built with 14 chips plus memory. It does 12MHz with no wait state, 16MHz with one; samples November, volume early 1990; 1,000-up: \$46.

Control Data Corp still hasn't finished divesting businesses, and one of the next to go is expected to be the \$85m-a-year third party maintenance side of its \$400m-a-year support operations. Control sold its European third party business to ThomaInfor of Paris, but Bell Atlantic's Sorbus is expected to be interested in the US operation, believed to be worth \$40m to \$70m.

Wang Laboratories Inc will report a big net loss for its fiscal first quarter to September 30 and a smaller loss for the current quarter, president Richard Miller told the Wall Street Journal: he sees the company moving to break-even in the third quarter to report a small profit for its fourth quarter; analysts are going for a loss of any thing from \$30m to \$70m, and Miller says the loss will fall into that range, and turnover will be down about 13% to something like \$595m; on employment, Miller says that only 10,000 of the company's current 24,500 employees are directly involved in research and development, manufacturing, selling or servicing products, and the remainder are simply "checkers checking checkers", so further cuts are likely.

Systems Reliability Plc is tipped to inject up to £4m into struggling distributor Optim Group Plc, which reported a £470,000 first half loss and is labouring under a burden of debt, but is regarded as having a sound core business.

Control Data Corp has a contract worth up to \$365m for an integrated worldwide network of computers for the US Army Corps of Engineers: it will subcontract the communications network and remote job entry processors to AT&T Co, and supply its own Cyber mainframes, network services and support services; the contract runs for 11 years and could include as many as 98 mainframes.

CONCURRENT HAS ES/P FOR FORTRAN

Concurrent Computer has a new graphical software product claimed to allow programmers to visually transform sequential Fortran programmes into parallel form. Dubbed Environment for Sequential-to-Parallel processing - or E/SP - it automatically identifies the parts in sequential Fortran VII source code that can be converted into parallel form and displays the programme in a graphical structure on screen, so that the user can select other parts that seem appropriate for similar conversion. E/SP is currently available on Concurrent's 5000 and 6000 Series, the Sun-3 and Apollo 4500, performance gains are estimated at 30% and upwards.

SYCERO C GENERATES C CODE FROM dBASE-COMPATIBLE GENERATOR

Sycero C Ltd, Maidstone, Kent claims that Microsoft Corp is getting very excited about its new Sycero C fourth generation language that generates C source code. Built around the Microsoft C 5.1 compiler, Sycero C enables dBase programmers to program in dBase and generate C code. The engine of Sycero C, however, is the company's fourth generation language, the Sycero Programming Language, which enables the programmer to use dBase syntax. Sycero C costs £600, with a multi-user Sycero C Net at £900, for MS-DOS with a Unix version planned to be released at Christmas and an AS/400 version in 1990.

HEWLETT-PACKARD BRINGS PAINTJET XL PRINTER TO THE UK MARKET...

Hewlett-Packard Ltd has a new colour printer, the HP PaintJet XL, designed to print colour graphics merged with text using a single device. The HP PaintJet XL prints at two to three times the speed of the original HP PaintJet and is intended for departments wanting to share a printer, or individuals needing a higher-volume or A3 colour printer. The new printer will be available from November 1, 1989, priced at around £2,500. Features include improved media handling, more media sizes, more fronts, better final copies and more pages printed per day. The HP PaintJet XL joins the PaintJet and the Paint Jet interface kit for the Macintosh and both series are designed for use with MS-DOS micros and a variety of other machines. The PaintJets work with Microsoft Windows and a new, enhanced driver for version 2.11 will be available from November 1. The printers work also with Apple Computer Inc's Macintosh Plus, SE and II computers through a new interface kit, which supports features like background printing, font scaling and 32-bit colour but not installation on AppleTalk networks. The kit provides a QuickDraw-compatible software driver, fonts, a cable and user's guide. In early 1990, HP plans to introduce a cartridge for the HP PaintJet XL that supports applications using the HP-GL/2 graphics language. Also, the new printer will be supported in the HP-UX 7.0 Unix so that the printers can be used with HP 9000 workstations.

...AND PICKS UNIVERSITY OF PISA FOR RESEARCH CENTRE

The University of Pisa in Italy has been chosen by Hewlett-Packard Co as the European arm of its three-continent \$15m programme to establish science centres in co-operation with major universities. The programme was announced in February when Stanford University was named as the US partner. At the Pisa faculty, Hewlett scientists and visiting professors will do joint research, initially into computer languages, databases and parallel processing. The third centre will be on the Pacific Rim.

PYRAMID "TO TAKE MIPS CHIP FOR FUTURE PRODUCTS"

Amidst all the excitement generated by deals with Bull SA and Nixdorf last week, it now appears likely that Pyramid Technology will be extending its deal with Mips to cover CPU technology for future Pyramid systems. Although a pioneer in Unix-based Risc systems, Pyramid has remained primarily a systems company, and has failed to keep its proprietary CPU technology as cost effective as the merchant micro-processor companies such as Mips, Motorola Inc and Intel Corp. Pyramid upgraded its CPU technology with the introduction of the "third generation" MIPServer range earlier this year (UX No 218), but now the company's chairman, president and CEO, Richard Lussier has revealed that the new generation of systems currently under development in conjunction with AT&T will use an "industry-standard" processor. Although Pyramid is remaining tight-lipped on the choice of processor, it seems unlikely that any other chips than those from Mips could be involved - even before the low-end systems announcements, rumours suggested the Mips/Pyramid relationship was to be deeper than a standard OEM deal (UX No 231). And Pyramid's major European OEM, Nixdorf AG, has re-enforced the move by making its own commitment to Mips. Pyramid spokesman Doug Free said that Pyramid's strength was "the power of the symmetrical multi-processing architecture and operating system enhancements rather than the CPU itself - Pyramid has brought Unix into the world of on-line transaction processing." Free said that AT&T will also OEM the current Pyramid product line, currently the subject of "significant" sales within AT&T itself.

TOPS HYPES SUCCESSES IN JAPAN AND EUROPE
Profits may not be sparkling at TOPS, but the company reports a big surge in interest in its products in Japan, saying that now that the Kanji version of TOPS DOS runs on the five most popular Japanese MS-DOS machines, sales of its products in Japan have increased more than 500%, making it a leading player in the Asian local area networking market. The lack of standardisation in the MS-DOS market in Japan - each manufacturer's implementation is proprietary as in the very early days of MS-DOS in the US and Europe - making it impossible to create mixed vendor local networks of personal computers - TOPS solved the compatibility problem by providing file sharing between the five most widely-used brands of MS-DOS machine, well as with Macintosh and Unix systems. And the company reports that sales of TOPS products in Europe more than doubled in 1989 following wider acceptance this side of the water of the Apple Computer Inc Macintosh in business, creating demand for Macintosh-to-MS-DOS intercommunication.

INTUNIX DEVELOPS MULTI-LANGUAGE TEXT RETRIEVAL SOFTWARE

Formed at the end of last year by former Quadratron employees, St Gallen, Switzerland based Intunix AG is now bringing Unix based text retrieval software to market, based on Fulcrum Technologies' Ful/Text engine. Q-File is a document search and retrieval system for Q-One documents created in Quadratron's Q-Office environment, available in English, French, German, Italian, Spanish, Dutch, Norwegian and Swedish. Q-File is written in C and runs on all Unix compatible operating systems in stand-alone or local area network environments. Usearch is an application which does the same job for Uniplex documents, and PC-Search works in conjunction with the most popular MS-DOS word processors. In addition Intunix has a Text/Search development tool for users to create their own database applications.

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The K3 Group, Worcester, has released its Change and Configuration Control software for DEC's Ultrix-based systems in the UK - price on the DECstation 3100 is £2,450.

The London International Financial Futures Exchange - LIFFE - based at the Exchange Royal, is to provide an automated trading system for its members that will be networked via Sun Microsystems Sparc 4/300 systems to over 1,000 Sparcstation 1 workstations: the servers are themselves linked to a DEC VAX 8800 cluster - the main trading support system - allowing bids or offers made from the network to be confirmed within two-tenths of a second.

Alslys Ltd's secure Ada compiler is now available running in a Unix environment on a PC platform - it is dubbed the Secure Xenix Ada Compilation and Toolset, and runs on top of SCO's B2 stamped Secure Xenix system on PCs with at least 4Mb RAM and needs 20Mb hard disk.

Version 3.3 of Systems Union's SunSystem financial software has been ported on to Convergent S Series, Bull's XPS 100 and ICL's DRS 500 series systems.

MF Systems Ltd, Kensington, London, has developed a gateway linking its MetaFour 4GL with Alton, Hampshire based Multisoft's Premier accounting package, enabling VARS to configure customised systems without having to program in C - the gateway is transparent to users and costs £8,500.

X/Open Group Ltd's Independent Software Vendor Council now has a seat on the main X/Open board: the move should give users more influence in determining the future direction of X/Open; and representatives from the Santa Cruz Operation and Tecsiel SpA were also elected onto the Unix standards body's Independent Software Vendor Council.

Despite the loss for its fiscal fourth quarter that was a result from Data General Corp's restructuring, the market reacted positively because the minimaker reported a surge of business and was taking timely and more far-reaching action than expected: in the changes, Data General will move its Portsmouth, New Hampshire manufacturing operation to a larger facility in Apex, North Carolina, over the next 12 months and the Portsmouth facility will be sold; it will also sell the Westbrook, Maine, and Clayton, North Carolina manufacturing units as ongoing operations - so the employees should keep their jobs - and sell its Durham, New Hampshire plant, although peripherals will continue to be designed in Durham; the moves will end manufacturing in New England, and will save about \$95m a year.

Relational Technology Inc, Alameda, California has a new user interface for its Ingres relational database, based on Sun Microsystems Inc's Open Look for Unix: developed jointly with Sun, Ingres/Simplify is for Sun-3, Sun-4 and Sparcstation 1 users and costs \$350 per user, now.

Philips NV's two French professional electronics units, Telecommunications Radioelectriques et Telephoniques SA and La Radiotechnique SA each reported first half losses - \$17m at the telecommunications and defence business, where Philips is seeking full control before selling the defence side to Thomson-CSF SA - on sales down 5% at \$275m; \$8.7m at office equipment and consumer electronics firm La Radiotechnique, on sales down 0.2% at \$757m; both blamed restructuring charges.

Welcome to the Scandinavian UNIX-Exhibition
in Stockholm, Sweden
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Matra SA plans to spin off its space systems business into a separate Matra Defence Espace SA in which GEC Plc and the Deutsche Aerospace arm of Daimler-Benz AG are expected to take stakes, with Matra taking cross shareholdings in GEC-Marconi and in the German partner.

Blame it on the Pony Express: Sun Microsystems Inc has sent its 6,000 suppliers a form letter apologising to them for failing to pay its bills on time and blaming its new management information system - so one can assume that everything is back to normal now? Well yes, except that according to the Wall Street Journal, the letter is dated September 13, and is still being received by the firm's suppliers.

Acer Inc, Taipei, Taiwan has bought a 50% stake in one of its West German distributors, Ce-Tec Data Technology GmbH, of Ahrensburg, near Hamburg, renaming the company Acer-Cetec Computer GmbH. Turnover of the company was \$26m last year; Acer did \$1,120m turnover in the nine months to September 30. Terms of the agreement were not disclosed.

Touch Communications Inc, Campbell, California is offering Touch Fast port/X400 OEM to those wanting to implement X400 messaging systems: the offer includes C source code, documentation and engineering services and the thing is supported under VMS, MS-DOS, Unix and MacOS.

Irrepressibly nose Network General Corp, Mountain View, California has added the SniffMaster I, claiming it to be the first software package that enables local network managers to analyse problems within distributed local area networks from a single workstation: initially designed to run with the Sun Microsystems Inc SunNet Manager, SniffMaster I enables simultaneous monitoring and control of both local and remote networks or multiple segments of a large, enterprise-wide network from a single control console, and Sun running SunNet Manager and SniffMaster I enables the manager to view multiple, overlapping windows on the console screen simultaneously; out in December, it's \$2,000 per Sun.

On the DEC VAX product portfolio, Frank Gens of International Data Corp reckons that a VAX 6000 500 Series should appear late 1990, and offer 30% higher performance than the 400s: over the next two years, we should see the Mips RISC-based DECstations to double its performance, going to 50 MIPS chip sets within that timescale; he VAX product scenario is for a VAX 6000 500 in 1990, a new microprocessor MicroVAX generation, and a 60 MIPS version of the Aridus; Ken Olsen is insisting that VMS will run on a MIPS RISC-based family, his engineers, according to Gens, say no - but although DEC ridiculed IBM's Systems Application Architecture, Gens claims users will be able to move VMS applications over to Unix.

Proving that loyalties amongst Unix vendors to the opposing Open Software Foundation and Unix International camps are not a religion, and are not likely to waver in the wind of market forces, Gil Williamson, President of NCR Corp told Unigram.X that "NCR will adopt OSF/1 if it turns out to be a really good product", but "could jettison Systems V.4 or offer both - it all depends on the marketplace."

These sentiments were re-enforced by John Paul, head of Nixdorf's engineering systems division in the US, who said that although Nixdorf was committed to take technology from the Foundation as it becomes available, "the operating system world would only hurt itself if it viewed OSF/1 and AT&T's V.4 as opposing camps. Both AT&T and OSF produce Unix kernels, and we as vendors will pick and choose between the technologies. Maintaining compatibility is complicated, but we must push to work through that."

And Roland Pampel, Bull HN Information Systems Inc's president and chief executive officer, speaking at the New York launch of Bull's new generation DPX/2 line last week, said that Bull "would track OSF and continue offering the AT&T operating system, including V.4 enhancements." Pampel said that the Foundation was offering "more and more values at the higher levels."

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NEW IBM RT "TO DEBUT AT UNIFORMUM"

The latest speculation surrounding IBM's "peekaboo" next-generation RT boxes (aka Rios) reckons they will debut at Uniformum in Washington D.C., scheduled to run January 23-26. For months now, the rumor mill has been claiming that the "America" chip, the second-generation 801 RISC processor that's powering Rios, has been delivering upwards of 100 MIPS in the lab (see page 4 for details of the chip). Not that we'll be treated to anything like that come January. Figure more like 25 MIPS to 50+ MIPS in actual processing power. Observers, however, believe the "higher-ups" in Armonk are still scared stiff of being hit by predatory pricing charges, a vestigial fear left over from the old anti-trust suit that monopolized Big Blue for some 10 years. So they're guessing IBM will downplay Rios' actual capabilities, when it finally comes out, pegging it in the 20 MIPS to 40 MIPS range and leaving it to independent benchmarkers to discover the glorious truth. That way they'll be able to price it a lot cheaper than the competition. These same observers are looking for Rios to come in at least two, perhaps three, performance levels and maybe five models from desktops, through servers to rack-mounted models. They think the entry-level will be priced at around \$12,500, a little bit less than IBM's anticipated 486 PC, which could come in at \$13,000 - \$14,000. At the upper reaches, they guess it could be priced at \$1000 per MIPS.

INTEL TEAMS WITH ALLIANT ON ABI AND API FOR 80860 RISC PROCESSOR

It turns out that the reason Intel Corp has made a \$3m investment in Alliant Computer Systems Corp, for a 4% stake in the company, (UX No 251), is that the two are working on an Application Binary Interface - ABI - and Application Programming Interface - API - for Intel's 80860 microprocessor that will enable shrink-wrapped software to run on single and parallel, multi-processor systems built upon the RISC architecture, without the need for source code recompilation. It goes beyond the existing, basic ABI specification for 80860 systems running Unix V/80860, and is being called the Parallel Architecture Extensions standard - or PAX. Seventeen software houses have already signed up to develop applications based upon it, including Oracle, Pixar, Visual Edge Software, The CAD Group and Kuck and Associates. Intel says it will incorporate the PAX standard in future generations of the 80860 architecture, the first implementation of which is promised for early next year. In addition to an ABI and API, PAX covers hardware, operating systems, libraries (for integer, graphics and floating point), and compilers. Alliant's contribution to PAX is software in the form of its concurrency control architecture, Fortran and C compilers and parallel PHIGS and PHIGS+ implementations, all of which it has also licensed to Intel, which in turn is to supply them to 80860 system developers. PAX-compliant compilers will have the capability to recognise the API and apply automatics parallelisation, then emit machine language that will obey the ABI. PAX is designed to enhance loop-level execution on the chip - to get more than one instruction through every clock cycle - Intel claims the 80860 presently does three, and there are currently 75 systems being built around the 80860, of which half are believed to be CPUs. Whilst Alliant will continue to manufacture its Motorola 68020 based FX minisupercomputers, the Littleton, Massachusetts, outfit has confirmed its intention to build a successor based on the 16 processor implementation of the 80860, (UX No 252), which will be out in the first quarter of next year. It hopes to cash in on PAX with the development of 80860 workstation software that will also run on the future Intel-based versions of its parallel processing and visualisation systems.

HP SAYS QUAKE DAMAGE RUNS INTO MILLIONS

Following the earthquake that struck the West Coast of the US last Tuesday, with its centre at the heartland of the computer industry, Hewlett-Packard Co reports that although it will see only "minimal suspension" of manufacturing in the San Francisco Bay area, where it has more than 70 buildings and employs 18,000 people, one building in Palo Alto may be damaged beyond repair. Overall damage to its facilities "will be easily in the millions", the company said - its first priority as the quake struck had been to transfer the "mission-critical" data on which its worldwide operations depend out of California and over to Geneva, Switzerland. Full report on page 5.

INTEL REPORTS PROGRESS ON MULTIPROCESSOR V.4

Sources at Intel have revealed that the effort to produce a multi-processing version of Unix V.4, in conjunction with Olivetti and Unisys, (UX No 223), is moving into the testing stage with a beta release scheduled for the beginning of next year and user versions planned for the second quarter. Pricing, distribution and licensing arrangements for the operating system are currently under discussion, and Intel confirmed that Prime Computer Inc has withdrawn from the project following the need to cut costs after its fight against the hostile bid from MAI, (UX No 251), but said that its absence will not affect the pace of development.

SONY UNVEILS FIRST MIPS RISC STATION AT BUDGET PRICE

Sony Corp has come out with its first workstation built around a MIPS Computer Systems Inc RISC microprocessor in Japan. Based on the R3000 RISC, the NWS-3800 series is rated at 12 MIPS, and the price, equivalent to \$28,500, is very low for the Japanese market. The machine, which includes the R3100 floating point co-processor and a 68030 input-output processor, is claimed to be compatible with the existing NEWS series. There are two models, the NWS-3860 with 640Mb hard disk and 150Mb streamer built in, and the the NWS-3840 with a 264Mb hard disk. Both have as standard an audio interface and can record and replay pulse-code modulated sound. Sony also has a new entry-level model for the 68030 line, the NWS-1400 series, rated at 3.9 MIPS. Shipments of that start in December in Japan, costing the equivalent of \$8,900. Sony looks to sell 3,000 of the RISC models and 10,000 of the NWS-1400 by March 1991.

LONDON SHOW REVEALS SOFTWARE DEVELOPERS UNIX DOUBTS

The 1989 International Project Management Exhibition took place at the Connaught Rooms in London's Covent Garden district last week - the dearth of Unix applications around the stands showed how little confidence many software developers still have in the Unix operating system, and how much Unix supporters still have to achieve in getting their message across. Most of the project management applications on show were PC and VAX based - those interested in developing Unix versions of their products generally felt that the work needed to port to all the different colours and flavours of Unix that they still see out in the marketplace amounted to more time and money than it was worth.

Nevertheless some were out there waving the Unix flag. Welcome Software Technology International, London SE1, was demonstrating its Open Plan project management system which runs on PCs, VAXes, across LANs and now on Unix V.3.2 as well as DECstations and the ICL DRS 300 system, with a Macintosh version planned for next April. On PCs it integrates with dBase III, under Unix with Recital. Porting of Cheltonian International's Panorama management software is somewhat easier given the fact it is based upon Oracle, with the rest written in C - it runs on VMS, MS-DOS and Unix and has a range of graphics features for project evaluation as well as a network mapping function. Unix ports so far include those to Sun Microsystems, Mips Computer systems, Hewlett-Packard, Pyramid, DEC and ICL hardware. Based in Kingston-upon-Thames, Surrey, Cheltonian's package starts at £6,000 on a PC and £20,000 on a four user Sun system - minus the Oracle database. There are around 40 Panorama users in the UK, and another 10 or so worldwide. Cheltonian's latest customer is the Eurodisney consortium that is building Europe's first Disneyworld just outside Paris - dubbed not surprisingly the Mickey Mouse system!

COCONET BRINGS UNIX CONNECTIVITY TO NOVELL, MS-DOS, OS/2 USERS

In a new development from a company based in Coral Gables, Florida, with one of the most bizarre names yet - CocoNet Inc - Novell networking technology users can now run Unix on their systems with release 1.3 of its NetBios Unix/DOS Network, called CocoNet. It is an Ethernet implementation of SCO Xenix-Net and Microsoft's Networks, designed to tie together 286 and 386 based PCs running Unix, MS-DOS and OS/2, and Novell. It gives virtual logins as well as access to the Unix file system and print spool facilities. With CocoNet, Novell-based workstations can run server applications, and both MS-DOS file and record locking calls and the NetBios application programming interface are supported. It enables transparent MS-DOS and OS/2 file sharing from Novell or Unix servers, or both, and the architecture - which merges Novell and MS-Net in such a way that it is invisible to the MS-DOS user - also allows an MS-DOS-based workstation to run both a Novell shell and CocoNet NetBios Network simultaneously with no additional memory usage. It supports thick, thin and twisted pair Ethernet and StarLan, with Token Ring and Arcnet facilities promised soon. CocoNet is claimed to run with any other network software, and as such, virtually duplicates the functionality promised by Novell's Portable Netware for Unix - the rub is the in the price. CocoNet, which is compatible with Netware 2.15 and higher, is available as a hardware/software upgrade kit for existing Unix/Xenix 386 users at £1,895, or as a preconfigured CocoNet Tree Server from £11,400. CocoNet can be obtained in the UK from its distributor LAN Technology International Ltd, Rushden, Northants. CocoNet said other products for integrated communications servers and distributed processing SQL client/servers will be out by the end of the year.

"UNIX IS CASUAL, LIMITED,"

DEC's KEN OLSEN WARNS THE AUSSIES

DEC founder and president Ken Olsen is still far from convinced of the much-touted benefits of Unix and he was at it again in Canberra last week, Newsbytes reports. Speaking at the Australian Information Industry Association's public sector markets conference, he claimed that Unix was a "casual, undisciplined, informal, limited operating system," - but that DEC was investing a lot of money to make Unix a commercially practical system. "But any system that does not have the security designed into it is not a secure system. You cannot say, "I'm going to build a large Unix system today" and expect any security," he said. He was also scathing about the proponents of transportable software, saying that while competitors were promising to "free the world of the dominance of IBM and Digital, and give software that will play anywhere on anybody's system", each was now saying "remember our software won't run on anyone else's computer!". "Transportable software is dependent on standards. Every single one of them has to be met. Putting the word Unix on it adds nothing," Olsen declared.

EBUSOFT OF MUNICH OFFERS A GENERATOR THAT DELIVERS C SOURCE CODE

Munich-based Ebusoft GmbH has developed a fourth generation applications development environment that generates C source code. The new Ebus-Generator-C is claimed to generate immediately compilable C source, Computerwoche reports, making use of macro technology: through the generator, small parts of the program are embedded as macros, which are stored in a library independent from the program. The system is being touted as a mach independent generator, and applications written for any of the machines supported are claimed to run on all the others: the company implies that these include the generality of Unix and Xenix systems, including Siemens' Sinix variant, the Targon range from Nixdorf Computer AG, and Bull SA's DPX2000 machines. No prices were given.

THE NEW TFB SIGNED UP BY ACER - REVEALS FUTURE PLANS

TFB Holdings Ltd - born by a management buyout of Technology for Business plc, and the Rental Maintenance Ltd business, from CLF Yeoman plc - has been quietly putting its act back together since the September shake-up, (UX No 250), now revealing that it has been signed up by the Taiwanese giant Acer to distribute its range of PCs in the UK, and add Xenix operating software to the boxes where required. TFB has also bought licences to Tetra Business Systems' Tetraplan accounting software, using it to develop new applications to sell into the financial market, as well as the rights to Brook Street Computers' Unison package which will be used as a basis for other new products. In addition the firm is also aiming its sights on brokerage firms and is co-developing software for this market with another undisclosed player. All of this comes on top of TFB's core business of supplying its Unix-based software to the legal profession running on Altos Computer Systems' hardware. TFB says that were over 40 companies interested in buying TFB from CLF Yeoman, including Misys and Trinitec - and loyal customers within the legal fraternity are even reported to have stumped up £1m which they offered as part of a solution. TFB has slimmed to 90 staff, down from 141, each of whom owns a piece of the new company, which has relocated to Sunbury, Wiltshire.

TRANSPUTER INVENTOR IANN BARRON "FIRED" BY SGS-THOMSON

Iann Barron, inventor of the transputer, has left Inmos International Plc, Bristol, Avon, the company he founded back in 1978, under a cloud of mystery that has both sides giving different versions of events. Barron says he was "fired" by SGS-Thomson Microelectronics BV - the company that bought Inmos International from then owners Thorn EMI Plc back in March, (UX No 223) - without being given any reasons, except that the company had no further use for him. It appears that Barron had been working as a strategic consultant to Inmos and was involved in a development project working on next generation transputer technology. Sources at Inmos claim that Barron was offered the same job with SGS-Thomson but declined the position. As a result his contract was not renewed and from its point of view he has effectively "retired." SGS-Thomson is 45% owned by French giant Thomson-CSF, 45% by Stet SpA, the Italian state holding company, and 10% by Thorn EMI Plc.

ORACLE VERSION 7.0 "TO BE LOCATION-TRANSPARENT"

Having won clear leadership in the third party relational data base management systems market and put itself on target to be come the next software company to record \$1,000m in annual turn over, Oracle Corp is not planning to sit back and just watch the money roll in. The Belmont, California firm is reportedly pulling out all the stops to finish Oracle Version 7.0 to get it ready for launch next year. The new release is planned to offer a fully distributed location-transparent database which if it works will substantially increase the attractions of Oracle by virtue of the fact that the software runs on so many different types of hardware from IBM 370-type mainframes down. Distributed database is one of the thorniest issues in the database world and IBM certainly does not expect to offer a true distributed database any time soon. Other features planned for Oracle Version 7.0 are B2-level security and further support for ANSI data base standards, and president Larry Ellison is promising that the thing will be announced "by the time the crocuses bloom".

RAVAGED NORSK DATA INTRODUCES ITS FIRST UNIX SYSTEMS

Norsk Data A/S last week came out with three new products, a new top-end ND-5850 in its Sintran III proprietary minicomputer line, a family of Unix machines bought OEM from Motorola Inc, and a server also based on its ND-5000 mini processor. The ND-5850 is rated 15 MIPS, one and a half to two times the performance of the previous line-topper. The new Unix machines, put together by its new Dolphin A/S development subsidiary, for which it is now actively negotiating outside investments, go under the name Uniline 33, are built around the 68030 and come in models for up to 100 users. They are being offered only outside Scandinavia - back home, the company is offering its NDIX implementation of Unix on its own processors to keep faith with its big base. They presently run Unix System V.3, but will move to V.4 next year, when models based on the Motorola 88000 RISC will be offered. The new tpServer is designed to support networks of personal computers, is based on the ND-5000 32-bit processor and come in two cabinet sizes, the larger taking up to 30Gb disk. They are rated at 30 transactions per second, and the prices for the two sizes are from £65,000 to £164,000 and £75,000 to £330,000.

MIPS GIVES UP ON SYNTHESIS SOFTWARE EFFORT - PREPARES FOR ABI

Mips Computer Systems Inc has folded its independent software arm, Synthesis Software Inc, back into the main company, and replaced it with a new software effort called the Riscware programme. Synthesis was launched last year, (UX No 187), with a great fanfare, and aimed to track software, acquire the rights for Mips-based hardware, and resell it to users of the Mips RISC processor. The organisation was to be self funding and profitable. But according to Mips spokesman John Hime, the organisation is no longer needed. "Synthesis was successful in porting eight to ten products to the Mips architecture, including Oracle, Ingres and FrameMaker. But this year, our profile has increased so that Synthesis is no longer an important part of our strategy. We now have 200 software packages under the RiscWare programme, and are trying to avoid the marketing expense and difficulties involved in the Synthesis effort. We don't need ten packages, but hundreds, and can now get the ports on referral." Hime implied that, although an Application Binary Interface and Application Programming Interface for Mips users is not yet available, work is progressing on moves to establish standards for 1990 and 1991. Mips users include Silicon Graphics and Tandem, with announcements last week from Bull and Nixdorf. DEC has also taken the processor, but has changed the byte ordering of the chip to integrate its Ultrix-based DECstation line more closely with the traditional VAX systems. Sources suggest that an announcement on a Mips ABI could be revealed as early as next week.

...AND TOPS UP R3000-BASED SERIES

And Mips has upgraded its system level products with new machines based on the 25MHz R3000 chip. The two new systems include the RC3240, delivering 18 MIPS for around \$30,000. The machine is positioned as a low-cost desk-side server, and is said to be 50% faster than the older M/120 for no extra cost. The company has reduced the cost of the M/120 by around \$4,000, and says it will also offer board swaps. The RC320 is a departmental server, rated at 20 MIPS, offering smaller packaging than the existing M/2000. Prices start at \$45,000. RC3260 systems will be available in 45 days, RC3240 systems in 30 days. Mips also looks poised to take a lead in the performance stakes with a workstation rated at 60 MIPS, using the forthcoming ECL version of its RISC processor: an announcement could be made at Unix Expo in New York next month.

NEXT ADDS WINCHESTER MODEL

NeXT Inc, Palo Alto has bowed to pressure to reduce the price of its NeXT Computer and offer a magnetic disk version, announcing a \$5,000 networked system with a 3.5" 40Mb Winchester from Milpitas-based Quantum Corp's ProDrive series in place of the optical drive; the low price is for educational users only - and current users of optical disk-only NeXT computer systems can add the Winchester at no charge from NeXT, which also reduced 4Mb memory modules by 46%, to \$800.

IBM DETAILS ITS SECOND GENERATION RISC- BUT WHERE IS THE BOX?

By John Abbott

If all had gone according to plan, IBM's RIOS workstation, the successor to the RT, would have been released last Tuesday. Instead, all we have is an IBM White Paper on the technology at the heart of the new machine- IBM's second generation RISC processor architecture.

The 801 minicomputer project at IBM Research in Yorktown Heights, New York during the late Seventies and early Eighties, is credited with pioneering many of the architectural concepts that have since become popular in the explosion of Reduced Instruction Set Computing processors now on the market. But the 801 minicomputer never appeared, and IBM's first RISC computer turned out to be the BT workstation in 1985 -not the company's most successful product. But that same year, the original 801 development team turned their hands to design a second generation Risc processor now set to appear in the replacement RT workstations due out early next year. Codenamed America, the project was transferred over to IBM's Advanced Workstation Division in 1986, and has since had additional inputs from IBM's Burlington and Toronto development labs.

Five instructions per cycle

Although IBM pulled back the introduction of its workstation from the original October 16th launch date until next year, it has gone ahead and published a technical white paper describing the architecture of the new chip. IBM admits that some features on the new chip are common to earlier RISC processors - it uses a register-orientated instruction set, hardwired CPU and piped lined implementation - but goes on to point out the new features, such as separate instruction and data caches, zero cycle branches, multiple instruction dispatch, and simultaneous execution of fixed and floating point instructions. And while it is careful not to discuss actual chip performance, IBM does say that it has reduced the sustained instruction execution rate to achieve "close to one instruction" per cycle. To do this the chip has to be capable of a peak execution rate of more than one per cycle- and IBM claims its second generation risc is capable of executing up to five instructions per cycle, namely, a branch, condition register, fixed point and two floating point instructions.

Nine semi-custom chips

In order to achieve the high levels of concurrency needed for this, IBM has taken a rather different course from the more fashionable, highly integrated approach of the merchant microprocessor manufacturers, such as Intel and Motorola. IBM's architecture is actually a complex of nine semi-custom chips, including three independent functional units: a combined branch processor and instruction cache unit, a fixed point processor and a full 64-bit floating point processor. The central electronics complex of the chip also includes four data cache units, a storage control unit, an input/output interface unit, and clock chip. The three main units were designed to work together with maximum concurrency, and have the instruction set divided amongst them. The branch processor takes the incoming instruction stream from its integrated instruction cache and provides a steady instruction flow to the fixed point and floating point processors.

It is the branch processor, which includes six specialised registers, that minimises the delays normally associated with branching instructions by processing in advance all interrupts, branch and condition register instructions, allowing the cycles required for handling branches to be completely overlapped. This results in zero cycle branching "for large sequences of meaningful code", according to IBM. The FX, or fixed point processor, has 32 general purpose registers and five special registers to support all of the fixed point arithmetic and logical operations, as well as all of the data reference instructions, and the FP or floating point processor has 32 sixty-four bit floating point registers and a floating point status and control register. The four way set associative 64 Kbyte data cache is divided into the four identical DCU chips of 16 Kbytes each, and IBM has implemented cache reload and store back buffers to boost performance beyond that of "simpler cache implementations".

Enhanced Micro Channel

Communication between the three CPU units, main memory and I/O is arbitrated by the storage control unit, to which it is directly hooked via the so-called P-Bus. A separate system input/output (SIO) bus interfaces to the I/O unit, which has an I/O channel controller that generates "an enhanced Micro Channel interface, speeding up the transfer of data between system memory and adaptors on the Micro Channel bus that - as widely reported - will be an integral part of the new workstation. The channel controller supports both DMA bus masters and slaves, and will allow the Micro Channel to operate in streaming data mode, apparently doubling the performance for large data bursts. The enhanced Micro Channel will be fully compatible with current Micro Channel implementations, allowing standard MCA adaptors to be attached to the enhanced Micro Channel and vice versa. For virtual memory, IBM has extended the approach found in the 801 and RT, providing for a 4 Petabyte virtual address space and 4 Gigabyte real address space in 4Kb pages. The chip's Special Segment architecture is also an extension of that found in the 801. More revolutionary is the cache architecture, which includes the concept of instruction and data caches that are visible to the software, a factor said to both simplify the cache implementation and increase parallelism between the branch and fixed point processors, as well as between I/O devices and these processors.

Exciting technology - but when ?

According to IBM, the design goal for the new 1 microm, CMOS chip, was to design "a high performance, balanced machine that avoids bottlenecks in the CPU, caches, memory interfaces and I/O subsystem. But IBM was also looking for a product that could produce a family of processors with varying cost and performance. Hence the design will allow configurations, without sacrificing overall yield. The low-end model requires only one memory card, while the high-end unit needs a minimum of two, supporting either 1Mb or 4Mb DRAMs. But while the technology sounds exciting or innovative, the market effect on of the workstations in which it will appear depends very much on how soon can be brought to market. With MIPS Computer Systems Inc threatening a 60 MIPS machine in the near future, and DEC and Sun Microsystems battling it out in the marketplace today, IBM's first quarter launch next year, and second quarter deliveries might be a little too late.

COMPUTER INDUSTRY SURVIVES EARTHQUAKE RELATIVELY INTACT

The first reaction of the computer and semiconductor industries to last Tuesday evening's 6.9 force earthquake was sighs of relief that most of the buildings that house Silicon Valley's precision chip, disk drive and instrument manufacturing businesses came out superficially undamaged, and chip companies that put out messages generally talked of losing only a shift or two. But the earthquake, with its epicentre between Santa Cruz and Hollister - where a Pacific Telesis exchange was knocked out was very uneven in its impact, and the initial assessment is that Oakland, much further from the epicentre than Santa Clara county, which has the highest density of high-tech firms, suffered the most damage. The problems that may be discovered over the next few days are highlighted by the formal announcement from IBM on its mainframe disk drive plant in South San Jose - the company said that the facility suffered some damage "but is expected to resume operations gradually over the next several days". Clean-up operations at the plant were under way, but "it is really too early at this point to assess the extent of the damage," IBM said.

Scotts Valley seems to be hardest hit

It seems that companies that suffered the worst damage were in Scotts Valley, midway between Santa Cruz and Los Gatos and close to the epicentre. Disk drive manufacturer Seagate Technology Inc said that it was closed to assess what appeared to be minor damage to some of its 20 buildings - but minor damage to sensitive disk drive manufacturing equipment can mean major headaches. Any problem for Seagate would have been much more severe a few years ago - now most of its manufacturing is offshore. National Semiconductor in Santa Clara reported that piping in a waste treatment plant needed quick repair. Santa Cruz Operation Inc, based in Santa Cruz, eight miles from the epicentre of the earthquake, reported ceilings were down in its buildings and all its computers and phone lines were down - and it was only able to talk to the outside world by mobile phone. MIPS Computer Systems Inc in Sunnyvale, reported that "MIPS is still standing" and saw no serious damage. Intel Corp, making the 80486, 80386 and 80860 in Santa Clara said there had been no damage to its buildings, and Advanced Micro Devices in Sunnyvale reported little more than plaster off the walls. Pyramid Technology, Mountain View - between San Jose and Palo Alto - reported its only disaster a smashed fish tank and the demise of its tropical fish. Other companies that reported with relief that they got off lightly - provided there are no aftershocks - included Tandem Computers, Sun Microsystems, Wyse Technology, Everex Systems, 3Com Corp, Anacomp Inc, Oracle Systems, VLSI Technology and Quantum Corp. Unkind people will say that at last Borland International Inc, notoriously late with new products, has a good excuse: the Scotts Valley, California company reports that it sustained heavy damage to its headquarters and was operating from its parking lot. It did not, however expect delays in shipping product - software is relatively insensitive to quakes.

APPLE OFFERS OBJECT-ORIENTED MAC PROGRAMMERS WORKSHOP C++

Apple Computer Inc has extended its object-oriented programming tools and languages with the launch of Macintosh Programmers Workshop C++ and says that it fully supports the industry standard defined by AT&T Language System Release 2.0. Apple has enhanced its C++ to support the Macintosh Toolbox and operating system and Object Pascal-based functions and procedures including MacApp, which provides the objects that a developer needs to program standard elements of Macintosh applications such as menus, multiple windows, scroll bars, printing, cut & paste and undo. The new C++ features multiple inheritance, operator overloading and protected members and variables within classes, and includes libraries for complex maths as well as input-output stream processing. It the Macintosh Programmers Workbench and C Version 3.0 or higher and Macintosh System Software 6.0.2 or later. MPW C++ v.3.1B1 is available this month in a beta version selling for \$175.

UNISYS ADDS SERVER UNDER \$50m ANNEX DEAL, U6000/55 SYSTEM..

The opening of Unisys' new office at City Gate, London last week coincided with the launch of Asynchronous Terminal Server for its Unix line, and the 80386-based U6000/55 processor in the U Series. The new Server, built around the National Semiconductor NS32016, is the Annex II product that also includes an Intel 82586 Ethernet controller, developed by Encore Computer Corp and sold to Xylogics Inc at the end of last year. Unisys has an OEM agreement with Xylogics, Burlington, Massachusetts for the TCP/IP Annex II server, worth up to \$50m over the next five years and the biggest in Xylogics' history. The Server comes in 16- and 32-port versions, supporting 128 or 256 sessions respectively, and is designed for use with the U5000 and U6000 families. No price or delivery details were given. The new 6000/55 uses a 33MHz Intel 80386 processor with 64Kb of enhanced cache memory and 64Mb of cacheable system memory, and supports up to 64 users and 4Mb to 80Mb of memory. It has built-in 150Mb cartridge tape and 5.25" floppy and takes up to 2Gb disk in the system cabinet. Out next month, it costs £41,000 in typical configuration. Oracle 6.0 and Informix are both supported.

...ADDS 80386SX MODEL TO PW2 LINE..

Unisys Corp has extended its PW2 Personal Workstation range with a 16MHz 80386SX-based Series 500/16A. The machine has a basic 1Mb of memory expandable to 5Mb, with 20Mb and 40Mb hard disk options, is intended for stand-alone, local area network, Unix and OS/2 applications. Prices start at £1,455 for the basic model, rising to £2,125 with 720Kb/1.44Mb floppy and the 20Mb hard drive, to £2,350 with 40Mb disk and it is available now.

...FORMS DISASTER RECOVERY VENTURE IN FRANCE..

Unisys Corp has joined forces with computer services company CdFi SA and insurance company La Mondiale SA to form European Assurance Informatique SA. With a disaster recovery centre in Lyons, the new firm will offer remote diagnostics and insurance against data loss.

...AND WILL MAJOR ON UNIX FOR TRANSACTION PROCESSING

The company also announced last week it plans to add transaction processing capabilities for its U Series of Unix systems next year, with a common architecture, scalable from the 1 to 250 transactions per second range. The environment will support personal computers, work stations and character-oriented terminals, and feature data mirroring, automatic deadlock detection and resolution and on-line backup.

APRICOT TO BOOST VOLUME TO £140m WITH ACQUISITION OF ITL INFORMATION TECHNOLOGY

Apricot Computers Plc yesterday has launched an agreed all-share bid for Britain's last surviving independent minimaker, ITL Information Technology Plc - although the Hemel Hempstead company is rapidly phasing out its proprietary Momentum minicomputers and scarcely qualifies for the tag any more. The offer, 13 new Apricot shares for every 20 ITL held, values ITL shares at 41 pence apiece at the current Apricot price of 63 pence, representing a 64% premium on the 25 pence at which ITL was trading ahead of the bid. ITL leaped 13 pence to 38 pence on the announcement, and it looks like a done deal, because Apricot has aggregate irrevocable acceptances with respect to 53.4% of the shares. Biggest attraction for Apricot is clearly ITL's maintenance business, which extends Apricot's own support operations up into the minicomputer market; it also likes ITL's involvement in the hospital and medical markets, and its network services business, which is significantly larger than Apricot's own. ITL has been designing its own fault-tolerant processor to run the Sequoia Systems Inc fault-tolerant implementation of Unix, in the meantime buying Unix machines OEM from Motorola Inc, and expects both activities to continue, even though there is some overlap between the Sequoia systems and the multiprocessor Unix machines that Apricot buys OEM from Sequent Computer Systems Inc. ITL now employs only 25 people in manufacturing, and there is no expectation of further layoffs to follow the ones made last year. ITL adds over £30m to Apricot's annual turnover, currently running at just over £100m, and the company sees the move as contributing to its aim to reduce hardware to 55% of its business by 1990.

SILICON GRAPHICS TO BUY BACK 75% OF CDC'S SHARES

Rather than risk the things ending up in hostile hands, Silicon Graphics Inc, Mountain View, California has decided to buy back most of its shares held by Control Data Corp. It will buy 2.36m shares at \$22.60 a share and will fund the \$53.3m repurchase price [with \$36.3m cash and a short term note to Control Data for \$17m. After the buyback, Control Data will hold 702,750 Silicon Graphics shares representing just under 5% of the total outstanding, and James Ousley, president of Control Data's Computer Products Group, will resign from its board. CDC will continue to be an important OEM customer for the company's Iris 4D graphics workstations.

AT&T HAS NEW VME-BASED DEVELOPMENT

AT&T Microelectronics, Berkeley Heights, New Jersey, has introduced a development board that enables designers of large computer systems to create and simulate graphics, image processing, audio, and speech processing applications using AT&T's WE DSP32C floating point digital signal processor. The WE DSP32C VMEbus board is designed for the development and testing of applications for VMEbus workstations. It performs at 25 MFLOPS, and is implemented in 0.75-micron CMOS technology. It has a backplane bus with 24 Mbyte/second I/O data throughput, expansion connectors and includes a device driver and libraries for Sun Microsystems workstations, and support for the WAVES signal processing software package. Priced at \$7500 each, they will be available in the first quarter of 1990.

RANK XEROX REORGANISES

As part of its parent's reorganisation, Rank Xerox Ltd has announced creation of Xerox Engineering Systems Ltd in the UK. This follows the establishment of a stand-alone Xerox Engineering Systems Division in February from the world-wide merger of Versatec Electronics and Xerox design technology within the Xerox organisation. Xerox hopes to corner the computer-aided design market for plotters and copiers via this restructuring.

SPECTRAGRAPHICS HAS NEW X-TERMINAL FOR UNIX AND IBM CONNECTIVITY

IBM networking specialist Spectragraphics Corp, San Diego, California, is getting the Unix bug, unveiling an X-Windows terminal that provides Unix and IBM 3270 mainframe connectivity over a local area network. The LanSet 800 has been developed primarily to integrate workstations and local area networks with IBM's mainframe environment, to take advantage of the estimated five million 3270 type terminals that are currently in use in the US. The LanSet 800 incorporates Ethernet and TCP/IP for workstation networking - the link to 3270 applications is accomplished via Spectragraphics' DesignSet Communications Controller - DSCC - a channel control unit providing channel speed interface to the mainframe computer, and a board-based logic engine bought in from an undisclosed source. The X terminal will also connect to DECnet networks as long as they are running VMS 5.0. The terminal - in 15" or 19" versions - is built around a Motorola 68020 processor with up to 4Mb memory, and a pixel resolution of 1280 by 1024. A 15" monochrome version with mouse, keyboard, 3270 and X-Windows software is \$3,000, out in November. IBM 3192G compatibility is promised for the near future, and colour and 3D graphics versions of the terminal are also in the pipeline for the first quarter of next year. Spectragraphics does not expect to be in direct competition with other X terminal manufacturers such as Network Computing Devices and Visual Technology Inc because of the IBM connection, but DEC has plans for its own such terminal before the year is out. Spectragraphics' LanSet 800 is expected in the UK around January of next year, from subsidiaries in Coventry and Wilmslow, Cheshire.

SIEMENS DATA SYSTEMS BUCKED GERMAN TREND WITH SALES FOR FISCAL UP 6%

The computing division of Siemens AG made sales of \$3,000m for the financial year to September 30, up \$500,000 from the year before, reports Agence France Presse from Munich. According to Hans-Dietrich Wienig, head of the division, sales increased by 6% during 1988-89, with orders up 8%. Siemens' growth goes against the glum forecast from the German Central Association for Electrotechnology and Electroindustry, ZVEI, which estimated that orders fell 3.8% overall in the first half of this year - in fact, the Siemens computing division saw a 13% increase for the same period, Wienig states. French Pick popper Intertechnique Informatique SA, IN2, in which Siemens acquired a majority share at the start of the year, and whose figures are included for the first time, contributed an estimated \$150m, a third of the total increase for the fiscal year, and according to Wienig, IN2's collaboration will mean a 26-29% increase in the division's sales abroad for the same period.

SUN, SOLBOURNE TO ACCELERATE SPARC EFFORTS

Industry watchers expect yet another crank of the workstation performance wheel to turn in January next year, when both Sun Microsystems Inc and Sparc-rivals Solbourne Computer Inc release 20 MIPS workstations. Sun's Sparcstation II is expected to be smaller and cheaper than the existing Sparcstation, and may be subject to an increased sales effort through third party channels.

...AS SOLBOURNE FINALISES OEM DEALS FOR DETERMINED SALES DRIVE

Solbourne says it has two big OEM deals lined up with as yet undisclosed companies, through which it hopes to establish a significant market presence. Solbourne is - at present - the only company with Sparc machines on the market apart from Sun. But waiting in the wings there are six or seven companies working furiously to get a piece of the Sparc action - leading the pack is thought to be Toshiba with machines likely for early next year. In this light, Sun and Solbourne's efforts must be determined attempts to grab as much market share before rival company's efforts come out of the labs and into the shops. Solbourne has had Sparc systems out since January, (UX No 214), and is now reckoned to have around 330 applications available on its range, compared to the 600 or so that now run on Sun workstations. The Longmont, Colorado-based outfit reckons to have sold "several hundred" machines in the US according to president Douglas MacGregor, and has "five or six" customers in the UK, but none on the continent as yet. MacGregor says that the new 33MHz Sparc-based Series 5 workstations - which start with a £25,000 tag in the UK - revealed here a couple of weeks ago, (UX No 252), will rival Mips Computer Systems' M/2000 workstation in performance - a claim he says will be backed up by SPEC benchmark results, to be published as soon as they are completed. Solbourne has taken a licence for the benchmarks, though it is not actually a member of the performance evaluation group which published its first results earlier this month, (UX No 251). Production of the Series 4 workstations will continue "for the time being" according to MacGregor. Both Sun and Solbourne have committed to adopting Unix V.4 - they currently run the SunOS unixalike operating system - migration work is to be undertaken by Sparc International, the Sparc processors supporters club. Solbourne UK Ltd is based in Swindon, Wiltshire, and will be up to 20 staff by the end of the year. Managing director Barrie Murray-Upton says there are a couple of distribution deals under discussion to get Solbourne onto the continent, and in Japan, Solbourne's major shareholder Matsushita is to begin selling the boxes out there from December.

MACINTOSH CONNECTIVITY COMES TO SONY NEWS WORKSTATIONS

Sony Microsystems, San Jose, California, and Cayman Systems Inc, Cambridge, Massachusetts are to bring Macintosh connectivity to Sony NEWS workstations over local area networks via an Ethernet-based gateway using Cayman's GatorBox. GatorShare software turns the GatorBox into a file sharing gateway between LocalTalk and Ethernet - overcoming the problem of incompatibility between AppleTalk and Ethernet - to let users transparently connect their Macs to Sony's workstations. Sony and Cayman are to jointly sell the kit, which is targeted at scientific, academic, corporate and government network administrators - no prices were given.

HP INTEGRATES NCS AS PART OF TEAM COMPUTING INITIATIVE

Hewlett-Packard has announced the first components in a new distributed computing environment strategy dubbed Team Computing, aimed at tying up the resources in a network. Team computing aims to use standard operating systems and networking configurations, consistent geographical user interface and application development tools to integrate HP and Apollo workstations, HP Vectra PCs, X Terminals and super minicomputers, as well as systems from other vendors. The components introduced include Apollo's Network Computing System, licensed by HP before its acquisition of Apollo, and now available on HP-UX workstations. NCS has been combined with the X Window System and the Motif user interface. Also introduced under the Team computing banner is software originating from the Hewlett side of the business. Task Broker is a stand alone distributed computing application for end users, originally regarded by HP as a competitor to NCS, but now bundled in as complementary. Task Broker, in the words of Product Manager Paul Asmus, is "a less elegant solution than NCS, but easier to execute". Using an intelligent "bidding" process to distribute tasks to the computer most suited to the job, Task Broker (unlike NCS) does not require application modifications, and functions on Unix systems using TCP/IP. So far it has been ported to HP, Apollo, and Multiflow systems, with Sun Microsystems and DEC Ultrix versions "in the pipeline". NCS requires modifications to both software and hardware, and currently runs on IBM VM, DEC VMS and Ultrix, Sun, Multiflow, Convex and Prime systems, as well as HP/Apollo workstations and HP MPE hardware and MS-DOS PCs. Task Broker, available by the end of the year, starts at \$5,000 for a 10 user license, while NCS development environments cost \$850. Asmus said that further integration of the two products would follow in future releases. NCS is one of the two major networking contenders submitted to the Open Software Foundation's distributed computing Request for Technology, which closed for submissions last week. HP also said it would be offering customers pre-configured X Windows environments for HP and Apollo workstations, using the Motif interface.

...AND RELEASES NEW FAMILY OF X TERMINALS
HP has also entered the X Terminal market with what it claims to be "the first family of X Terminal products from a major manufacturer". HP's 700/X family consists of color and monochrome X terminals using an Intel 80C86 processor and a 50 MHz TM 3410 graphics chip from Texas Instruments. The terminals are positioned as complementary low-end products to the HP/Apollo range of workstations, and as high end additions to the company's HP 700 Series ASCII terminal range. 14 inch 640 x 480 or 16 or 20 inch 1,024 x 768 color versions are available, and a 19 inch 1,024 x 768 version in monochrome. Costs, expected to range from \$3,000 to \$5,000, should be around half the price of a similarly configured diskless workstation. HP says the decision to go for the X Window market was "entirely customer led", and expects sales in the engineering, CASE and financial markets. DEC is expected to join HP with its own range of X terminals in the near future, while Data General has already introduced its first machine. Available, first quarter 1990.

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Control Data Corp says that it plans to build future mainframes around the versions of MIPS Computer Systems Inc's RISC processor that the company is developing with MIPS: the first products using the forthcoming processor are planned for next year.

Performance Semiconductor, which already fabricates the MIPS Computer Systems Inc R3000 RISC, and Samsung Semiconductor, which has agreed to make versions of Hewlett-Packard Co's Precision Architecture RISC, are tipped as second sources for the Intergraph Corp Clipper, currently made only by Fujitsu Ltd.

Prime Computer Inc expects to show a significant loss this year as a result of partial writedown of goodwill incurred in the leveraged buyout by J H Whitney & Co and costs incurred in defending itself from the hostile takeover bid by MAI Basic Four Inc - but the company says it will show a profit at the operating level this year, and also in 1990; profits from the services division alone are expected to cover the \$140m of interest on the \$1,000m of debt contracted in the buyout, and the company expects to be generating enough profit over the next three years to be able to pay off all its outstanding debt; Prime has decided to write down between \$80m and \$100m of goodwill on its books this year.

Prime also said its plans to restructure its US activities by breaking them down into 10 smaller units with separate profit and loss accounting will entail a significant reduction in the company's US payroll, although full details of the restructuring won't be finalised until the end of this month.

Informix Software Inc is developing a new version of its Wingz graphic spreadsheet for DEC's DECstation family of RISC workstations for the first half of 1990 and says it will use DEC's Network Application Support services: Wingz enables users to manipulate objects on the screen and includes charting and three-dimensional graphs, desktop presentation capabilities and HyperScript application development language.

Information Builders Inc last week announced that it was establishing a European Development Centre in Paris to tailor its products for the European market. Making the announcement at its European conference, it also revealed that the Focus language and environment was available now on Siemens' MX3000 Unix machines, and would be on the Olivetti LSX3020 next month. It also has a development and marketing partnership with Bull SA covering Focus on the DPS 7 and DPS 8 mainframes and DPX/2 Unix machines.

Hewlett-Packard Co has formed a joint venture company with Blue Star Pte Ltd to sell and service most Hewlett products in India and to manufacture electronic instruments there: playing by the local rules, Hewlett-Packard India Pte Ltd will be 40% owned by Hewlett, 20% by Blue Star, with the remaining 40% to be floated in Bombay next year; the new company will initially be capitalised at \$8m.

Doubt that Apricot Computers Plc would recount the events in quite the same way, but Martin Houston says that he turned from a senior systems programmer at Apricot into an entrepreneur, creating Houston Technology Ltd in Birmingham after "Apricot made a sudden and rather strange management decision to redeploy all its Unix staff on OS/2 development: needless to say, the Unix staff were not impressed with the offer of retraining to some thing inferior to what they already knew; subsequently, this decision to back OS/2 caused the resignation of three quarters of the staff within six weeks and a subsequent sharp U-turn in favour of Unix".

Welcome to the Scandinavian UNIX-Exhibition
in Stockholm, Sweden
November 14 - 16, 1989



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IBM and DEC have both been approved as voting members of the OSI/Network Management Forum: there are now 15 voting members and 66 associate members: all-voting members are required to devote a minimum of two technical representatives and additional management resources to advance the work of the forum; the other voting members are Amdahl Corp, AT&T Co, leading forum founder British Telecommunications Plc, Digital Communications Associates Inc, GEC Plessey Telecommunications Ltd, Hewlett-Packard Co, MCI Communications Corp, Nippon Telegraph & Telephone Corp, Northern Telecom Inc, STC Plc, STET - Societa Finanziaria Telefonica SpA, Telecom Canada Inc and Unisys Corp.

C Itoh Techno-Science has a new data entry system, which sounds very like an old-fashioned key-to-disk system but using modern technologies such as the Motorola 68030 processor and Unix System V: the G-5EX series starts at \$40,000 in its minimum configuration, and the Itoh unit looks to sell 100 of the things in the first year, aiming it at the market for large-scale, off-line data entry systems connected to host computers.

The proposed merger of Ardent Computer and Stellar Computer to create Stardent Inc has caused headaches for the companies' respective distributors in Japan: Ardent's sole distributor was the Kubota Computer arm of Kubota Steel Co, while Stellar's Japanese subsidiary had three distributors, Asahi Chemical, Mitsui & Co and Algo Graphics; according to the Nikkei Sangyoo Shimbun, Stellar actively sought funding from its three resellers when its need for more venture capital became pressing earlier this year, and Asahi Chemical, which had gone to the trouble of establishing Asahi Techno-Computer Inc to adapt the Stellar machines for the Japanese market, despatched a team to the US to examine the proposal, but was not prepared to invest the \$30m Stellar wanted; Mitsui & Co had not been keen to pump in so much cash, and Sumitomo Metals, which marketed systems for Algo, was approached, also without result - but the merger was agreed without the knowledge of Mitsui or Asahi following a visit by Stellar executives to Japan in mid-August to look at the Kubota manufacturing facility in Yamana shi prefecture; in the new Stardent, Kubota's share drops to 22% from 44%, but it remains the main manufacturing source for the two sides, and will invest more to expand production facilities; the Japanese subsidiary of Stellar will be absorbed into Kubota Computer, which will supply its three distributors.

Momenta Inc has been formed in Milpitas, California by a string of industry veterans to develop a highly portable, user-friendly computer that will "totally transform the way computers are used, and that will be accessible to every one", Newsbytes reports: the team includes Kamran Elahian, co-founder of Cirrus Logic; Shiraz Shivji, who designed the Atari Corp ST," who will be responsible for defining the characteristics of Momenta's products and overseeing design; former Intel Corp engineer Robert Groppo who is a low-power technology specialist; Beatriz Infante, a 12-year Hewlett-Packard Co veteran and computer-aided design and software development specialist; graphical interface specialist Patrick Milligan formerly with Video Seven Inc; and Jim Guzy, who was involved in creation of Intel, Control Data Corp, Memorex Corp and Versatec Inc; the company plans to go public in Taiwan, Japan and somewhere within the European Community, with local companies in each place - and it will do product development in the US, initial manufacturing in Japan, volume production in Taiwan, and software development in Europe.

Integrated Micro Products' US Santa Cruz-based operation - the former Parallel Computers Inc - has picked Oracle Corp's Oracle relational database for its Unix lines. The implementation, for the XR fault-tolerant and MJ multiprocessor families, will be the first of Oracle for a fault-tolerant series.

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UNIX V.4 ROLL OUT TO DOMINATE NEW YORK TRADE SHOW

Unix International and AT&T's Unix Software Operation are mustering as much industry support as possible for the official roll out of Unix System V.4 at Unix Expo in New York this week, in a bid to convince the world that they have won the battle to establish a standard version of Unix over breakaway group the Open Software Foundation. Although there will be few technical surprises at the launch, due to extensive early access and seminar programmes on the new release, all eyes will be on who turns up to endorse V.4. Media speculation has centered around Hewlett-Packard, which has already indicated it would not support the OSF1 operating system until it becomes a commercially viable product (UX No 251). Reports in the New York Times last Wednesday and the San Francisco Examiner on Thursday said that HP Chairman John Young had been involved in "delicate negotiations" with AT&T's computer systems chief Robert Kavner. With OSF1 now likely to suffer delays following a recent re-evaluation of the technology to be included (UX No 251), AT&T is in a stronger position to tempt OSF members to take on V.4. Bull HN is another OSF member not ruling out a move to V.4: president and CEO Roland Pampel said at a press conference in New York two weeks ago that his company "would track OSF, but continue to offer AT&T operating systems." Meanwhile, Unix International member companies were preparing to show just how much development work on they had achieved through V.4 early access tapes. NCR engineers were said by one source to be "working feverishly" to port the new operating system onto its 386-based platforms and the new Tower 32/700, while Motorola Inc was expected to reveal V.4 working on the 88000 chip. Others amongst numerous companies expected to support the V.4 roll out are thought to include Dell, Sun Microsystems and Toshiba. Unix V.4 represents the merging of most long term Unix variants, including Unix System V, Xenix, Berkeley 4.2 and SunOS.

DEC MOVES ON UP WITH TOP-END VAX 9000S

Under the shadow of Tower Bridge DEC duly unveiled its largest systems - "so far" - in London last week, and set its own sights on capturing 10% of the UK mainframe "within two years." The VAX Series 9000 comes in five models - each supporting optional vector processing - built around DEC's air-cooled, ECL, Multi-Chip Unit, which packs MCA-III and STRAM chips into a 4" by 4" unit connected by a polyimide-copper High Density Signal Carrier. First out next spring, with an £850,000 price tag is the non-expandable single processor VAX 9000 Model 210 running VMS and Ultrix which like the other models, comes with up to 512Mb RAM. The Model 210VP, with vector processing, is rated at 125 MFLOPS. The multiprocessor VAX 9000 Models 410, 420, 430 and 440, come with 1, 2, 3 and 4 processors respectively - the Model 440 is rated at 100 MIPS - will be out next July, and go from £1,300,000 up to £3,250,000. Their vector processing equivalents, for floating point intensive computation, are rated at from 125 to 500 MFLOPS. A new version of the VMS operating system supporting vector processing is needed for all the machines, with the exception of the the Model 210 - initial 210 customers look like being beta test sites for the new VMS release - the finished version will be out in July. The Series 9000 Models 400s will also run the multi-processing version of Ultrix that DEC is currently working on, which is promised "in a few months." Other new software includes a revamped Fortran compiler. Also on offer from July will be vector processing versions of the VAX 6000 Series - one vector processor is available on Models 410, 430 and 440, two on the 420. Performance goes from 45 to 90 MFLOPS, prices start at £22,300.

STANDARD UNIX FOR INTEL ARCHITECTURE

Intel Corp is expected to confirm long term industry this Wednesday by announcing its entry into the shrink-wrapped Unix software market. The chip company is likely to reveal its own implementation of Unix - currently V.3.2, but soon V.4 - which it will market as the standard version of Unix for Intel 386 and 486-based hardware. An important element of the release will be the Intel/AT&T developed Applications Binary Interface that will allow applications to run unchanged across any hardware system supporting the ABI. The move will put Intel into direct competition with the two major operating system vendors concentrating on Intel platforms, Santa Cruz Operation and Interactive Systems Corp, both of whom largely support the Intel/AT&T ABI on their current releases of Unix V.3.2. Intel's version is expected to include communications, concurrent DOS/Unix capabilities and graphical interface components bundled in. The company sparked off rumours that it would be entering the software business when it acquired Bell Technologies Inc in June (UX No 223). Intel is expected to gather support for its new venture from software and hardware vendors at the launch. Prices begin at around \$500.

UNIX ABI FOR MIPS CHIP FROM AT&T

Mips Computer Systems, Sunnyvale, California, has been signing up supporters for its R Series RISC processor left, right and centre over the last few months, and as predicted last week, (UX No 254), the company has announced plans to collaborate with AT&T on the development of a Unix V.4 Application Binary Interface for the chip. When available - no date has been given - the ABI should ensure that applications under Unix V.4 will run in binary form without recompilation, on any machines using Mips' RISC architecture.

...AND MIPS PICKS DECnet AS ITS NETWORKING SYSTEM

Mips also has announced its RISComm-DN software that enables MIPS RISComputers to be integrated into DECnet networks. The new software enables the RISCstations to interoperate with DEC VAXes and with other devices for which DECnet protocol implementations are available - in particular MS-DOS and Macintosh micros. RISComm-DN uses existing MIPS Ethernet controllers and interfaces and Ethernet cables and connectors. It co-exists with other Ethernet protocols such as TCP/IP, so that RISC/os users can choose Ethernet or other protocols. RISComm-DN is an end-node implementation of DEC's DECnet Phase IV, and communicates with other Phase III and IV nodes over Ethernet. Pricing is \$1,900 for an RC3240 system, \$2,850 for an RC3240 system.

X RELEASES

IXI LAUNCHES X.DESKTOP VERSION 2

With graphical user interfaces still a major topic of discussion amongst the Unix industry and user communities, IXI limited of Cambridge, England, is using Unix Expo as the launch platform for a second generation version of its X.desktop graphical desktop manager. X.desktop 2.0 adopts the Open Software Foundation's Motif look and feel, through use of the Motif toolkit, and also features new professionally designed three dimensional icons. As with previous versions, the product presents Unix files, programs and facilities on a desktop, using icons that can be manipulated with a mouse to access X-Window-based application software packages. Using the native X11 X Window software and Xt intrinsics, X.desktop supports applications that conform to the OSF Motif or AT&T Open Look interface styles and now includes "several sets" of icons for low and high resolution screens, designed to be consistent with the help of consultants Human Computing Interface, also of Cambridge. The new version includes fully configurable menus, accessible from any position on the screen, and also allows an OEM to optimise performance by spreading the software load between client and server. Available by the end of the year for Sun3, Sun4, Apollo Domain, Hewlett-Packard 9000, Sony, Mac, DECstation and Intel 80386-based hardware, the retail cost of X.desktop 2.0 will be \$495 per single user, although upgrades are free. Available from IXI in Europe, the software is marketed in the US by Unipress Software, and by Tomen Electronics in Japan.

New Customers, new Products

Along with the announcement, IXI is expected to reveal its latest OEM customers for the product, thought to be Sequent Computer Systems Inc and Sony Corp. A third "major" manufacturer is also waiting in the wings, and could also be announced at the Show. And in the development pipeline, IXI is thought to be working on a new "soft terminal" emulation product that will allow character-based software to be accessed and run from an X Window environment. It will offer a short cut to providing applications software to run under X, allowing, for instance, Cobol programs on an IBM mainframe to be accessed from an X terminal. The technology has been developed as a result of IXI's recent work with office automation software house Uniplex, which launched an X.desktop, X-Windows version of its Uniplex office automation suite back in August. X.desktop will also appear as an integral part of the Santa Cruz Operation's cut price Open Desktop applications software and operating System bundle.

VISIX ADDS GORDON BELL TO BOARD OF DIRECTORS

Visix Software Inc has now begun shipments of its Looking Glass graphical interface system, and has set the official launch of the software for the second day of Unix Expo. Arlington, Virginia-based Visix will announce the addition of Gordon Bell to its board of directors. Bell is credited with the original design of DEC's VAX line of hardware, and more recently became involved in the formation of Ardent Computer Corp (now Stardent, following its merger with Stellar), suggesting that Looking Glass might be used on the Titan range of graphics supercomputers in the future. Visix has been under development for five years, and includes sophisticated mechanisms for automatically identifying types of files and presenting them as icons. But vice president of Marketing George Hoyem said that Looking Glass should not be pigeon-holed as simply a high-end product: it is to be offered by Interactive Systems Corp as a graphical interface for 386/ix, and was recently the subject of further deals from its X terminals. Intergraph Corp will also use Looking Glass for its X Window and Environ V-based workstations. Hoyem said that three further endorsements were waiting to be signed, and could be announced at Unix Expo.

ULTRA X IS LATEST X TERMINAL ENTRANT

Yet another entry into the X Terminal arena is Princeton Graphic Systems of Roswell, Georgia, a division of World-Wide Technology, which also owns Computone Products. Princeton is expected to unveil its Ultra X specifically designed X Terminal for monochrome and colour graphics at Unix Expo, aiming the product at value added reseller and end user sales. The system promises features such as a virtual screen capability, and custom memory management aimed at using memory more efficiently than typical X server configurations. Resolutions will range from standard VGA (640 x 480) up to workstation quality (1280 x 1024) are expected, with configurable memory from 512K up to 8mb. Video adaptors for both analog and TTL digital will be available, and the terminal will support system communications over TCP/IP using thick or thin Ethernet. Ultra X will be configurable for optimised support of applications such as CAD/CAE, CASE, financial, medical image processing and desktop publishing, and will be suitable for connection to 386 and 486 PCs (with Ethernet adaptors), as well as workstations, minicomputer, supercomputers and mainframes. The virtual screen facility allows access to screens much larger than the display resolution of the monitor, using smooth planning to move across the screen area. Pricing or availability was not available as we went to press.

MAJORS BACK RUSH TO X TERMINALS

Look out for DEC's forthcoming X-Window display station at Unix Expo: as we went to press observers were expecting the terminal to be shown at the Autofact show in Detroit (Oct 30th-Nov 2nd), and it could also turn up in New York. The monochrome terminal is expected to appear with 15" and 19" screen options, costing around \$3,000 and should be available this fall, according to Dataquest. Meanwhile, Hewlett-Packard came out with its own X Terminal last week (UX No 254), while AT&T and even IBM are said to be preparing products. But it is very much a futures market - International Data Corp says that only 10,000 units will have been sold by the end of this year, and doesn't see volume sales until 1992, or any effect on sales of character-based terminals until as far away as 1995.

SYSTIME'S VISIONWARE LINKS MS-WINDOWS WITH UNIX, PLANS X RELEASE

UK company, VisionWare, Leeds, has announced an SQL database server which links up Microsoft Windows with Unix-base databases called SQL-Connect, allowing PCs to access data stored in host databases from within PC applications using SQL statements. VisionWare's aim is to integrate PCs and Unix around the Presentation Manager interface, and will be adding X-Windows functionality with a new product called XVision to be released shortly. The first release of SQL-Connect supports Informix, Oracle and Uniplex databases - others will follow. VisionWare was one of the several groups born in the wake of a host of management buyouts after Control Data got shot of its Systime business back in June, (UX No 235).

UNIX EXPO HERALDS COMDEX 486 RUSH

The first major rush of Intel 486-based system expected to be released onto the market at the giant Comdex trade show later this month is likely to be anticipated by at least two announcements at Unix Expo in New York this week. Recent Unix entrant Everex Systems of Fremont, California, is expected to have its ESIX Unix division demonstrating an early 486-based system throughout the show. And on Wednesday, the first day of the event, Corollary Inc should reveal its first 486 multi-processor system using the SCO Unix operating system with its own symmetrical multi-processing kernel extensions to support multiple processors. Corollary Inc of Irvine, California, would not comment on its rumoured collaboration on a further 486 announcement expected next Monday, when Compaq Computer Corp unveils a series of 386 and 486-based EISA machines, including single and dual processors. The Compaq announcement is also expected to involve Computone Products of Roswell, GA, an implementation of communications subsystems, and in October announced its Extended communication Controller in conjunction with Ing C Ollivetti's CP486 EISA computer announced in Brussels, Belgium.

INTEL, SIEMENS TO LIQUIDATE BIIN

Intel Corp and Siemens AG have wasted little time in trying to find a buyer for their failed BiIN Inc fault-tolerant systems venture, and last week announced that the business was to be liquidated. The partners were unable to find a buyer for the Hillsboro, Oregon plant, and the 10 US sales offices will now be closed and the 113 systems that have been installed around the world will be recalled and written off. The total cost of the liquidation could be as high as \$100m; the partners had invested \$250m in the venture up to July this year.

PICK UNDER UNIX? ENCORE, McDONNELL AGREE VENTURE

Encore Computer Corp and McDonnell Douglas Information Systems - soon to be a freestanding company quoted in London - have signed a joint venture agreement with a long-term emphasis on research and development projects - but no terms were revealed. It is likely that McDonnell will implement its Reality Pick-based software on Encore's parallel processing Unix machines and may also involve McDonnell marketing Encore's systems - including those from Gould - outside the US.

ULTIMATE PUTS PICK ON HP KIT

Ultimate Corp is to put its ULT/ix Pick-under-Unix environment onto Hewlett-Packard Co's HP9000 Series 800 RISC minicomputers, and has signed a letter of intent for the machines. The multi-year agreement between the East Hanover, New Jersey Pick-popper and the Palo Alto minimaker is estimated at as much as \$100m.

NO SIGN OF PEACE IN INTERFACE WAR

Last week's meeting of the IEEE's windowing committee in Brussels ended inconclusively according to X/Open's observer at the meeting, Clive Feather of IXI Ltd. It had been hoped that the meeting was going to settle on a method of developing an application programming interface supporting both the Motif and Open Look user interfaces, which could potentially have led to X/Open adopting a similar strategy, diffusing the conflict that has raged between the Open Software Foundation and Unix International for months now over X/Open's attempts to adopt a standard graphical user interface. The IEEE will have another go in New Orleans next January.

UNIX SHOWS STIR UP**ANNOUNCEMENT SCHEDULES**

With Unix trade shows being held in New York and London, this week looks to be an eventful one for the industry. Apart from the V.4 and 486 activities mentioned elsewhere, X/Open Corp is expected to make licensing and positioning announcements on Wednesday, and MIPS Computer Systems may reveal new chip technology widely previewed by its customers. DEC chief Ken Olsen is delivering the keynote speech to Unix Expo on Wednesday, and IBM Corp has a press conference booked on Thursday morning. Displays of binary compatibility will be demonstrated by Motorola Inc in conjunction with 88Open in a so-called "compatathon" event, while Sparc International is also expected to make announcements on its own ABI efforts. And the Open Software Foundation is likely to reveal more members, and a list of those companies who have responded to its Architecture Neutral Distribution Format Request for Technology.

HP'S EISA MACHINE**SET TO STEAL LONDON SHOW**

Hewlett-Packard's new 80486-based Extended Industry Standard Architecture bus machine receives its first public airing at next week's Open Systems show in London's Olympia - hard on the heels of the announcement of this new addition to its Vectra personal computer line a couple of weeks ago, (UX No 253). Word is that there are also plans for some reorganisation of HP's UK operations at the beginning of its next financial year in December.

METAFOUR VERSION 2.2 TO INCLUDE MULTI-DATABASE SUPPORT

MF Systems Ltd, Kensington, London, is unveiling a new version 2.2 of its MetaFour fourth generation environment at this week's Open Systems Show in London. This latest edition supports C-ISAM, and is compatible with SQL. In fact MetaFour bypasses the SQL engine altogether, linking directly to the database being used - although there are plans in place for communication via SQL. Oracle, Informix, Ingres and Unify databases are to be supported at a rate of one a month according to managing director Mark Rogers. MetaFour 2.2 is written in C, and applications developed with it are portable across Unix, Xenix, C-DOS, MS-DOS and networks including Novell. Typically aimed at systems supporting up to 64 users, there are reckoned to be 900 of MetaFour at present. Plans for a VMS version are still being considered, but an OS/2 edition has been dropped due to "lack of demand." Prices for Version 2.2 go from around £1,000 for a run-time licence, or £8,000 for a developers copy.

LOCUS TO OPEN UP TRANSPARENT COMPUTING FACILITY

Locus computing Corp is set to release its previously IBM specific Transparent Computing Facility to the open market, it was revealed last week. Locus has submitted its TCF software to the Open Software Foundation in reply to the Foundation's Distributed Computing Request for Technology (RFT), due to be discussed next week at a members meeting in Boston. Locus submitted TCF as part of a joint submission intended as a complete solution to the RFT, in conjunction with IBM, Hewlett-Packard/Apollo and Transarc Corp. Part of the Foundation's requirements for RFT are that products are freely available for licensing on open system platforms. TCF is a kernel add-on module to the operating system that has been utilised by IBM to implement transparent access between AIX-based RTs and PS/2 and mainframe systems. It allows fully transparent access to the file system, implementing a single tree structure over the network - very different from NFS-based systems where each workstation has its own root. Full details on the OSF RFT - page 6.

OLYMPUS, ACCESS MAP OUT SPREADSHEET FEATURES

The second major release of the veteran UltraCalc spreadsheet is to be released at Unix Expo by software developers Olympus Software Inc of Salt Lake City. UltraCalc was first launched onto the market in 1983, and has since won sales as the standard spreadsheet for a number of large Federal Government orders. UltraCalc II includes integrated colour graphics, database support, and has the ability to allow users to load and edit multiple spreadsheets concurrently. Data in one spreadsheet window is affected by alterations in other windows and is automatically and dynamically updated via 3-D linking. The linking, transferring and consolidation of spreadsheets between sites or hardware platforms can be achieved with no conversions required. Olympus claims that "virtually all" Unix computers and workstations can be supported, including Motorola 88000-based systems, for which the product conforms to the 88Open Consortium's binary compatible standard. Cost in the US is \$695. Meanwhile, rival Access Technology is previewing a real time spreadsheet product that will allow users to take real time data from various sources and perform quick analysis within 20/20. According to Access, the financial services market is the main target for the system, which will be released (initially in a VMS version) next month, followed by the Unix version later in the year. Pre-release versions are already on test at several large banks, said an Access spokesman. Access has also added NCR's Tower and Sun Microsystems' Sparcstation to its list of hardware running the latest version of its 20/20 spreadsheet - version 2.3. The company, based in Natick, Massachusetts, claims to have nearly 500,000 users at 30,000 licensed sites.

PRIME SIGNS UP FOT \$200M SPARC DEAL - BOWS OUT OF INTEL ECL PROJECT

Prime Computer Inc has signed its largest ever deal with Sun Microsystems, agreeing to take Sparc-based workstations and servers worth \$200m over the next two years. The deal continues Prime's long term relationship with Sun that began with its acquisition of Computervision - one of Sun's first resellers. The company said it would be selling the hardware in conjunction with its CADDS, Medusa, Theda and Gis software, aimed at computer-aided engineering, design and manufacturing markets as well as computer integrated manufacturing. Aside from its reseller agreement, Prime has plans to license the Sparc architecture for possible use in future systems it will develop. But cost cutting measures taken following Prime's recent acquisition from JH Whitney & Co have reportedly led Prime to abandon a joint project with Intel Corp to develop an ECL version of the 80486 processor, begun last April (UX No 227). The company had already withdrawn from a consortium developing a multi-processing version of Unix, also led by Intel (Unix No 251).

...AND CUTS WORKFORCE 2,500

Prime's new owner, J H Whitney & Co is already finding out the hard way the dangers inherent in loading a computer company down with debt, and Prime Computer Inc, Natick, Massachusetts is having to reduce its workforce by 2,500 people, 20%, just to reduce its costs enough so that it is able to meet the interest payments on its junk bond debt. Most of the lay-offs will be in the US, about half in Massachusetts. The company is being reorganised into four profit centres: the Computervision Business Unit; the Minicomputer Business Unit; the Customer Support Business Unit; and the International Business Unit.

MOTOROLA ENDORSES OSF MOTIF - LAUNCHES ENTRY LEVEL RISC SYSTEM

Motorola Inc's Microprocessor division is the latest company to endorse the Open Software Foundation's OSF Motif user interface, despite its affiliation to Unix International. The move follows increasing indications that OSF Motif was gaining industry support over the rival Open Look product from AT&T and Sun Microsystems. The interface will be offered on Delta Series hardware to Motorola's OEM and systems integration customers in technical computer markets. Backing up the announcement is the introduction of a multi-channel graphics controller, along with 15" and 19" colour graphics display stations, is to be shown on the company's Delta Model 3840 at the show, running an X Windows demonstration. Motorola is also using the show to introduce its entry-level Risc system, a six-slot, 88000-based machine based on Motorola's MVME181 CPU board.

ONTOS RELEASES "FIRST" OBJECT ORIENTED DATABASE

Heralding a new generation of database technology, Burlington, Massachusetts-based software developer Ontologic Inc has released what it claims to be the first available multi-user object oriented database for Unix systems, using the C++ language. The product called Ontos, was demonstrated running on Sun and Apollo workstations at the recent OOPSLA '89 exhibition, held in New Orleans. As well as the full-blown Ontos multi-user distributed database, Ontologic is also offering Ontos Persistent C++ - a single user stand-alone version - and a set of extendable class libraries, including aggregates such as sets, lists, dictionaries and arrays. By integrating the programming language and the database, Ontos can outperform relational databases by 10 to 1,000 fold for applications with complex data, according to Robert Martin, vice president of products and marketing at Ontologic. "It depends on the application - computer aided design and manufacturing, computer aided software engineering and network management are especially well-suited". However, Martin predicted that eventually all the relational database companies would move towards object oriented products. "Some have already added BLOBS (binary large objects), which are nice in some senses, but in other senses are simply flat files. We have flat file performance with database structuring". Martin acknowledged that Unisys Corp's new Semantic database was a more interesting approach. Ontos currently supports development in C++ and SQL, although SQL limits performance by "forcing" data into a particular representation model. Work on support for other languages, and on OS/2, DEC VAX and DECstation versions is continuing. CASE developers Index Technology said it would integrate Ontos into future generations of its CASE tools, and Neuron Data Inc has developed a bridge between Ontos and its Nexpert Object expert system shell. Ontos is priced at \$15,000, and will ship by the end of the year.

INFORMIX TO INTRODUCE MULTI-MEDIA DATABASE

Informix Corp is one of those relational database companies who have already disclosed plans for object oriented databases (Unix No 189), but in the meantime is set to introduce what it calls a multi-media database engine at Unix Expo in New York. The new product - Informix OnLine - will be capable of storing and retrieving sounds and images, and will be demonstrated for the first time at the show. A full object-oriented version of Informix is under development, and will be released in the future, said a spokesman from the Menlo Park, California-based company.

INTERACTIVE TO SHOW 486/ix UNIX

Eastman Kodak Co's Interactive Systems Corp, Santa Monica, California has announced that it will demonstrate its 486/ix operating system, claimed to be the first commercial product based on AT&T's new Unix System V.4, at Unix Expo. It will ship in the first quarter of next year and will be supported by the 386/ix X11 windowing system and XView. Interactive's Motif Development System, based on the OSF/Motif user interface, and scheduled to ship in mid-November, will be demonstrated on workstations running 386/ix X11 windowing system.

IBM TURNS AS/400 INTO RT SERVER...

IBM has found a role for the AS/400 in the Unix world, designating the machine as a database server for its AIX Unix customers on the RT and successors. The new AIX Viaduct for AS/400, announced this week, provides an interactive data bridge that enables RT users to integrate their AIX applications with AS/400 databases. Using the interactive LU6.2 APPC protocol, the bridge provides for connection of AIX and OS/400 environments through SQL. The AS/400 end of the thing costs \$5,000 to \$13,750 according to the size of the AS/400, and the RT end of the bridge is \$250 per workstation. It will be available December 8 in the US.

**...UNVEILS ITS CIM ADVANTAGE
MANUFACTURING STRATEGY...**

IBM last week accompanied the announcement of late-life kickers for the 3090 series with an array of over 50 hardware and software products for computer-integrated manufacturing under the name CIM Advantage. The company promises the factory world facilities for enterprise-wide data integration; data communications and data presentation facilities; engineering systems applications covering graphics and the release of engineering data to manufacturing; plant systems innovations such as an application builder for the plant floor; process monitoring and parts inspection capabilities; and links to office and other business processes. The offerings embrace both IBM's proprietary Systems Application Architecture machines - 370, AS/400 and PS/2 - and its AIX Unix machines, with applications development supported in the AD/Cycle regime. A new CIM Communications and Data Facility provide the repository and store for managing data.

**...ORACLE RESPONDS WITH
CONCEPT BASED ON ITS DATABASE**

Having announced its first set of manufacturing applications a couple of weeks back, (UX No 253), Oracle Corp has taken its computer-integrated manufacturing strategy a step further with plans to enable the Oracle database to be used as a common foundation for integrating applications, databases, and information in an enterprise-wide integrated manufacturing system encompassing front office, engineering, shop floor, operations and management information. In what is clearly intended to answer IBM's efforts, above, to create its own enterprise-wide schema for integrated manufacturing, Oracle came up with its own set of manufacturing partners and a strategy to establish specialist sales and support teams for five markets - high-technology, aerospace and defence, discrete heavy manufacturing, automotive, and process manufacturing. Its partners include Rockwell International's Allen-Bradley, Cincinnati Milacron, Deer Tech Services, Intergraph Corp, and Litton Industries.

**...AS BRITISH TELECOM
STANDARDISES ON ITS SOFTWARE**

British Telecommunications Plc is to standardise its mid-range systems world-wide under Oracle's relational database management system. The two companies signed an agreement last week which committed British Telecom to Oracle for internal supply (although there will be no retrofitting of existing non-Oracle systems), as well as designating British Telecom an Oracle OEM customer and value-added reseller.

HEWLETT REVEALS APOLLO 10000 UPGRADE

True to its word, (UX No 237), Hewlett-Packard Co has released details of its plans for the Apollo Series 10000 Prism RISC-based superworkstation, saying that a new fully compatible RISC CPU to double the system's processing power to 44 MIPS and 12 MFLOPS per processor will arrive within a year. Parallelising and vectorising compilers will increase system performance two to four times, Hewlett says. Also promised are a specialised software development environment for parallel programs and an interactive scientific software computation and visualisation environment; main memory will be raised four-fold to 512Mb, disk by a factor of six to 18Gb; and local-area-networking bandwidth will rise by a factor of 10 by the use of Fibre Distributed Data Interface. The promised scientific software is to be the C-Linda portable, parallel programming environment from Scientific Computing Associates Inc.

...RELEASES LM/X THIS WEEK

HP is to begin shipping Lan Manager/X - its beefed up translation of Microsoft's OS/2 LAN Manager into C - on Wednesday, prices start at \$2,000 for an eight user licence. Two other versions of the networking software are to follow, the first incorporating interfaces to HP's proprietary Network Services communication links, the second will include extended file transfer facilities.

...JOINS THE GIGABYTE 5.25" DISK DRIVE CLUB

Hewlett-Packard is to become only the fourth manufacturer after Micropolis, Imprimis and Maxtor to announce a 5.25" disk drive that breaks the 1Gb barrier. The company's HP97558 has capacity of 1.6Gb and the HP97556 stores 1.2Gb. Evaluation units of both are set for first quarter 1990 with volume in the third. The drives are \$3,200 and \$2,850 respectively.

**...AS PARCPLACE PUTS X-WINDOWS
INTO SMALLTALK FOR SERIES 300**

ParcPlace Systems, Mountain View, California, is adding X-Windows functionality to the Objectworks toolset for Smalltalk-80 programming on HP 9000 Series workstations, in an agreement signed with HP's Software Engineering Systems Division last week. HP uses Objectworks for Smalltalk-80 as an internal training tool for object-oriented programming. Objectworks for Smalltalk-80 on the HP 9000 Series 300 will be available first quarter 1990, priced \$3495, it is also supported on the the HP Vectra and other 386-based, MS-DOS IBM PCs and compatibles as well as Sun-3, Sun-4, Sun386i, DECstation and Apple Macintosh machines - \$3495 on the Unix platforms and \$595 for MS-DOS and Macintosh systems.

CLARIFICATION: TOSHIBA RE-ORGANISATION

In issue 251 of Unigram.X, we carried an article headline "Unix to take a back seat in major Toshiba shake-up." Comments in the article were taken by Toshiba executives to be personal attacks and we apologise for this impression which was not intended. Toshiba points out that a number of the changes referred to happened earlier this year, in April. Bill Johnsons appointment as General Manager of Toshiba's Computer Systems Division was the result of the resignation of John Rehfeld the previous General Manager. Computer Systems Division is the division in which Unix now resides. Toshiba is also unhappy at our conclusion that Unix is likely to take a back seat in the new arrangements and assures us that this is not a declared policy of Toshiba. We would stand by the logic of the piece, which concludes that if Unix is merged into a division along with MS-DOS and OS/2 products it is likely to receive less senior management attention. We would like to correct the impression given that Don Anderson would have no product role in the new set-up; he is responsible for strategic planning for Unix software and hardware, although not on the day to day running of existing products.

OPEN SOFTWARE FOUNDATION REVEALS DISTRIBUTED COMPUTING CONTENDERS

Although AT&T and Unix International appear to be winning the battle to establish the core standard Unix operating system, the rival Open Software Foundation has already proved its ability to push companies into working together on some of the surrounding technologies with the other OSF Motif user interface - and is now beginning the whole process again for distributed computing.

Last week, OSF released the names of some thirty companies and organisations who had responded to its distributed computing request for technology, issued back in June (Unix No 236). The RFT, which called for distributed computing environment technologies that enable users to share resources (such as CPU power, data and peripherals) over a network, drew an initial 50 responses, although only 28 were judged to meet the required criteria. The Foundation said that the RFT was unique in the number of companies that chose to respond with joint submissions, something which it said "would ultimately benefit the entire industry by producing superior technology". Four joint submissions were withheld while the companies concerned prepared joint announcements.

Hedging bets

Initial indications, however, appeared to indicate that the battle would be more complex than the predicted two-pronged fight between the most dominant technologies, widely recognised as Sun Microsystem's Open Network Computing and Hewlett-Packard's Network Computing System, developed by its Apollo Computer Division. Indeed, most of the major players appeared to have hedged their bets with various options, while others submitted only specific technologies that might be combined with other submissions. IBM, for instance, currently uses NFS for its AIX systems and mainframes, while it has licensed NCS from Apollo, and appears to be involved in a third submission to the OSF, through the Transarc Corp, in which it has a financial stake.

"The Adobe of distributed computing"

Despite widespread endorsements of its Open Network Computing technology following its joint announcements with Novell Inc and Netwise Inc recently (Unix No 249), Sun chose not to be a part of a joint announcement, submitting only part of its ONC technology, and simply pointing at the complementary submission from Netware Inc. Sun's offering was the transport independent portion of its remote procedure call RPC XDR (external data representation), which it jointly developed with AT&T for inclusion in Unix system V.4. RPC XDR works in conjunction with the Transport Layer Interface in Unix V.4, which according to Sun spokesman Dennis Freeman will allow the use of TCP/IP, Novell, and eventually Open Systems Interconnection protocols to be implemented on distributed systems, with applications not needing to know the transport mechanism used. RPC XDR is already used in NFS, currently licensed by around 280 vendors, and support from Novell, Banyan and 3Com opens up the world of PCs. Sun is leaving aside its own higher level networking tools in favour of the RPC Tool compiler from Netwise Inc - called by Sun's vice-president of distributed computing Larry Garlick "the Adobe of distributed computing" - which being independent of both Sun and AT&T should strengthen its case.

On the face of it, however, the Apollo Network Computing System, which has for a long time been regarded as a technically elegant solution for distributed computing despite its long gestation period, has major backing amongst the Open Software Foundation's sponsors. Over the past year DEC, Hewlett-Packard, IBM, Dell Computer, and others have licensed the technology, and according to Computerworld, Microsoft Corp is now also planning to endorse the NCS remote procedure call to run over OS/2, AIX Version 3 and Hewlett-Packard's translation of the OS/2 LAN Manager into C, known as LM/X, (see page 5). The paper says that IBM and Microsoft - both included in the OSF list - have combined to submit extensions to NCS that will allow this to happen.

IBM also appears to have submitted technology in conjunction with its long term communications partner Locus Computing, along with Hewlett-Packard and Pittsburg-based Transarc Corp. Transarc recently announced that its ASF distributed file system for computer networks would be available from March next year for Unix machines. AFS is none other than Carnegie-Mellon's Andrew File System, a project supported by IBM and now being commercialised, with IBM's financial assistance, by Transarc. AFS 3.0 is a very scalable system, according to Transarc's director of marketing Phil Lehman, who claimed that AFS could scale to thousands of users at large sites, but still improve productivity in workgroups with a small number of computers. On AFS systems, such as the 10,000 user, 17 file server and 2,000 client machine system currently based around Carnegie Mellon University in Pittsburgh, users see a single large file system, and do not need to worry about the location of files. Currently working on a translator to provide interoperability between AFS and NFS RPCs, Transarc could presumably do the same for NCS if it was chosen as a portion of the OSF's final product.

The rest of the pack

Other submissions to the request for technology included a separate entry from Banyan Systems, Westboro, Massachusetts, proposing its distributed naming system, providing a unified naming space for network resources. BBN Communications Corp of Cambridge, Massachusetts, couldn't be reached to explain its submission, but pioneered Internet a decade ago, and has expertise in TCP/IP and network management. But amongst the submissions from DEC, HP, IBM, Locus, Microsoft, Netwise, Nixdorf, Retix, Siemens, Sun and Transarc were those from smaller, less known companies, including: Architecture Projects Management, Bit31, Chemical Abstract, Child Systems, Paris-based Chorus systems, Database Engines, Dialogue Switching, DEC, Dset Corp, Norcom, Research Triangle, TRW, Uniware and VXM. University submissions were received from Cornell University, two research projects (Mercury and Athena) from the Massachusetts Institute of Technology, and from York University in the UK.

Presentations by all participants is scheduled for the forthcoming five day membership meeting at Boston, from November 6-10th. The RFT evaluation team has been established from permanent OSF staff, sabbatical employees, consultants and analysts, and will make a final selection in the second quarter of 1990, combining elements of the submissions to make a complete offering. But unless the Foundation makes an unexpected and clean start, it looks inevitable that, as the fundamental RPC's for the Sun and Apollo systems are incompatible, a choice of either one or the other must be made, whatever else is chosen for the higher levels.

"THE DONE DEAL" THAT PUTS AIX OVER AS/400 IN IBM'S NEXT DECADE

by Brian Jeffery

In October, Unigram.X published a critical review of the International Technology Group's report IBM strategies for the 1990s, (UX No 251). Here Brian Jeffery of the ITG replies to the points raised.

Mainframe Unix

The review argues that the figure of a \$1,000m for IBM AIX mainframe business cannot be credible because Amdahl has a better Unix operating system than AIX/370, and so could be expected to grow faster than IBM in this market. We have three observations:

1. Within the timeframe of our projections, IBM will be offering a much more powerful mainframe Unix environment;
2. Developments in IBM architecture and technology can be expected to make IBM large systems more viable in computer intensive applications;
3. IBM's mainframe business is approximately 15 times larger than Amdahl's. Given equality of mainframe Unix environments (which IBM should achieve well before 1993), it could be expected that IBM would be doing a great deal more business in mainframe Unix than Amdahl.

Technical workstations

Exception is taken to the proposition that IBM will be doing less business in Unix technical workstations in 1993 than Sun Microsystems now. We have three observations:

1. IBM's new RISC systems will be targeting a market whose start-up growth phase has already passed, and which is already beginning to mature;
2. Eroding Sun Microsystem's embedded base would be a difficult proposition for IBM and decelerating growth in this marketplace could be expected to constrain IBM's ability to increase revenues;
3. IBM RT sales in 1988 were \$115m. However, no more than 16% were for engineering and scientific installations. The remainder divided between large account commercial applications and small/medium business users. Our projection for IBM growth scarcely seems unreasonable in this context.

Mid-range systems

The review suggests that our projection for IBM AIX mid-range systems sales cannot be accurate because IBM will not allow Unix supermicros to undercut the AS/400. But, this is already a "done deal". IBM management appears to have decided recently to reposition the AS/400 as an SAA "mid-frame" for corporate accounts. The small/medium business and industry vertical markets originally targeted by the AS/400 have now been assigned to new multi-user AIX PS/2 and RISC systems. One of the primary reasons why IBM rolled back availability of these from October to early 1990 was to prepare RPG support under AIX and S/36-to-AIX migration tools. After February 1990, the primary migration path for S/36 users will be to AIX. A program of converting third-party S/36 SSP applications to AIX has already begun in the US. It is also worth noting that despite its lackluster performance as a technical workstation, the RT PC has already done remarkably well as a low-end multi-user system. Over 69% of RT PC sales to date have been in S/36-like markets. In the US, the RT PC is IBM's primary new account seller. IBM has at least 260 VARs for the line, the vast majority targeting small and medium businesses. The base of applications software for AIX is also revealing. Out of 1,992 AIX/RT and AIX PS/2 products available or under development from 466 vendors, 72.8% are industry verticals and a further 9.4% are general accounting and business management packages used predominantly by small and medium businesses.

The argument that IBM's top management is not supporting AIX is simply not true. IBM President, Jack Kuehler, has been a major supporter of the AIX program since its inception, and the weight of resources that IBM has thrown at AIX and RISC technologies since 1987 (over \$300m in conversions alone) is incredible even by IBM standards. We will, however, leave it to IBM to respond. We shall very shortly see a massive, widely-supported launch for a wide range of AIX hardware and software products. By February of 1990, it is unlikely that anyone will be questioning the seriousness of the IBM AIX effort. The review argues that IBM will not set up AIX as a contender for SAA. This is correct, although not in the way suggested. AIX and SAA are being established as "parallel" environments which employ the same underlying architectural features - cooperative processing, distributed processing, common SQL database architecture - and common applications development interfaces. Recent IBM public statements have made it very clear that AIX and SAA will not only coexist, but will be highly interoperable. AIX forms a "parallel" environment to SAA in the same way that the company's OSI network scenario "parallels" traditional SNA. Interfaces, conventions and protocols may differ, but underlying architectures are the same and both will be integrated under IBM's scenario for Enterprise Information Systems. IBM is, at \$60,000m, still by far the world's largest computer company and if there are "fools" in IBM top management, I haven't met them. Love them or hate them. But IBM is going to be a major force in Unix, and it could be unwise to underestimate what it could achieve.

NORSK's DOLPHIN UNVEILS ITS 88000-BASED OEM UNIX SERVER

The Norsk Data A/S spinout Dolphin Server Technology A/S has announced the Motorola 88000-based servers that will come in at the top of its new Uniline family of Unix machines (UX No 254). Dolphin, which is looking for investment partners - it is presently wholly-owned by Norsk Data - is also working on Orion, a RISC-based processor designed by the company that will include the Motorola 88000 instruction set. It is planned for launch in 1992. As for the Triton 88 server, Dolphin describes it as providing "100 MIPS in a suitcase": the base model measures only 11" by 26" by 32" and comes with from one to four 88100 CPUs and from two to eight 88200 cache and memory management units on the system board, and up to 128Mb of on-board memory is supported. The machine also uses up to 14 68020s as input-output processors - one 68020 is used as the system and SCSI disk controller, zero to eight more are used as SCSI disk controllers, one to four 68020s are used as local network controllers, and there are 68020 X25 and Fibre Digital Data Interface controller options. To improve transaction processing performance, and the implementation is described as "highly-balanced", delivering more than 30 transactions per second in the basic one-processor model on the TP1 benchmark. The machine supports up to 250 users per local network controller, 1,000 users all told, and disk support extends to 30Gb. The machine comes with Unix System V.3, and will be available OEM from the Oslo, Norway-based firm early next year. No prices.

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Unicad, based in Norfolk, Virginia, has released a User Interface Management System called X-Pression, and has a joint marketing agreement with IXI Limited to integrate in with X.desktop: the product is a collection of tools, libraries and run-time support programs to facilitate the design of consistent interfaces, and is in use at Unicad's parent company, The Jonathan Corp. It has been ported to Sun, DEC Ultrix and IBM AIX hardware, and Sequent Computer Corp is also using the system. BOOTH 878

Marosi, a new company formed by Sphinx Ltd founder Dr Pamela Gray is making its debut at Unix Expo this week: Marosi stands for marketing of open systems, and the UK-based company from Bray in Berkshire will specialise in seminars, conferences, product launches, marketing campaigns and mailshots on behalf of US companies anxious to break into the lucrative European market. BOOTH 877

The Megaport-12 is the second in a series of high performance serial controllers from Equinox Systems Inc, Miami, Florida, which use custom communications chips derived from the company's involvement in data switching and PABX equipment: the \$1295 board joins the top-end Megaport-24, and has drivers for SCO Xenix and Unix System V/386. Multiple boards can be cascaded inside 383 systems to provide up to 192 ports. The company has plans to support 486 systems, and supports the latest Risc (Motorola 88000) based Personal Mainframe from Opus Systems. BOOTH 975.

Hummingbird Communications Ltd, Markham, Ontario, will be showing its HCL eXceed software for DOS-based PCs, allowing a PC to be used as an X terminal: like the newest release of PC XSight from Locus Computing - also on show - the product can break the 640K memory barrier of DOS that was so restricting to earlier implementations of X on PCs. Both products can work within the 640K limit if required. BOOTH 161.

The Santa Cruz Operations is looking towards January's UniForum '90 show in Washington (Jan 23-25th) as the probable venue for a full roll out of its Open Desktop bundled software environment, announced at this year's UniForum show, but says that over 600 developers have signed up for the package. "It's too early to show applications at this stage", said an SCO spokesperson. SCO will, however, be talking about its 486 product and multi-processing technology in conjunction with Corollary Inc. SCO is currently working on system V.4, and also looking further out the next release - System V.4.1. BOOTH 909

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Hunter Systems Inc will be showing its BDOS binary converter that allows DOS applications to run under Unix, and reports it is working on versions for the Sun Sparc and DEC MIPS Risc chips: applications converted using XDOS on show will include Lotus 123, DataEase, Xwrite and the latest (5.0) version of Wordperfect. BOOTH 158

SunRiver Corp, Austin, Texas, the company that offers multi-user bit-mapped graphics using its own display stations connected to the host via fibre optic cable, has added X-Window capabilities to its products, combining it with access to MS-DOS: the company [will be showing SCO's Open Desktop software running on the SunRiver set-up. BOOTH 670

A similar approach to SunRiver has been taken by Advance Micro Research, Redwood City, which avoids the use of fibre optic cable by using a video network adaptor board in its UnTerminal systems. A new eight user version of the board called VNA Plus, allows PC compatible monitors and keyboards to be connected to a single 386 machine as fast, graphics capable user stations. Multiple boards can support up to 32 users, running SCO Unix and Xenix or multiple versions of DOS. The base system, supporting four user stations, costs \$1,195 with \$399 for each additional user upgrade. VGA, and now EGA graphics can be supported. BOOTH 263

Raritan Computers Inc, Belle Mead, New Jersey, has mostly been importing products PC clones from Taiwan until recently, but at Unix Expo it is launching a new 8-32 user serial port card for 386 PCs. The card includes an 80286 CPU with 256k dual ported RAM and intelligent software handling tty disciplines. According to Raritan spokesman Bob Pollard, the board's main advantages are its ease of installation, usually taking only a few minutes, and capability of working reliably with 80386-based machines running at clock rates beyond 12MHz and 16MHz. On the stand, Raritan says it will demonstrate the \$995 board on 25MHz and 33MHz Everex machines. A non-intelligent version is also available for \$595. BOOTH 1255

Sparc systems maker Solbourne Computer Inc is demonstrating the Open Look graphical interface on its recently launched Series5 systems, which include at the top end four processor versions capable of up to 65 MIPS. BOOTH 1221

A striking story doing the rounds - it was the lead in MIS Week this week - is that IBM has given up on trying to persuade System/36 users to upgrade to the AS/400, and that it plans to move them over to the next generation RT Unix machine when it arrives early next year: the story is that when IBM said the new RTs were being held back for lack of applications, the applications it had in mind were the RPG II ones from System 36; it would be uncharacteristic of IBM to give up on the AS/400 so soon, and such a move seems to be an invitation to every Unix vendor in the world to develop or buy an RPG II implementation and conversion utilities, and treat the System 36 base as a happy hunting ground, setting off a repeat of the ravaging of the IBM System 3 base in the mid-1970s; an alternative open to IBM to keep 36 users safely in the fold is to offer the Baby 36-under-OS/2 that it has licensed from California Software Products Inc and keep 36 users safely in the fold by moving them onto an 80486 PS/2 under OS/2.

Rumours out of Mashua, New Hampshire, suggest that DEC is soon to make its first move in image, lining up with Document Technologies Inc, the same people that Pitney Bowes and Nixdorf went to for theirs: DEC should come out with the DTI-based Fax to VAX system some time in November, after having been told by key customers not to call if it couldn't offer that technology.

ASCII Corp, the company founded by Microsoft Corp's former Japanese partner Kay Nishi, is going into the Unix market in a big way in Japan. It has teamed with five other major companies to create a new ASCII Information Systems business that will specialise in software for Unix workstations. Partners in the new venture are Informix Software Inc, the Astec Corp Japanese software company, traders Mitsui & Co and Nissho Iwai Co and a large Japanese accounting firm. Starting with 40 people, the staff will be augmented by technicians with Unix experience from Astec and other staff from ASCII. ASCII has traditionally been strong in personal and home computer software, and in publishing, and its desire to get serious about Unix indicates the growing commercial potential seen in the workstation market in Japan.

Scientific Computers Ltd, Burgess Hill, Sussex, has brought in the XTM "desktop parallel supercomputers", but is stressing the operating software - the QIX implementation of Unix with the Linda parallel extensions rather than the hardware. QIX - or Linda - is claimed to make it easy to write parallel applications that are independent of hardware or topology. In its initial incarnation, the NuBus-based XTM comes with from two to 32 Inmos International T800 Transputers, and starts at \$35,000; with the full 32 Transputers and 128Mb memory, it is rated at 160 MIPS and 48MFLOPS - and all on the desktop.

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AT&T 'SHOULD SELL OFF UNIX', SAY ACCOUNTANTS - MAJOR INDUSTRY RE-STRUCTURING COULD RESULT

Remember the bevy of accountants from AT&T Data Systems Group chief Robert Kavner's old firm, Coopers and Lybrand, that crawled all over AT&T for weeks accessing the chances of it turning a profit? Well, the company turned in its report at the end of September, and inside sources say that the recommendation is to sell off Unix - a little item that even with all those royalties AT&T collects has been costing them at least \$50m a year, and possibly up to \$75m. Kavner admitted that the Unix spin-off was now under serious consideration to journalists at Unix Expo. If so, his task is now to prepare the way for the great transition. Step One is resolving the Open Software Foundation/Unix International schism. There have been plenty of meetings between Kavner and the OSF recently, a fact admitted by OSF president David Tory, and in London Jean-Claude Monney, who is X/Open and OSF marketing manager for DEC, confirmed that the time is now ripe for a re-think at the OSF. Monney said that the OSF's objective of steering Unix away from AT&T has now been achieved, and that a new direction for the OSF is now on the cards. These talks have culminated, we understand, in Kavner attending an OSF board meeting recently. The result, according to highly placed informants within OSF, could be the unification of OSF and UI by UniForum next January. Not only that but - incredulous as it might seem - X/Open is reportedly being considered as the vehicle that should ultimately buy Unix from AT&T. The reason given is the fact that almost everybody peddling Unix these days is already a member. How this kind of radical re-structuring would affect each organisation is unclear, although morale within the Unix Software Operation - which would ostensibly be the thing sold - would be an important factor. USO still has close ties with Bell Labs, which whether anyone realises it or not, is still called upon to support a lot of Unix development. Kavner and Unix Software Operation chief Larry Dooling said that AT&T would offer no comment on the story. X/Open's Geoff Morris denied all knowledge of the story, but Unix International's Peter Cunningham said that although the story was not "spot on," Unix International will be issuing a statement on the whole affair this week.

HP and IBM

A little quirk in the whole story is the recent behavior of Hewlett-Packard, whose president John Young has reportedly been meeting with Kavner since at least October 9th (UX No 255). Apparently, the stories filtering out of Austin, Texas concerning IBM's forthcoming Rios workstations got HP worried about the use of AIX as the core of OSF/1. This could explain the negative signals that started coming out of HP last month, beginning with hints that the company might not support a technically inferior OSF/1, waiting instead for the far away OSF/2 release. Some observers do not expect OSF/1 to reach the market as a product until the end of 1991 - two years from now. And, say sources, IBM was amongst the last to be told of the recent re-evaluation of AIX technology by the Foundation, hitting the proverbial roof when it finally found out. Advanced Workstation Division president Nick Donofrio was reported to have said 'I can move mountains, but first I've got to be told they need to be moved'.

ICL'S NEW SPARC SYSTEM PHONES IN TO UNIX EXPO

It's quite common for computer manufacturers to give a first airing to new machines at trade shows, but ICL went one better at Unix Expo by leaving the machine at home and logging into it on the Unix International stand. The machine was none other than one of ICL's new Sparc-based systems - codenamed Unicorn in some quarters - residing at the AT&T development Labs in Princeton, New Jersey. Here it has been used as part of ICL's joint work with AT&T's Unix Software Operation on the reference port of Unix V.4 for Sparc architectures. ICL's UK-based software development team has been working with AT&T on the project for the last 18 months, and recently shipped an initial release of the port to AT&T, which will distribute it to other Sparc vendors as an applications binary interface reference environment. Although ICL was keeping tight-lipped about its new Sparc systems, designed to broaden its DRS (previously Clan) Unix-based systems at the high end, it did say that systems had been out at customer test sites for some time now, and that work on a 'substantial' amount of applications software would be completed by the launch date. Expect to see the machine towards the end of January 1990 for 50 users and upwards.

MIPS UPS THE STAKES AGAIN WITH NEW TOP-END SYSTEM..

Mips Computers last week raised the Risc stakes for the rest of the Unix world yet another notch with the announcement of a top-end machine built around an ECL implementation of a new generation 32 bit processor architecture, the R6000 chip set. Configured around a single R6000, the RC6280 data server, which ships in the first quarter of next year, will deliver 55 Mips and 13.3 MFLOPS performance for around \$180,000 - £200,000 in the UK - and support between 400 and 500 users. A basic configuration comes with 32Mb memory - expandable to 256Mb - 655Mb disk, SCSI controller, Ethernet, TCP/IP, NFS and RISCcomm-DN, Mips implementation of DECnet unveiled last week, (UX No 255). Multiprocessor versions will clearly follow, both Silicon Graphics and RC Computer already have multiprocessor R3000 machines on the market. Control Data has signed up for the R6280 OEM and will market the new machine against the DEC VAX 9000 under its own name.

...BASED ON THE NEW R6000 RISC PROCESSOR

The emitter couple logic - ECL - three chip VSLI set comprises the R6000 processor, clocked at 66.7MHz and expected to go to 80MHz and 65 MIPS by the middle of next year, the R6010 floating point controller chip, and R6020 system bus chip. Features include an on-chip memory management unit, two level cache, and separate instruction and data caches. is supported by an I/O sub-system capable of providing 200Mb per second culminative I/O bandwidth. On the RC6280 box, this is spread across multiple independent VME buses. Like the R2000 and R3000, initial versions of the R6000 are being manufactured for Mips by Bipolar Integrated Technology, though Sony and NEC are due to start delivering the parts shortly. More on Page 7.

X/OPEN INCORPORATES SAA CONNECTIVITY TO CAE

X/Open Co has won a major concession from IBM Corp over the licensing of IBM's Common Programming Interface for Communications - the applications programming interfaces that allow program to program connection between IBM's SAA conformant systems and non-IBM machines. After discussions with X/Open, IBM agreed to license the interface free of charge to X/Open, with no restrictions of notification to IBM needed for those using the specification. The interface provides a definition of communications services included in IBM's LU 6.2 protocol for program-to-program communication within SAA's Common Communications support, although other protocols could be used as the transport method. The agreement will allow X/Open compliant system to take part in applications sessions from IBM mainframes.

CHASE FIRST OUT WITH EISA BOARD

Chase Research has an intelligent input/output controller board for the Extended Industry Systems Architecture bus all ready at its Basingstoke, Hampshire base - all it is waiting for now is systems to put the things into. There are reckoned to be ten or so companies with EISA systems up their sleeves, HP announced its offering a couple of weeks ago, (UX No 253), but Advanced Logics Research, Irvine, California, reckons it will be first to market with its Power-Cache 4e machine due around the end of the year, (UX No 249). Chase's 16 port EISA16 card, which uses on board 16MHz 80186 processors, has drivers for Unix and Xenix initially, with others to follow. It will be out when the first EISA machines materialize, priced at £1,645. Existing I/O boards will run in the EISA environment, but are not optimised to take advantage of the auto-configuration options available for EISA. Chase is currently working on boards for over 100 hundred users - first steps towards this will be seen early next year according to Alan Wright. Chase currently has 30 staff in the UK and five out in Stuttgart, West Germany.

WHILST ACER JOINS RUSH FOR EISA MACHINES

Acer America Inc has joined the rush to bring out 80486-based EISA bus machines. The Acer 1200 has a 128Kb secondary level caching scheme to complement the on-board 8Kb cache of the 80486, and Acer reckons it achieves a benchmark rate of 11.01 MIPS and 3974.9 K-Whetstones, 37% and 67% respectively better than Acer's 33MHz 80386-based 1100/33. It is due for first quarter 1990 shipment, it costs \$11,000 with 4Mb memory, 1.2Mb floppy, two serial, one parallel ports, power supply, keyboard, MS-DOS 4.01 and MS Windows/386, rising to to \$13,200 with a 380Mb hard disk.

...AND CLAIMS FIRST WITH MICRO CHANNEL BOARD

Acer America has announced what it reckons to be the first add-on multiprocessor upgrade solution for Micro Channel Architecture. Called the Acer Application Processor, the board can be installed in any 32-bit Micro Channel based, PS/2-compatible 386 machine - and is claimed to double its performance. It features an MCA-based Application Processor together with multiprocessor Unix software, and will be out in the second quarter of next year. Future releases will include a multiprocessor version of SCO Unix, currently under development by Acer and The Santa Cruz Operation along with Corollary Inc, Compaq and others.

BOSTON BUSINESS ADDS MORE VMS FUNCTIONS TO UNIX

Boston Business Computing, Andover, Massachusetts, is shipping three new VMS-compatible software packages this month, including Vnet, Vmail and Vbackup. The new packages will be added to the company's core EDT+ and VCL VMS-compatible software for Unix systems. Vnet extends VCL with access to DECnet, achieved through an agreement with Ki Research Inc for its DEKnet implementation of DECnet under Unix. The product allows Unix systems to act as full DECnet Phase IV endnodes, accessing VAX data files, storage facilities and printers. Vmail emulates DEC's VMS Mail electronic mail facility, and is said to offer over 90% of VMS mail commands and utilities. Vbackup emulates the VMS Backup utility. The company said it was also planning "major enhancements" to its EDT+ editor and VCL communications modules.

RACAL-MILGO TAKES ON XYLOGICS' TOKEN RING ANNEX FOR UK

Encore Computer Corp must be wondering now why it sold the NS32016-based Annex server product line to Xylogics Corp, (UX No 211): first Unisys signs for \$50m of the things, (UX No 253), and now the Burlington, Massachusetts company has won a UK heavyweight, Racal-Milgo Ltd, to become the sole UK distributor of the new Token Ring version of the product - the original version is for Ethernet. Racal-Milgo's Racalan Business Group will market the 802.5 Token Ring server for Unix systems, pitching it at medium to large users in defence and other markets. The terminal server enables up to 32 devices to be integrated into a corporate Unix environment, and complements the UK company's existing local area network product family.

LEARMONTH, JACKSON TO MERGE METHODS

In what looks like a major step forward for the UK structured methods and software engineering world, Learmonth & Burchett Management Systems Plc and Michael Jackson Systems Ltd are to work towards merging their methods and tools. The Jackson program design, code generation and real-time systems and prototyping products are to be added to Learmonth's Information Management set of strategic planning, project management, system development and quality management products. Michael Jackson joins the Learmonth board, Roger Learmonth the Jackson board. Prelude to a merger some day?

RAPID PREMIERE BORN OUT OF RAPID RECALL, TO SELL HP KIT

UK supplier Rapid Recall, now owned by Metrologie SA in Paris, has set up a separate division to concentrate on selling HP's Unix based Vectra PC systems in the UK. Rapid Premiere, with 24 staff, is to operate from offices in Nantwich, Cheshire; High Wickham, Buckinghamshire; and London. Starting out with £500,000 worth of business a month, the division, headed by Marlene Yeoman from Rapid Recall, expects to be doing £1m a month by next June. The plan is to sell not only hardware, but all kinds of support services, software, training and consultancy, drawing on the resources at HP and Rapid Recall where required. Rapid Premiere will be targetting systems in the 10 to 30 user bracket, and says the new EISA bus 80486 machine will spearhead the effort.

ORDNANCE SURVEY'S UNIX-BASED SUPERPLAN

The UK Ordnance Survey has a new computerised map service - Superplan - which can send a monocolour map of any area in the UK on-line to a destination within 15 minutes. Field surveys are transformed into computer-readable form by a Sun workstation with a digitising tablet. The data is then transferred into a Sharebase data base on the Ordnance Survey's ICL mainframe in Southampton, where the maps are broken down into components, such as houses, roads and vegetation. To get a map you need either a MicroVAX 2000, a MicroVAX 3100 or a Sun workstation linked to an electrostatic plotter, a pen plotter or a thermal plotter. The software used to drive the machines was designed by Ordnance Survey itself. As an example of the cost of the service, a 16" square map ranges from £40 to £55, depending on the colour or if vegetation is shown - and you can ask for it with your home or your business right in the centre.

ACCESS HAS REAL-TIME 20/20 FOR CITY MARKETS

Access Technology, Marlow, Buckinghamshire, is introducing a real-time version of its 20/20 spreadsheet aimed at the external markets, particularly the trading floors of the financial sector. It allows dealers to direct information feeds such as TeleRate and Reuters into the 20/20 spreadsheet for on-the-spot analysis of share, currency, commodity or futures prices. RealTime 20/20 comes with the standard 20/20 development environment in addition to multiple delivery modes and a range of user-definable functions - prices start at \$2,400 on workstations, \$37,400 on the Vax 8500.

UNIX V.4 GIVES X/OPEN BRANDING A BOOST

Conformance branding of X/Open systems should gain a major boost as Unix V.4 systems emerge onto the market over the next year. Unix International's late insistence (UX No 249) that V.4 should conform to X/Open's Portability Guide, version 3 (XPG3), means that any systems using the new release will almost automatically comply with XPG3 by default. And as a further incentive, the Unix Software Operation re-iterated its plans to discount licensing fees by 50% to those companies conforming to the X/Open Common Applications Environment. Siemens announced at the show that its systems running the latest release of Sinix were now XPG2 compliant, and issued a press release saying that it would make Ultrix XPG3 compliant at its next major release. Accordingly, X/Open has VSX2 and VSX3 conformance testing suites available for licensing to distributors worldwide, allowing easier access for non-member companies. Previously, members carried out their own testing in-house, while other organisations were sent to the Unisoft Group. Now that ease of use features have been added to the suites, the task of conformance testing is now easy enough to allow general access, according to X/Open technical director Mike Lambert. VSX2 will be available for \$15,000, and VSX3 for \$20,000, including a ten year source code and site license. Short term (three month) licenses cost a quarter of the price. X/Open is looking for additional distributors and third party test centres, and is currently negotiating with the UK's National Computer Centre in Manchester. Meanwhile, X/Open has initiated an agreement between itself and the Open Software Foundation and Unix International to work together on the unification of open systems conformance testing. The tentatively worded press statement was described by X/Open conformance manager James de Raeve as 'the first steps down a long road'.

OSF LISTS ANDF RESPONSES - BRINGS MEMBERSHIP UP TO 174

Although the major focus at Unix Expo was on Unix International, the Open Software Foundation took the opportunity of reminding the industry that it still has substantial support by nine more members to its rank. Total membership now stands at 174. The new organisations included educational bodies including Columbia University, users such as Shell Development Co, and computer hardware and software vendors such as Objectivity Inc, Raytheon Co and Transarc Corp. And following its release last week of respondents to its distributed computing request for technology, the Foundation also issued a list of those companies replying to its Architecture Neutral Distribution Format technology request. Out of 24 initial responses, 15 were judged to fall within the requirements of the RFT. Amongst the list are companies already working in related fields within the Unix market, such as Hewlett-Packard, Hunter Systems, Insignia Solutions, Micro Focus, and two joint submissions from Real Time Systems and Unipress software and Siemens AG and Natinal Semiconductor. Other, less familiar names on the list are Gimpel Software, Intermetrics Inc, Peritus International, Prysm Inc, the UK Royal Signals and Radar Establishment, Software Engineering Associates, Software Innovations Inc, Translation Systems and the University of Virginia. The aim is to produce a vendor neutral format for the distribution of software, fully hardware independent. OSF Business Manager Liz Cobb said that, given the quality of submissions, the Foundation 'is confident that the approach is technically feasible'. Members are due to discuss this and the distributed computing request for technology (UX No 255) at its Boston meeting beginning this week.

COROLLARY CLAIMS FIRST WITH MULTIPROCESSING 80486 SYSTEM

Corollary Inc has introduced what it says is the first i486-based multi-processor, and says that its Symmetrical Multi-Processing Extended Kernel, and extension of SCO Xenix 386 and Unix 386, now supports the i486. The Corollary system allows configurations of up to ten i486 processors, with no adaption to off the shelf software necessary. The set includes a high speed proprietary bus, up to 10 i486 processor boards and 64Mb memory, and extends the 386/smp system first introduced at UniForum last february (UX No 220). The system uses a dual bus architecture that includes the AT-bus for peripherals and a 64Mb per second, 32-bit C bus for processor and memory traffic. Each board has a 256K write-back cache and four specialised I/O ports for connecting Corolloary's 8-port terminal concentrator. Fully configured systems can support up to 256 users. Shipments begin immediately following Comdex to key accounts, with a suggested end-user price of \$7,500 per 486 CPU board. Corollary sells mostly to system integrators and OEMs, including Zenith and Mitac.

AT&T WINS MAJOR SUPPORT FOR V.4

As widely anticipated, AT&T's Unix Software Operation began shipments of its Unix System V Release 4.0 operating system on the first day of Unix Expo, and gathered together wide ranging support for the systems from exhibitors. The salient points of 4.0 have already been widely previewed: most importantly, the new release merges the Xenix, System V and Berkeley environments, and also has a set of application binary interfaces that will ensure binary compatibility standards for each major processor family. Core services of V.4 include an enhanced Streams input output capability, a virtual file system, virtual memory, real-time enhancements, new internationalisation capabilities and operations, administration and maintenance support. Extensions to networking services, the C compilation system and user interfaces have also been made. Unix International, which co-ordinated the release with USO, said that over 170 companies - 80% of the industry according to Unix International President Peter Cunningham - had announced support for the product, and invited representatives from AT&T, Fujitsu, NCR, Olivetti, NEC, Unisys, Toshiba, Sun and ICL to endorse V.4 at the launch. And on the show floor, Unix International set out a major demonstration of the new operating system, the result of work on pre-release versions of V.4. The stand was divided into four sections: the portability section showed shrink-wrapped software running on Intel-based machines from Prime, Olivetti, Intel, Dell and Unisys; scalability was demonstrated with V.4 on a Toshiba laptop, through a Commodore Amiga 2000 to a Pyramid minicomputer and Fujitsu mainframe; a compatibility section with applications running on current Unix versions as well as V.4; and interoperability, where a train graphic was shown chuffing between the screens of Sun, Pyramid, NEC, Dell, Commodore and AT&T. Source code tapes are shipping immediately from AT&T in Greensboro, North Carolina, from the Unix Software Operation in London and Tokyo. Systems should begin hitting the market in the first two quarters of next year.

INFORMIX-ONLINE DATABASE SUPPORTS IMAGE, SOUND

Informix Software Inc, Menlo Park, California claims that Informix-OnLine, introduced last week, is the first database engine to combine fault-tolerant transaction processing with support for multimedia database applications. OnLine enables users to integrate objects such as word processing documents, graphs, spreadsheets, scanned and digitised images, facsimiles and voice into a Unix relational database. Objects can be up to 2Gb in size and are treated like any other database field, accessible via SQL. It has a new optimiser to decide the most efficient way to handle complex queries and high data availability is supported through full or incremental online archiving so back-up can be happening while the application continues to run at peak performance. Fault-tolerance is provided via disk mirroring and fast recovery features. The company also introduced Informix-Star distributed database software that enables users to share data from OnLine databases on remote servers transparently. It will be available on a limited spread of Unix machines by year-end with more to be added in the first quarter 1990. Informix will offer a free OnLine upgrade to current users of the compatible Informix-Turbo that have maintenance contracts with Informix. Informix-Star is claimed to be the only distributed data base software for Unix that provides distributed optimisation, location transparency and site autonomy, enabling users to access and manipulate data from Informix databases on multiple remote servers. A cost-based optimiser analyses all possible alternatives before determining the most efficient way to execute a query across the network. With the same availability as OnLine - for which no prices were given - Star starts at from \$750 for up to eight workstations.

ORACLE FORMS, MENU

"MATCH ALL STANDARD USER INTERFACES"

Oracle Corp has unveiled the first members of a new generation of application development tools in the shape of SQL*Forms 3.0 and SQL*Menu 5.0. They are "designed to help organisations build better information systems faster by providing innovative native look-and-feel portability user interface technology," Oracle says. The same Oracle applications can automatically support all standard character mode, block mode, and bit-mapped user interfaces, including Presentation Manager, DECwindows, Apple Computer's Macintosh, and OSF/Motif. The VAX/VMS versions for character mode in ship in 60 days and the others follow in the second quarter 1990 at from \$1,500 to \$70,000 the two. They will run only with Oracle 6.0.

DATA ACCESS SEPARATES DATABASE, APPLICATIONS ENGINES IN DATAFLEX 3.0

With version 3.0 of its relational database management system, DataFlex, Miami, Florida-based Data Access Corp is hoping to move into the big-time software league with the likes of Oracle and Relational Technology. In the new DataFlex version 3.0 the application and database engines have been broken apart into two modules that can be linked by NetBIOS and IPX 9600 Baud Async X25, TCP/IP, LU6.2 or a custom arrangement. Gateways for the Intel and Motorola processor ranges are sold as separate products. First up for release are database engines for Novell NetWare, OS/2 and MS-DOS based networks at the beginning of 1990, with Unix, Xenix and VMS versions available in the following quarter.

EMERALD TECHNOLOGY OFFERS UNIX-TO-AS/400 HANDSHAKE FAMILY

Emerald Technology Inc, the Bothell, Washington company that bought SST Data Inc, Milwaukee in May to marry its own AS/400 communications expertise with SST's Unix skills to bring users the best of both worlds, now has the first fruits of that marriage. Emerald unveiled the latest additions to its Handshake protocol conversion line, saying it enables Unix systems such as AT&T's 3B2 and 6386 - AT&T already markets the Emerald products - IBM's RT and Xenix machines to the AS/400 and Systems 36 and 38, and sees them being used to link Unix-based CAD/CAM or factory floor applications and general business software on AS/400s.

CCTA RECOMMENDS UK GOVERNMENT TO GO ALL THIRD-PARTY FOR MAINTENANCE

The CCTA, the Central Computer and Telecommunications Agency, has issued a policy statement on single source maintenance of information technology equipment. The statement outlines the government's experience of single source maintenance, reviews procurement procedures, and addresses some specific problems. The CCTA says that the benefits of single source maintenance contracts include reduced costs, a better quality and more flexible service, lower administrative overheads, and opportunities to extend maintenance to obsolete equipment at no additional charge. Departments can now seek competitive quotations from CCTA-approved suppliers, and the Agency says that public services contracts will be advertised by mid-1991. In the interim, it instructs departments to consider competition for maintenance whenever opportunities arise. The CCTA acknowledges problems with existing single source maintenance contracts. Difficulties have arisen with the supply of spares, diagnostics, documentation, and engineering software. Thus, it intends to recommend that departments do business only with suppliers prepared to co-operate with single source maintainers. The document states that suppliers who lose hardware maintenance contracts and subsequently reduce software support or increase costs, will not be regarded as co-operative. Departments will also be required to seek evidence from bidders that they can meet a department's needs, particularly in the field of spares and diagnostics. The CCTA has requested that government departments respond to the document by the end of November, 1989.

SQL ACCESS GROUP TO DEVELOP DATABASE-INDEPENDENT SQL SPEC

Ashton-Tate Corp, DEC, Fujitsu America Inc, Hewlett-Packard, Informix, Metaphor, NCR, Oracle, Relational Technology, Sun Microsystems, Tandem Computers, Teradata Corp and Wang Laboratories have come together in San Jose to form the SQL Access Group, dedicated to developing a set of specifications for the interoperability of Structured Query Language-based software and portability of SQL applications between a variety of data base and computer systems in a networked or stand-alone environment. The consortium will define and implement a set of specifications based on the existing SQL standard and the work being done by the ISO database Remote Data Access committee.

SONY TAKES STAKE IN NETWORKING COMPANY

Sony Corp has signed an agreement to take a 20% equity stake in Calabasas, California-based Information Presentation Technologies Inc, the company which produces the uShare range of networking products connecting Apple Macintoshes with Unix and MS-DOS systems. Sony said it had also signed independent software vendor and value added reseller agreements with IPT, so that IPT can offer a turnkey system based on Sony hardware and IPT networking software called the Worknetting Server. The agreement gives Sony an entry into the file server market, currently a highly profitable and fast growing segment of the computer industry. The Worknetting Server uses a dual 68030 News system as a hardware base, where the second 68030 acts as a dedicated I/O processor. With a 286Mb hard disk drive, 4Mb RAM, 125MB tape drive and the uShare software, prices start at \$12,000.

UNIFY ADDS ACCELL/NET, SQL FOR OPEN LOOK INTERFACE

Unify Corp's contributions to this week's Unix festivities are two new products, Accell/Net and Accell/SQL Open Look Interface. Accell/Net is described as the first distributed applications product to comply with the distributed computing standard proposed by Sun Microsystems and Novell Inc, conceived to enable developers to take special advantage of the new generation of low-price, high-performance workstations. It separates application code from the underlying database libraries, enabling users to distribute applications across a network. It supports heterogeneous machine environments transparently, and can run an application as a client. Accell/SQL Open Look Interface is the first applications generator to support the Open Look graphical user interface, enabling "hundreds" of current Accell/SQL applications to run Open Look over X stations without modification. Accell/Net costs \$4,500 to \$120,000 immediately, Accell/SQL Interface for Open Look, which has not yet been priced, follows in first quarter 1990.

INTEGRATED MICRO UNVEILS ITS 50MHZ 68030 MULTIPROCESSORS

Consett, County Durham-based Integrated Micro Products Ltd - now equally at home across the Atlantic following its acquisition of Parallel Computers from General Automation Inc - has introduced what it claims is the industry's first multiprocessing computer system built around the racy 50MHz version of Motorola's 68030 microprocessor and previewed in August (UX No 245). The machine is being rated at between \$2,000 and \$4,000 per MIPS, and comes in the form of a board called JT-Cache, which packs the 50MHz chip with cache and control logic. The JT-Cache is a daughter board that plugs into the company's existing line of 25 MHz computer systems, thereby doubling performance to 10 MIPS from 5 MIPS per processor, the company claims. Only the system components that must run at 50MHz do so, minimising complexity and cost. The company says the enhanced Unix System V.3-compatible MJ system is expandable in a modular fashion, delivering linear performance increases to a maximum of 80 MIPS processing power with support for up to 256 users. The new system will be offered OEM, to systems integrators and resellers. 50MHz MJ systems are from \$40,000, and the 50MHz JT-Cache upgrade for existing MJ systems is \$8,000. Ships are scheduled for next month.

OPEN SYSTEMS '89 PALES IN COMPARISON

In comparison with the brash Unix Expo event which took place in New York last week, the Open Systems '89 Show in London's Olympia looked, unsurprisingly, feeble. Not only was there a lack of visitors at the show, with sales people talking to sales people about sales on most of the stands - or the bar - but also absent were many of the major 'Open System' manufacturers, Sun, IBM and NCR included. Unix International had only a passing presence, with Maurice Shwartz dropping into UniForum's conference on the first morning as a 'surprise' guest to announce Unix V.4, to which 170 European hardware and software manufacturers are said to have pledged allegiance, whilst the Open Software Foundation was ghosted by DEC, left half-heartedly to carry the can for the OSF. Most distressing however, for journalists and punters alike, was the absence of any of Europe's major manufacturers. Where were the Siemens, Nixdorfs, Bulls, Norsk Datas and Olivettis of Europe, from whom we have heard so much chest-thumping over the recent weeks and months? Answer - in New York.

SHOWPIECES

X/Open has also promised that the Prospectus of Market Design that was born out of its meeting in Montreal in June, (UX No 237), will be published before the UniForum show in Washington next January. Dubbed 'Shaping the Future of Open Systems' it is said to contain a total of 117 user requirements and will form the body of the next edition of the X/Open Portability Guide - XPG4. First results from the Montreal conference are available in the form of the Open Systems Directive Overview document, a summary of the future requirements of customers, suppliers and developers in the open systems marketplace, and precedes the full document, to be released within the next two months.

One reason that keeps efforts to rationalise the various industry groups each working on different standardisation efforts (see front page) is the major expenses involved in staff attending meetings and working on similar standards initiatives for all the various bodies: Tom Mace from Unisys Corp said that Unisys spends up to \$5m a year on such things, with up to 200 staff working on committees and specifications.

According to sources at Unix Expo, Encore Computer looks the most likely candidate to supply the OSF with its Mach implementation.

At the London show DEC promised its symmetrical multiprocessor Ultrix Unix within two months, with XPG3 branding, and says it will initially run over up to eight CPUs.

Intel says it has shipped five million 386 chips this year, and by next year will be delivering more of them the 286 processor - a 50MHz 486 will be out next year, and the company is looking towards a 2,000 MIPS, 250MHz, 386 compatible processor by the year 2000.

And AT&T Unix Software Operation says that it will publish its "Road Map" of planned enhancements and new releases of Unix System V.4 for the next five years, in January.

Proving that loyalties amongst Unix vendors to the opposing Open Software Foundation and Unix International camps are not a religion, Gil Williamson, president of NCR Corp says that "NCR will adopt OSF/1 if it turns out to be a really good product", but "could jettison Unix System V.4 or offer both - it all depends on the marketplace."

These sentiments were reinforced by John Paul, head of Nixdorf's engineering systems division in the US, who said that although Nixdorf was committed to take technology from the Foundation as it becomes available, "the operating system world would only hurt itself if it viewed OSF/1 and AT&T's V.4 as opposing camps - both AT&T and OSF produce Unix kernels, and we as vendors will pick and choose between the technologies - maintaining compatibility is complicated, but we must push to work for that."

And Roland Pampel, Bull HN Information Systems Inc's president and chief executive, speaking at the New York launch of Bull's new generation DPX/2 line, said that Bull "would track OSF and continue offering the AT&T operating system, including V.4 enhancements;" Pampel said that the Foundation was offering "more and more values at the higher levels" - Unix add-ons.

JOHN HOPKINS SET WITH DESK-TOP SUPERCOMPUTER

The Applied Physics Laboratory of Johns Hopkins University in Baltimore, Maryland, claims to have developed the first desktop supercomputer - the Quen-16 parallel memory-linked single and multiple instruction-multiple data machine. The architecture is based on a commercial version of the Pentagon's Very High Speed Integrated Circuit technology, and the machine is said to pack the power of a Cray-1 in a 17" by 8.75" by 21" box weighing 45 lbs. It is designed as a back-end for DEC VAX and Sun Microsystems machines, is expected to sell for only \$50,000 to \$100,000, and Interstate Electronics Corp, Anaheim, California, is licensed to make it.

SARNOFF, SUN, TEXAS GET HDTV CASH TO DO VIDEO STATION...

SRI International's David Sarnoff Research Center in Princeton, New Jersey, in partnership with Sun Microsystems Inc and Texas Instruments Inc has been picked by the US Defense Advanced Research Projects Agency to develop a high-definition video workstation, to be available in two years, as part of the US high-definition television effort. The multimedia workstation will support display of multiple video, static image, graphics and text windows on one high-definition screen, and will combine a high resolution display with multiprocessor computation and interactive video input. Sun will build the system and provide digital image processing hardware and system-level software, including the window system and Unix operating system and Sarnoff will write application tools and utilities and develop a high-speed, programmable digitiser to convert high-definition video to digital signals to be used by the workstations. Texas will look into opportunities for advanced semiconductor components and subsystems derived from the workstation research, and ensure that the technologies developed are disseminated to US industry.

...AND SARNOFF REVEALS ITS PARALLEL VIDEO SUPERCOMPUTER

The David Sarnoff Research Center has also developed the "world's first" video supercomputer, and says it is now being used by Thomson Consumer Electronics Inc to design future RCA television receivers and by the Center to develop high-definition televisions for the US effort. Called the Princeton Engine, it was created to speed the development of advanced television systems and TV receiver features. The Princeton Engine is described as the first of a new class of supercomputer that provide engineers and scientists with real-time video simulation to develop and prototype electronic systems at a much faster rate by decreasing or eliminating the need for expensive hand-made prototypes. The massively parallel machine has 1,024 processors and implements a multiple-data architecture. Every aspect of the Princeton Engine from its architecture to the high-speed microprocessors and supporting circuitry, was designed by a Sarnoff team over the past four years. It enables designers to program directly at the circuit block-diagram level, with real-time processing of video sequences; key benefits for video over other massively parallel machines are claimed to be input-output bandwidth, support for a high-level graphical programming environment, and the degree of real-time user interaction. Sarnoff sees it being used in teleconferencing, sonar, radar, weather forecasting, photo analysis, command and control, and environmental modelling but gave no indication of who would sell it.

SIEMENS EXTENDS UNIX WORKSTATION LINE WITH LOW-END 68030 MODEL

Siemens AG has a new low-end Unix machine, the WS 30-250, which it claims offers a low-cost application for its Si-graph Concept. The Unix workstation is fully compatible with the rest of the WS 30 family, and can be linked to different mainframes and departmental systems by Ethernet, Apollo-Token and IBM-Token Ring networks. The system's 32-bit 68030 microprocessor and 68882 co-processor run at 20MHz, enabling the machine to deliver 3.5 MIPS. It has a 4Mb main memory, which can be extended to 16Mb, and the integrated SCSI supports up to seven peripherals. The system also supports black and white graphics, with up to 1,280 by 1,024 dot resolution, and hard disks drives with 400Mb, extending to 760Mb are available. Prices start at \$6,000. Additionally, Siemens Data Systems has announced that its Sinix family of computers, including the new Sinix V5.21 Unix operating system, now complies with X/Open standards as set out in the Portability Guide, XPG2, allowing the company to display X/Open logo on its systems products. Thus users of Siemens X/20, MX2, MX300 and MX500 Sinix systems will be able to run all the Unix System V-compatible software and interface more easily with multi-vendor systems, says Siemens. The company claims that its new release of Unix, V5.21, has been enhanced with the addition of support for more disk storage capacity for distributed file systems, a higher level of data security and in incorporating more support for client-server configurations that involve file and database servers.

GOULD'S 88000 LOGIC ANALYSER WILL GO TO 50MHz, 150MHz

Encore's Gould Electronics division has added support for Motorola's 88000 Risc processor to its CLAS4000 logic analyser system. It has already been tested on 33MHz versions of the chip, but the firm claims that it will handle both the 50MHz and 150MHz versions of the 88000 that Motorola is planning for the future. The stand-alone box allows 88000 system developers to symbolically debug their designs and is fronted by an Apple Mac II. On its own the CLAS4000 box is £1,200, with a Mac II and additional software the price is £20,000. Intel's 80860 Risc chip will be supported from the first quarter of next year.

WIND RIVER PORTS TO 80960 - ADDS VMS SUPPORT

Wind River Systems' VxWorks real time operating system is now available running on Intel's 80960 Risc processor, will support X-Windows by the end of the year, and the Emeryville, California company says several new releases are planned for the beginning of 1990 - at least one of which is thought to be for Motorola's 88000 architecture. Applications written under Unix - or VMS, of which versions 4.5 and above are now supported - are off loaded from the host CPU, usually a workstation, via TCP/IP, Ethernet or NFS to a stand-alone VME-based box in which VxWorks resides, running Motorola's 68000 range, Sun's Sparc chip, or now the 80960. VxWorks then takes charge of the applications and executes them for use in real time environments. VxWorks is less than an operating system - it has no compilers, debuggers or editors - but is more than an application, as it manages and controls processing operations. Jerry Fiddler, president of the firm, and over in Europe for the official launch of Wind Rivers' French subsidiary in Paris, says that it takes roughly one year of manpower to port to each new processor environment. Eight year old Wind River has another office in Tokyo, and is planning UK and West German sales operations.

BACK FROM DEAD A THIRD TIME - MISTRAL RISES FROM WHITECHAPEL ASHES WITH MIPSTATION

When the business of UK workstation builder Whitechapel Workstations went under the hammer back in May last year, (UX No 178), its engineering team went on to the Southwark, London based firm Algorithmics, and the rights to its technology were bought by a group of European investors with capital raised from Barron International Holdings of Gibraltar. With the backing of these European investors, a new company, Mistral Computer Systems was set up at Whitechapel's old headquarters in Bracknell, Berkshire, and took over the task of selling the Hitech-10 workstation, built upon Mips Computer Systems R2000 Risc chip. A year has now passed, and Mistral yesterday revealed in London its first product since the Hitech-10 - a Mips R3000-based workstation rated at 20 MIPS and tagged at £20,000, as well as the acquisition of the workstation arm, but not the PC part, of Milton Keynes based outfit Amazon Computers for an undisclosed sum, again raised from the same European investors. The Mistral-20 workstation uses a 25MHz R3000 processor and runs Unix V.3 with BSD 4.3 extensions. It comes with 8Mb RAM expandable to 40Mb, up to 600Mb disk, Ethernet, a 16" or 19" colour monitor and X-Windows - Mistral is awaiting a decision from X/Open before settling on a user interface, but expects to be offering Motif in the future anyway. The Mistral-20 was designed by the same Whitechapel engineering team - now at Algorithmics - and the firm says that R6000 systems running Unix V.4 will emerge in time. They are being manufactured by Konstanz-based ComputerTechnik Muller GmbH, which was acquired by two former Commodore executives in June and is now a free standing company, though Mistral stresses that this single source will soon be complemented by others. There are presently around 100 Hitech-10 workstations installed in specialist markets, and the Mistral-20 is being targeted into the same areas - particularly 3D graphics and animation and finite element modelling. Amazon's software business - with around 60 staff - will continue to operate as before under the terms of the acquisition, which will be completed in two weeks, but Mistral, currently with a payroll of six, now owns the assets of both its UK, French and West German operations, and managing director Bob Haire, formerly of Whitechapel, says it is negotiating deals with other European hardware and software houses. The Mistral-20 is set to make its debut at next week's Computer Graphics show in London's Alexandra Palace.

FPS COMPUTING CLAIMS 64-BIT 500EA TROUNCES CONVEX C-2

FPS Computing Inc, Beaverton, Oregon, is pinning most of its hopes on the 64-bit multiprocessor Unix technology it bought with the assets of Celerity Computing these days, and has now cast it as the FPS Model 500 Expandable System Architecture, which adds VectorPlus processing to the basic capability of the 500 processor. The Model 500EA is a 64-bit Unix mini-supercomputer that starts at \$204,000 with typical configurations at \$421,000, larger configurations up to \$2.5m and ships have begun. In conjunction with a new FPS Fortran compiler and FPSMath library, performance of the 500EA is claimed to be 30% to 50% faster than the 500, and on some applications up to 2.5 times. The company also claims that it offers 2.5 times better price-performance than the C2 series from minisuper market leader Convex Computer Corp. New peripherals include a 200ips seismic tape subsystem and VME-based IBM 3480-compatible tape cartridge, and an new IPI-2 disk subsystem that provides 6Mbyte-per-second data transfers, which can be striped for peak rates in excess of 20Mbytes-per-second, FPS claims. The company did not give prices.

MIPS PLOTS A COURSE THROUGH BYTE ORDERING MINEFIELD WITH APPLICATION INTERFACE

Mips admits that the only reason other Mips orientated manufacturers such as DEC, (UX No 249), haven't brought out kit based around the R6000 before itself, is due to development implications of incorporating ECL technology into new hardware. The Big-Endian byte ordering on the processor is the same as on the previous chips, and DEC is again set to reverse this arrangement to Big-Endian, as it has with its implementation of the R2000 for its DECstations, is done to bring the workstations in line with VAX and PDP-11 hardware and allow for easier data transfer across DECnet. On this score DEC's Mips-based hardware is incompatible with other Mips-based systems at the binary level. In addition, because DEC's Ultrix operating system is incompatible with AT&T Unix, it means that the Applications Binary Interface being developed by AT&T and Mips for Unix which is due in six months time, (UX No 255), will not deliver shrink wrapped software to DECstation users. However to try and steer a path around DEC's idiosyncrasies, and now that Mips' own Synthesis Software business has been reabsorbed into the company, (UX No 254), Mips, and companies using its Risc architecture are collaborating in a new effort to provide software source code compatibility across the board called the Mips Application Interface, which is to develop a range a specifications for compilers and user interfaces amongst other things. In addition industry sources are confident that DEC is now ready to release the source code for Ultrix, which will allow other system builders to configure and sell Mips based systems into the Ultrix marketplace.

NCR ADDS TOWER NETWORK, ADDS LOW, MID-RANGE TOWER MODELS

NCR Corp, Dayton, yesterday unveiled NCR Tower NetWare networking software that enables the Unix-based Tower processors to be used as high-performance file, application and communications servers on local area networks running Novell Inc's NetWare operating system. NCR also added two new Tower models, the entry-level 20MHz 68030-based 32/300 at \$11,290 with 32Mb memory, one 5.25" or two 3.5" SCSI disks and three Multibus I slots; and the 32/500, which has the same processor but comes with 64Mb memory, 1.1Gb disk and seven Multibus I slots, at \$19,790. Through bridge products, the NCR Towers support multiple communications products such as Token Ring, ARCNet, AppleTalk, and concurrent TCP/IP and Ethernet-based Tower NetWare environments. General availability of Tower NetWare is the first quarter 1990 and prices will start at \$5,200.

...AND EXPANDS ITS VIEWPOINT 68020 BASED X TERMINAL FAMILY

NCR Corp has added two new members to its TowerView family of X-windowing graphics workstations: the modular X-Stations for business and technical users come in 15" and 19" versions. The new 68020-based models come in modular form to accommodate future display needs; offer X11.3 Server with Backing Store and Save Under support; there is automatic host application execution without user intervention; RS-232-C SLIP communications; full support of the TCP/IP network protocol; TFTP and download able X Server; 100 dots per inch resolution; support for 2 additional third party logic boards; multi-resolution video up to 1,280 by 1,024 pixels; 70Hz refresh rate on non-interlaced display; and local VT100 emulation. NCR plans to add colour X-Stations and support for the DECnet and Network File System network protocols next year. The 15" TowerView modular workstation is \$3,400, the 19" \$4,200; ships in December.

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Spider Systems Ltd, formed in Edinburgh in 1983, has opened its first continental subsidiary in Paris: the company now has offices in Edinburgh, Wokingham, Bournemouth, and in Boston, Massachusetts; Spider Systems SA has been established following a £3m investment by a Syntech-led syndicate, and other members include County Natwest Ventures, and CIN Venture Managers; the Scottish Development Agency, European Coal and European Community have also contributed; by 1992, Spider Systems aims to have 10% of the networking market in France, and to achieve continental sales approaching the £40m mark, an increase of £30m on current figures - Spider has also signed an OEM agreement with Millhouse, Alton, Hampshire, which is to incorporate SpiderTCP into its Linguist family of multi-protocol converters providing transparent connectivity between Unix and non-Unix applications on Bull, IBM, ICL and Unisys hardware.

Siemens AG expect to bring out four or five MIPS Computer Systems RISC-based systems at Hanover early next year following its agreement to fabricate the R2000 and R3000 chip sets as the sole European source: it is currently sampling the parts to several companies in the joint qualification process; it also says it has no interest in second sourcing 80860 and 80890 from Intel Corp, but denies that Intel's refusal to give it masks for the 80386 has any bearing on its decision to take the MIPS route, or indifference to the new Intel RISC chips.

Intel Corp has confirmed the bug found by Compaq Computer in the 80486 microprocessor, saying that it affects the tangent and sine-cosine functions and could cause problems in CAD applications. Intel will fabricate a new version from this week, but won't ship it until the end of November. IBM has stopped marketing its 80486 Power Platform upgrade for PS/2-70.


Bedford, Massachusetts based Progress Software Corp's 4GL is now available on Data General's 88000-based AViiON Unix workstations, DEC's DECstation, Mips Computers' RISCstations and Solbourne's Sun-compatible Series 4, and will be compliant with the 88open consortium's standard for Motorola's 88000 processor by mid-November: Progress for MIPS and Solbourne ranges from \$1,250 to \$38,000, on Data General's AViiON family ranges from \$1,250 to \$29,000, and on DECstations and DECsystems from \$3,400 to \$65,000.

Meantime the Solbourne Computer Inc machines, which run under Sun Microsystems' SunOS, will not be able to be translated into Japanese because Nippon Sun Microsystems won't allow Matsushita to buy a licence for Japanese language SunOS.

Analysts were shocked at the level of the operating loss implied in Unisys Corp's third quarter figures - a net loss of \$648.2m: stripping out the charges for restructuring, "it appears that they lost \$190m pre-tax," says Barry Tarasoff of Wertheim Schroder & Co; "Unisys is getting clobbered, just clobbered," echoed Ulric Weil, Weil & Associates - "this quarter was terrible, and the future looks any thing but encouraging"; worst news is that the company's fast-growing Unix systems business and its white hope for the future, is slowing - and its debt, now stands at a daunting \$4,000m, 50% of total capitalisation, and requires \$100m a quarter to service, with preference dividends taking another \$27m.

The problems at Nixdorf Computer AG are proving more intractable than the company had hoped, and it is to cut its 29,563-strong workforce by another 976 positions, with the number in product development to be cut by 448 people to 2,440 and the number in production by 488 to 5,200 by the end of next year. The cuts will be made equally in West Germany and the rest of the world.

Welcome to the Scandinavian UNIX-Exhibition
in Stockholm, Sweden
November 14 - 16, 1989



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Prime Computer Inc has a series of "major enhancements" to its CADDs 4X family of software modules for computer-aided engineering, design and manufacturing, and has unveiled Version 4.0 of its Personal Designer micro-based computer-aided design software: release 5.0 of the CADDs 4x family includes "features that optimise the software's performance on the new Sparc-based CADDStation workstations, improve CADDs 4X customer programming packages, and increase users' abilities to access, analyse and view important part information"; Release 5.0 of CADDs 4X runs on the 40C and 42C CADDStations from Prime; 4X software running on CADDStations is priced from \$39,500, depending on configuration; Version 4.0 of Personal Designer runs in an MS-DOS-extended environment and features significantly increased designing, drafting and shading capabilities - there is a new multi-view implementation that enables design engineers to create up to 30 multiple views and a new MS-DOS-extended version of the User Programming Language; out now, it's \$5,800 for microCADDs GCD, \$2,800 for micro CADDs Surfaces, and \$500 for \$500.

The Soviet Union is considering a proposal to spend a large part of its scarce hard currency resources on importing \$1,000m of personal computers for use in educational establishments - but no decision on the plan is likely for at least a year, the Financial Times suggests.

What is the maximum performance now permitted for personal computers to the Comecon countries under the new CoCom rules? These are very precise, and specify a performance that does not exceed an 80286 with 16MHz clock, total disk capacity can be no more than 140Mb, and screen definition and colour are also restricted - a high-resolution 1,024 by 1,024 pixels can draw from a palette of only 64 colours, and if they want 256 colours, it has to be at low 320 by 320 resolution.

Dell Computer Corp is extending its reach into the Unix market by adding a version of the X Window System for its 80386-based machines and adding the Open Software Foundation Motif Unix user interface. Support is included in Dell Unix System V Release 1.1, which also features a faster file system and improvements in compatibility with Xenix file systems and floppy disk formats.

Micro Focus Plc is rushing out a Unix System V.4 version of its Cobol/2 compiler, with the first version to be offered for ICL's forthcoming Sparc-based Unix systems. The Cobol/2 compiler enables the developer to write in calls to C programs direct from Cobol applications. Versions for other Sparc systems will follow the ICL one.

Boulder, Colorado-based NBI Inc is pulling out of the hardware business altogether and trying to make a living as an office software-only company. In the process, it is slashing its workforce, laying off 433 people, 266 from headquarters, 167 from field sales. NBI says it will give more information on its plans in a month or so.

As it waits to introduce Sparc-based systems, Matsushita Electric Industrial Co is coming out with an 80386-based BE Series of workstations that run both the original BE-OS operating system, based on Unix System V.3.2, and programs written for its MS-DOS-based M Series of personal computers: prices start at \$15,520 with a monochrome display.

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OSF MEMBERS AGREE ON ENCORE'S MACH FOR OSF/1

As expected, the Open Software Foundation announced at its fifth members meeting in Boston last week that it would be incorporating the Mach 2.5 kernel, parallel file system and TCP/IP from Encore Computer, along with 800,000 lines of AIX code from IBM, mostly the commands and libraries. The shift to Encore was prompted mostly by the desire to see symmetric multi-processing capabilities and B3 security levels within OSF/1 - although unconfirmed reports had it that a disagreement over licensing terms between IBM and OSF had caused the rift. In response to the recent release of Unix V.4, OSF said that OSF/1 would include disk mirroring and system call compatibility with the major Unix variants of Xenix, System V and Berkeley. And, according to IDC spokesperson Kate Oakley, the adoption of file system technology from Berkeley's BSD 4.4 "could eliminate the need to license NFS from Sun Microsystems, a move to avoid reportedly high NFS licensing terms". OSF/1 is now expected to emerge during the latter half of next year, while OSF/2 is due late 1991. Here, OSF is talking of a "microkernel" one fifth of the size of current kernels, interacting with modular, distributed services such as network and file managers. OSF also hopes to include some form of compatibility with OS/2 and proprietary systems. On the licensing side, OSF said that renegotiations meant that it would no longer be charging binary royalties on its licensed software, reducing end-user prices. Multi-processing strategy was also discussed at the meeting - details next week.

X/OPEN, UNIFORM IN MERGER TALKS

X/Open, the organisation tipped to buy Unix if AT&T goes ahead and spins it out (UX No 256), and UniForum, the recently re-christened US Unix /usr/group, are making eyes at each other in a mating ritual that could eventually see them married and merged into a single entity, informed sources say. The pair are reportedly on the brink of announcing that they are going to collaborate on portability and operability standards, and consolidate their separate marketing activities into one thrust. The alignment offers X/Open, which reportedly made the first overtures, a ready-made group of users, and a collection of Unix-mad individual members to add to its thriving corporate base, plus a captive prestigious show - the UniForum trade show - to help it sell Unix. The move would also strengthen X/Open's ties with standards bodies, as UniForum has deep hooks into all the appropriate standards committees, such as IEEE. Such an alignment could also make X/Open more palatable as the vehicle to buy Unix from AT&T, a notion reportedly being considered at the highest levels. Legally, observers note, AT&T would have grave difficulties selling Unix to an organisation such as Unix International that did not represent the industry at large, simply because Unix was originally developed at quasi-public expense by Bell Labs, funded by a surcharge placed on long distance telephone rates. X/Open and UniForum have a long-standing relationship in the area of technical evaluation and market research (UX No 246).

MIPS TO BE VALUED AT AS MUCH AS \$333m IN FLOTATION AS IT HEADS FOR \$100m 1989 SALES

MIPS Computer Systems Inc reveals in its prospectus for its proposed initial public offering of shares, that for the nine months to September 30 it did \$592,000 net on sales of \$70.1m, which compares with a loss of \$3.7m on sales of \$39.4m for the whole of 1988; sales in 1987 were just \$13.9m, and in 1986, when it received its first revenue, they were \$7.9m. The RISC designer and RISC systems builder has almost \$30m in accumulated losses since start-up, so should benefit from some handsome tax credits now that it is profitable for the first time. By setting a \$14 to \$17 target price for the 4.75m shares it plans to offer, the Mountain View, California company is putting a handsome valuation of up to \$333m on itself - but it should come pretty near its target: MIPS is the hottest computer property to come to market since 1987.

NCR JOINS DATA GENERAL ON ITS ECL 88000 EFFORT

NCR Corp is involved in the effort to develop an ECL version of the Motorola 88000 RISC microprocessor, Data General Corp revealed in Paris yesterday. NCR indicated its interest in the 88000 by joining the 88open group at the end of last year. Data General reckons that it will have a small lead on the competition in introducing computers built around the ECL version of the chip, and is talking in terms of a box with up to four ECL 88000 CPUs delivering up to 500 MIPS within two years. In the meantime the company is looking to the 33MHz and 50MHz versions of the 88000 for its AViiON machines, which it has rushed to market with remarkable success - Oracle Corp said in Paris that the AViiON implementation of its eponymous relational database was the only one it had ever completed ahead of schedule. The company now claims 300 applications for the AViiONs and hopes that they will deliver as much 30% of the current year's turnover to September 30. The MV Eclipse proprietary minicomputer and the AViiON Unix businesses are now being run as separate, parallel companies.

NCD SIGNS WITH NOKIA FOR X IN SCANDINAVIA

Nokia Data Systems has signed an agreement with high-flying X terminal manufacturer Network Computing Devices Inc for exclusive distribution of NCD's range of X-Window-based display terminals in Sweden, Finland, Norway and Denmark. Based in Kista, Sweden, Nokia Data is NCD's first distribution channel into Scandinavia, and will provide feedback to NCD on the special requirements of the market which "may result in joint product development", according to NCD executive vice president Judy Estrin. NCD, based in Mountain View, California, offers high resolution 16" and 19" terminals using a Motorola 68000 or 68020 chip, with prices starting from \$2,500. It began shipping X terminals by the end of last year, and has reportedly shipped 2,500 of the 3,000 or so X terminals that have so far been sold. The company has raised \$17m in two rounds of venture funding, and now has international representation throughout Europe, and in Israel, China, India, Japan, Singapore and Australia.

ARDENT AND STELLAR COMPLETE MERGER

Ardent Computer Corp and Stellar Computer Inc - the two graphics supercomputer companies that revealed plans to merge at the end of August under the name of Stardent - have completed the merger. Allen Michels, former president and CEO of Ardent, takes the job of Chairman in the new company, while Bill Poduska, previously chairman and CEO of Stellar, becomes president and CEO - the two were serving as joint chairman and CEO in the lead up to the merger completion. According to Michels, the company is now "close to completion in defining the new organisation, outlining a plan for integrating existing products into a fully compatible line for the first quarter of 1991, and setting a consolidated course for the future in high performance computing and visualisation". Michels will be responsible for future direction and strategy, and will look at volume business opportunities. Poduska said that it was "now appropriate to designate one individual as president and CEO to ensure that these plans are carried out".

Over the past three months, Stardent has integrated its sales force, begun the transfer of product manufacturing to Kubota in Japan, and started the task of cross porting software. Ardent's DORE object-oriented library of graphics subroutines has already been ported from the Titan range over to the GS/DS series, said the company, and work is continuing to move Stellar's Application Visualisation System over to the Titan. Stardent headquarters will be at Stellar's old facility in Newton, Massachusetts, although the Ardent location in Sunnyvale, California, will also be maintained. In the UK, Stardent Computers made its first public appearance at the Alexander Palace venue of the Computer Graphics Show - although both Stellar and Ardent also had stands. The merged UK operation, based at Stellar's headquarters in Guildford, Surrey, will be up and running in a few weeks. Ardent's offices in Milton Keynes look set to close, though no firm decision has been reached, but all staff at both sites - presently around 15 - will be retained.

DEC ADDS DISPLAY POSTSCRIPT EXTENSIONS TO ULTRIX

DEC chose Unix Expo to introduce a new version (UWS 2.2) of its Ultrix operating system, incorporating Adobe Systems' Display Postscript for WYSIWYG screen displays. By using Display Postscript, users can view documents on screen exactly as they would appear on paper. Additionally, developers can write applications to scale or rotate text, employ colours, offer complex curve and path filling, and insert half-toned and rotated images into documents. The software was integrated with DEC's X-Window-based DECWindows environment through a joint development effort between DEC and Adobe Systems Inc. NeXT Inc also offers Display Postscript on its hardware, and IBM has also taken out a licensing agreement with Adobe for the software. Adobe also announced plans to port its Adobe Illustrator software-based drawing package to Ultrix platforms, but said that cost and shipping dates would be announced in the future.

...ENHANCES VMS/ULTRIX CONNECTION

DEC has also announced Version 1.2 of its VMS/Ultrix Connection layered software product for VAX VMS systems, which allows networking, file access, remote terminal access and applications development between VAX VMS servers and Ultrix and other Unix-based hardware. Enhancements include Telnet Internet networking protocol support, TCP/IP support for DECWindows Release 2, C language Berkeley socket programming interface support, and new pricing for clusters, which now starts at \$1,205 for a 10-unit cluster.

INTEL, INTERACTIVE AND ESIX ROLL OUT NEW UNIX RELEASES

Intel Corp, as expected (UX No 255), has come out with its own brand of Unix System V.3.2 for all 80386-and 80486-based personal computers, likely to be a major competitor to the Santa Cruz Operation and Interactive Systems. The \$500 shrink-wrapped package is intended to be the Unix standard for personal computers designed to run MS-DOS and supports the iAPX-86 Applications Binary Interface developed with AT&T Co. Intel is also offering Network File System, TCP/IP, X-Window System and the Locus Computing Corp Merge MS-DOS under Unix utility; an Intel Unix based on System V.4 is set for first quarter 1990. Meanwhile Interactive Systems Corp has demonstrated 486/ix, which it claims is the first commercial product based on AT&T's System V.4. Like the Intel version, it will ship first quarter next year. Interactive's president and CEO Ron Fisher said he expected the system to be sold initially to software developers, with end user sales building up towards the end of the year. Also in the Unix for Intel marketplace is Esix, the software division of Everex Inc, Fremont, California, which is now shipping Unix System V.3.2 as Esix V/386.

COMMODORE PROMISES V.4 AMIGA FOR NEXT YEAR

Commodore - which had its Unix based 2500 machines crawling all over the Unix International stand at Unix Expo recently - is becoming a little more forthcoming about its future Unix plans. The 2500UX, a standard 2000 box with a 68030 board upgrade running Unix V.3 and AmigaDOS, has been shown widely in North America for the last six months or so, but is regarded basically as a development system. Commodore UK believes it very unlikely that the thing will ever come to market. What is planned is a 68030 3000 machine running Unix V.4 and AmigaDOS, partitioned like MacOS and A/UX on the Macintosh, which will be out at the beginning of next year. An 80486 machine is also reportedly under development, and the company says it is currently evaluating several different RISC architectures.

SKYBOLT BOOST FOR SUN WORKSTATIONS

Sky Computers Inc, Chelmsford, Massachusetts claims 40 MIPS and 80 MFLOPS performance from an application accelerator board for Sun Microsystems workstations and other VME-based systems, which combines the Intel 80860 and 80960 RISC-based microprocessors. The Skybolt applications accelerator provides fast scalar processing, fast pipelined vector processing, high bandwidth memory architecture and vectorising, optimising compilers; the 80960 is used as an input-output processor to scientific applications; the board costs \$12,450, and is available immediately.

UI, OSF AND USO ADMIT TO "EXPANDED DISCUSSIONS" ON COLLABORATION

In response to media interest in the renewed efforts to consolidate conflicting Unix standards initiatives (UX No 256), the Unix Software Operation, Unix International and the Open Software Foundation last week issued a press release confirming that they had agreed to "expand ongoing discussions to intensify areas in which the three organisations might collaborate". David Tory, president and CEO of OSF, said it was "now time to openly review the obvious synergies which exist among our respective organisations". UI and OSF have most notably collaborated through the Unix International multi-processing working group, and more recently announced collaboration on conformance testing through X/Open (UX No 256). UI president Peter Cunningham noted that both organisations had joined X/Open, and held positions on the board of directors. Larry Dooling, president of the Unix Software Operation, said that "initial discussions would concentrate on potential technology exchanges, processes for specifying future Unix system requirements, and potential modifications in the three organisations and their processes that would benefit the industry". The statement said that no decisions or formal recommendations had yet been made, and that current commitments, such as the Unix International product road-map, OSF's OSF/1 operating system component, and ongoing development of Unix V.4, would not be affected.

HEWLETT CUTS ANOTHER 330 POSITIONS AT APOLLO

Further consolidation following Hewlett-Packard Co's acquisition of Apollo Computer Inc means that 330 more positions are being eliminated at the Apollo Product Repair Centre in Chelmsford, Massachusetts, which is to be closed, and at Apollo's manufacturing plant in Exeter, New Hampshire, and various other headquarters and departments. All affected employees are being encouraged to apply for the several hundred jobs open to internal candidates at Hewlett facilities throughout the US.

APPLE "SETS MAC IIxi USING 50MHz 68030 FOR 1990"

Apple Computer Inc will come out with a six-slot model in its NuBus-based Macintosh II family to be based on the 50MHz version of the 68030 early in 1990, says Macweek magazine. The new IIxi will be "30% to 100% faster" than the current top-of-the-line IIci, the magazine hears; it is expected to be accompanied by the introduction of the 7.0 release of the operating system.

DEC ENHANCES ITS 3100 VAXSTATIONS WITH FASTER PROCESSOR

DEC has boosted the power of its Model 3100 VAXstation line with two new models using the latest 60nS cycle CMOS version of its CVAX processor, already used in the faster MicroVAX models. The new Model 38 and 48 systems join the 90nS Models 30 and 40, adding 30% more compute power at a 12% to 15% higher price. Prices range from £9,000 for the Model 38 up to £30,000 for a fully configured Model 48 - available immediately. The company rates the 38 and 48 at 5.1 VAX MIPS against 3.7 VAX MIPS for the 30 and 40. The older models, with prices starting from £6,000, continue to be available. DEC is also offering real-time versions of the Model 30 and Model 38 that include the VAXeln real time operating system. And DEC added to its peripheral options for both the VAXstation and DECstation ranges with a new disk drive and monitor. The RZ56 is a 665Mb 5.25" SCSI drive, packaged in a Model 40 cabinet in one or two disk configurations from £7,000. The VR297 monitor, based on Sony Trinitron technology, is a 16" colour monitor costing £2,800.

HEWLETT-PACKARD "WORKING ON FAULT-TOLERANT AND MULTIPROCESSOR RISC MACHINES"

Hewlett-Packard Co, which allowed Jim Treybig to take his project away all those years ago and build it into Tandem Computers Inc, is finally ready to enter the fault-tolerant systems business. According to Electronic News, the company is working on a fault-tolerant machine build around its Precision Architecture RISCs. Next year, it is also expected to come out with multiprocessor Precision Architecture machines next year, offering systems with up to four processors and delivering up to 100 MIPS. No word on whether they will run MPE/V, Unix or both. On the semiconductor front, the Palo Alto company is looking at BiCMOS, ECL and GaAs implementations of its basic RISC CPU technology.

AMDAHL OFFERS 370-TYPE UNIX-ONLY 7300s UNDER 5890-5990

Heightening its profile in the Unix market, Amdahl Corp yesterday unveiled 370-type mainframes that come in below its 5890 and 5990, specially configured as Unix hosts and servers running Amdahl's UTS 2.0 version of System V.3.1. It is offering the 7300-150 uniprocessor at from \$730,000 and the 7300-250 dual at \$1.254m from January. The 7300-150 is rated at 40% to 45% of the power of the 5990-350 uniprocessor, but the 7300s can be configured with up to 256Mb of main storage, can support more than 1.6Tb of disk, and provide virtual addressing supported by UTS. The 7300-150 supports more than 250 active users with average response time of less than a second in office automation or program development, the 250 more than 400 users. The machines are built of 3,000-gate ECL arrays with a delay time of 180pS for registers and logic, 20,000-gate CMOS for the channels. They have 16 channels standard, going to 32, eight at up to 4.5Mbytes-per-second, and up to 256 sub-channels are supported. Based on Fujitsu M760 hardware, with further developments from Amdahl to optimise the machine for the company's UTS Unix implementation, the 7300 does not use the same processor as Amdahl's mainstream 5990 Series range. Currently the 7300 is for US customers only, where it will be sold to the traditional Amdahl customer base interested in Unix (major government users, banks, PTTs, technical users etc), either as central systems or as departmental systems side by side with other Amdahl kit. It is not yet clear, however, whether or not Amdahl's major customer, AT&T, will be interested in the new machines: it has targeted its top-end 3B20s to fill its need in this area. Amdahl stresses that the 7300s use a mainframe architecture, and as such is unique in the Unix marketplace. Amdahl Europe is considering the potential for the machine over this side of the water, and promises to make a decision by the end of the year.

IBM LIFTS VEIL ON EXPERIMENTAL SUPERWORKSTATION UNDER MACH...

Much of IBM's Unix systems development work has been done in partnership with Carnegie-Mellon University in Pittsburgh, and the latest fruit of the effort is an experimental multiprocessor parallel workstation described as a step on the way to a "personal supercomputer". The work station, which runs under Carnegie-Mellon's Mach skinny multiprocessor Unix kernel, has been demonstrated transforming object details and shapes, colours and reflections into complex graphics, running codes for fluid dynamics and simulating annealing - modelling computer circuitry to minimise the distance traveled by the signal, as well as finite element analysis. The IBM scientists who designed the machine also plan to try it out on matching DNA pieces and understanding their interaction and exploring parallelism in transaction processing, semantics and lexicography. The computer contains eight 25 MIPS RISCs, each with 8Mb memory, and 80Mb of common memory. The file system and all input-output operations are handled by a host RT Unix box.

TOPLOG'S UNIX BRIEFING FOCUSES ON INDUSTRY FUTURE

The Belgian operation of Metrologie SA's Unix software distribution company Toplog held well-attended Unix Application Forum conference in Antwerp last week - with the aim of drumming up support for Unix in the Benelux countries. According to a report by IDC and commissioned by Toplog, Unix shipments from Belgium totalled \$101m last year - largely dominated by Siemens kit. In the software distribution stakes, Toplog leads the way with a 47% market share, followed by Info Universe with 11.8%, Infomac, 4%, TopData, 3.8%, and direct manufacturer and proprietary Unix-like sales making up the remainder.

The main event was Unix International's European technical director Alberto Sacerdote stepping in to give a presentation on the new features contained in release V.4 of Unix - already covered within these pages. This aside however, Sacerdote said that V.4 Application Binary Interfaces for the Intel 80X86 series, Motorola 88000 and 680X0 series, Sparc and Mips processors would all be available before the end of the year. As for future versions, real-time and transaction processing features will figure in the kernel as soon as the IEEE committees working in these areas make concrete recommendations. Looking to the East, where Unix International has recently been making strong overtures, (UX No 245), V.4 currently has an add-on pack for Asian language support - future version of the operating system are set to incorporate these as standard.

Perestroika

On wider issues of reconciliation between the various Unix camps, Sacerdote said that in principal Unix International would not be against some sort of merger between the principal players. On the development side he said that X/Open's technical and engineering capabilities are now sufficiently advanced that merging with AT&T's Unix Software Operation - responsible for the technical development of Unix - would not be problematic. It seems that the major problem would be fusing management structures of the various bodies - which politically are deeply entrenched - to become operationally viable, as it seems unlikely that any of the personalities presently heading up the groups would be prepared to take a back seat, or play no role at all, in what would be a major restructuring of the Unix industry.

RICOH'S REX IS "FIRST SIMPLE EXPERT SYSTEM CPU"

International Chip Corp, Columbia, South Carolina has been commissioned by Ricoh Co to fabricate an artificial intelligence co-processor chip designed to eliminate the need for special software to run expert systems programs. The REX Resident EXpert chip is being offered in versions for AT-alikes, Sun Microsystems workstations and NEC Corp's PC-9801 family. The co-processor board will be marketed with Rule Compiler software that provides people with no programming knowledge the means to develop applications - it prompts for input in plain English. Once the expert system has been developed with the Rule Compiler, it will run on any machine with the co-processor installed. The board stores rules as a series of "if A, then B" statements, and processes them directly rather than handing them over to the host for processing, as has up to now usually been the case. It has local memory capacity for up to 10,000 rules. The boards cost \$1,500 apiece from next month, and the Rule Compiler is \$2,000 to \$5,000. The current version of the chip runs at 10MHz - which translates to a rule-handling rate of 1.67m rules per second, and a 20MHz version is planned for next spring. Ricoh's Ricoh Corp subsidiary in West Caldwell, New Jersey is marketing it in the US.

CONCURRENT COMPUTER USES REAL-TIME UNIX IN GLOBUS INTEGRATED BANKING SYSTEM

Concurrent Computer Corp, whose European base is in Maidenhead, Berkshire, has released what it calls "the first fully integrated banking system for the 1990s" at the Computers in Banking Exhibition at the Barbican in London this week. The "Globus" system, which runs under real-time Unix and whose software was developed by a company formed from ex-employees of Citibank, is intended to respond to what Concurrent has pinpointed as new, and as yet unfulfilled, requirements in banking and the capital markets, chief of which is the need for information to be delivered in real-time. Concurrent also claims that the easy customisation of Globus will be another major attraction. Real-time dealing support is supplied on the Information Display System through a series of windows, the idea being that the rows of terminals currently required by financial dealers will be replaced by a single workstation installed at each desk. A multi-function workstation option enables Globus applications to be combined with word processing, telex, video display, spreadsheet and other services on one terminal, which, according to Concurrent will make data easier to assimilate. Transaction modules for Globus include foreign exchange, money market, funds transfer, commercial loans and securities packages, each of which provide real-time access and the ability to update information on-line, while a multi-lingual facility allows the screen text and help prompts to be received in a language selected by the user. Globus supports X25 and all the major networking protocols, and customers who have access to a particular system can connect their terminals to Globus through the public telephone network. The hardware for Globus is being produced at the Concurrent factory in Cork, while the software, now licensed by Concurrent, comes from its Slough plant. Already installed at various pilot sites, the Globus system, which is available now at a typical system cost of £750,000, is claimed to have reduced costs - mainly through staff reductions - at these sites by around 25%.

RTI - NOW INGRES - REVEALS "FIRST INTELLIGENT DATABASE"

Relational Technology Inc has duly changed its name to Ingres Corp, and the new Alameda, California-based Ingres has unveiled the Ingres Intelligent Database, claimed to be the first of its kind. The new product has the ability to manage objects and embed extensive rules or knowledge directly into the database, so that it can model all critical aspects of an enterprise within the database server. The system is created by the addition to Ingres of two new products, Ingres Object Management and Knowledge Management. Ingres itself is enhanced with input-output reduction techniques, compiled database procedures, on-line back-up, two-phase commit, international sorting sequences and an Intelligent Query Optimiser. Knowledge Management provides business rules that can transparently track everything from referential integrity to changes in inventory and warehousing, to documentation and purchasing procedures. The database is from \$5,000 to \$180,000 and the Knowledge Management and Object Management extensions will be offered separately with pricing at a percentage of that for Ingres.

UNIRAS LAUNCHES NEW GRAPHICS SOFTWARE

Copenhagen-based Uniras' UK operation took the opportunity to launch three new graphics software packages at the Computer Graphics Show last week in London. Picture Manager, which runs under X-Windows, Sun View and DECwindows on Sun, DEC and Hewlett-Packard Unix hardware allows users to import graphical images that conform to the Computer Graphics Metafile image communication standard over Ethernet. Images can then be manipulated within a mouse-driven user environment, before transportation to a range of printing devices. A Motif version of Picture Manager will be around by the beginning of next year. The second product, Unimap 2000 is designed for the analysis and display of scientific and engineering data in 2D, 3D, 4D, colour or monochrome images. Uniedit 2000 is a graphics editor which allows users to modify images produced by other Uniras software. Prices start at £1,500 for Picture Manager and Uniedit 2000, £3,000 for Unimap 2000. Uniras' Slough-based operation, with nine employees, says that versions of each for Convex minisupercomputers running X-Windows are also under development.

ASSET RE-LAUNCHES CIRCULAS' CEEMORE COMMS PACKAGE

Asset Technology, Cobham, Surrey, launched an office communications package at last week's Open Systems show in London called Ceemore, which allows users to send and receive messages and other material across a range of media from their terminals, and integrates with other office automation software. It runs on Unix and can transfer written material and graphics - electronic mail, fax, telex and files - from a single user interface. It can access external facilities such as Prestel, X.25, Ethernet, Telecom Gold, One-to-one and Mercurylink, as well as X.400 via a Xionics gateway. Ceemore is £495 on a PC running Xenix. The product was originally developed by Circulas Research International Ltd, in which Asset took a controlling interest during the summer. Three year old Asset has 30 employees.

BORLAND GOES TO HUNTER SYSTEMS FOR UNIX/DOS CONVERSION

DOS software house Borland International has announced an agreement with Hunter Systems Inc of Mountain View, California, to bring its Quattro spreadsheet and Sprint word processor over to the Unix market. Hunter Systems said it would use its XDOS CAPS computer-aided-porting system to develop XDOS versions of the Borland products, allowing them to run on any machine supporting the Hunter XDOS Transformer utility. These currently include most Motorola 68000 and Intel 386-based systems, with RISC versions currently under development. Quattro Version 1.0 and Sprint for Unix will be sold with the original user documentation and XDOS application programs on Unix media, such as cartridge tape and 3 1/2 inch Unix formatted floppies. Hunter will supply Unix and XDOS related support. Sprint will cost \$239, and Quattro \$299, when the products become available by the end of the year. In addition, Hunter Systems has signed distribution agreements with two major systems integrators, Nova Technology of Rockville, Maryland and Apex Technology Group Inc, Lanham, Maryland, in a bid to win sales from the US Federal Systems marketplace. XDOS is already in use within the US Navy. XDOS uses binary compilation techniques that allow executable binaries to be generated from the original binaries, for use on previously incompatible computer architectures. Hunter is one of the respondents to the Open Software Foundation's Architecture Neutral Distribution Format Request for Technology (UX No 256).

COMPAQ UNVEILS FIRST 80486, EISA BUS OFFERINGS

Compaq Computer Corp last week duly weighed in with its initial EISA bus and 80486-based machines, launching the Deskpro 486-25 at \$14,000 to \$20,500, and the Compaq Systempro PC System, an 80386-based server aimed at multi-user and networking applications, and able to support up to two processors. Both use the EISA bus and the Systempro goes from \$16,000 to \$26,000. The company also unveiled Compaq Lan Manager 386-486, based on Microsoft Corp's LAN Manager and claimed to be the first 80386-based LAN Manager designed to take advantage of both 80386 and 80486 microprocessor technology; it costs from \$2,500. The most noteworthy revelation to come from the announcements is the high power, low cost performance the new products offer. Systempro, for example, is being promoted as a personal computer system with the power of a minicomputer, on the basis of a Neal Neison benchmark test in a 60-user environment. According to Compaq, Systempro outperformed both DEC's VAX 6310 and Hewlett-Packard's 9000 Series Model 835, being six times faster than the former and three times faster than the latter. Furthermore, Systempro costs between £11,000 and £19,000 making it a dramatically cheaper product than the VAX or the HP9000. The features contributing to these performance advantages are as follows: a 386/33 system processor board containing the 33MHz 80386 microprocessor, an 82385 cache memory controller, 64Kb of cache memory controller and sockets for 33MHz Weitek 3167 and Intel 80387 numeric co-processors. The thing comes with one or two processors, and users will be able to upgrade to 80486 technology as and when it becomes available by adding a second processor or upgrading to two 80486 CPUs. Optional multiple processors enable users to grow their system from 8 MIPS to 40 MIPS of power. The multiple system processors run multi-user operating systems such as NetWare 386, Unix System V/386, and the new LAN Manager 386/486.

Flexible architecture

Systempro is built round Compaq's 32-bit Flexible Advanced System Architecture with multiprocessing support, providing separate buses for processor and memory and for input-output peripherals. And then, of course, there is the system's Extended Industry Standard Architecture expansion bus which enables it to work with 32-bit network interface controllers and 32-bit fixed disk drive array technology, giving respectively a higher network output and increased data transfer. Systempro is available in three models, each shipped with 4Mb of 32-bit random access memory, 11 EISA expansion slots, a 5.25" 1.2Mb floppy drive and either a 240Mb, 420Mb or 840Mb fixed drive array. Compaq is happy that dealers will be able to handle a product of this complexity and as with all its products, is offering it only through its dealer network, and is setting up training courses to ensure that its dealers know what's what.

Deskpro 486

The second product to be announced was the Compaq Deskpro 486/25. Aimed at the computer-aided design, software engineering, database management, financial modelling, networking and multi-user markets, this 486 EISA micro offers 15 MIPS performance and runs MS-DOS, OS/2 and Unix applications. Shipping in January, the Deskpro costs £10,500 for a 120Mb fixed disk drive, £13,000 for 320Mb models and £15,000 for 650Mb disk drive versions. Not wishing to cut its nose off to spite its face, Compaq has also announced UK price reductions averaging 6% across most Deskpro models of the 386/20e and the 386/25. In conjunction with the launch, the Santa Cruz Operation highlighted its multiprocessing extensions to its Unix System V/386 Release 3.2, developed in conjunction with Corollary Inc, and taking full advantage of the EISA bus. And Computone revealed that its EISA-based ALC "a la carte" communications sub-system, using an 80386SX processor, was used in the new hardware, and in 80486-based systems already launched by Olivetti.

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The University of London's Queen Mary and Westfield College in East London has ordered more Apple Macintosh A/UX systems to add to its Unix network in the Department of Computer Science: the college, which already had over 50 Macintosh IIs, has now ordered a further 90 Macintosh IIcx systems worth £400,000 to form the basis of a network in the new Informatics teaching laboratory building just opened on the Mile End campus.

Donal O'Shea, the Open Software Foundation's erstwhile and outspoken second-in-command, who left the consortium back in August after a reported difference of opinion with OSF chief David Tory, has re-emerged as president of Servio Logic, a small Californian software house specialising in object oriented databases.

Sun Microsystems, Xios Systems and Systems Union have teamed up to offer Sparc based solutions for the City and financial institutions. Systems Union has enhanced its SunSystem package for porting across Sparc servers, which will also run on Xios hardware. And Systems Union Ltd, London, N1, is to open new offices in Seattle and Paris next year after doubling its turnover in the last two years.

88open - the supporters club for Motorola's 88000 Risc architecture - has set up its first European porting centres at Motorola's Maidenhead Berkshire operation, Data General's offices in Frankfurt, West Germany and Norsk Data's Dolphin Server Technology spin-out in Oslo, Norway.

AIM Technology, Santa Clara, California, and Zetaco Inc, Eden Prairie, Minnesota, are developing a performance monitoring software package for TCP/IP networks, which will be launched at the UniForum show in Washington D.C. next January. It is designed to monitor networks running Unix applications, including distributed databases, implemented on Sun Microsystems' ONC and NFS. It will test individual components - CPU, memory and disk - as well as network components, such as the file servers.

Accent Computers Ltd of Burgess Hill, West Sussex, has a 4-port, serial, half-slot card for PCs with a user interface, designed for setting up and testing large multi-port systems - it can be used with Unix and Xenix, prices start at £295.

Starting this week the Thomson Computer's Sea-Change 4GL is to incorporate a graphical use interface for reporting functions following a technology licensing agreement with Acuity Management Systems, Sandhurst, Surrey.

Keynote speakers at UniForum '90 will include James Cassity, Lieutenant General, USAF; John Young, president of Hewlett-Packard; and Geoff Morris, president of X/Open - it takes place at the Washington Convention Centre, Washington D.C., January 25-25.

Intergraph Corp is putting its entire range of some 500 software packages, including operating system, networking and windowing, on to CD-ROM - an optical drive comes as standard on its InterServe 3000 and 4000 Series servers, or as a stand-alone subsystem for the workstations.

Dilog Computer Products Ltd, Northampton has been signed up by Motorola Computer Systems to distribute its Delta series of Unix systems in the UK, and will concentrate on the MUMPS marketplace.

Dunlop Industrial Hose Ltd is spending £200,000 building a manufacturing control system with Progress Software's MFG*PRO 4GL.

Welcome to the Scandinavian UNIX-Exhibition
in Stockholm, Sweden
November 14 - 16, 1989



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Apricot Computers, Birmingham, is to support 3Com Corp's 3+Open Lan Manager on its 80486-based VX FT range of servers - a kit is available from this month, priced £195.

Torch Technology, Cambridge, has signed up distributor Advanced Technology Centre, Los Angeles, California to sell its range of X-Windows software in the US.

Atherton Technology, Sunnyvale, California, is porting its Software BackPlane CASE software and SoftBoard applications to AIX in an agreement signed last week.

Copies of the Posix Conformance Test Suite - FIPS-151 - are now available from Microinfo Ltd, Alton, Hants, which is distributing them in the UK for the US National Technical Information Service.

The Usenix association is holding its 1990 winter technical conference on January 22-26 at the Shoreham Hotel in Washington, DC.

Tadpole Technology, Cambridge has a new 8Mb version of its 68030-based TP32V VME board, available in 20MHz, 25MHz and 33MHz configurations: prices go from £2,750 to £4,945.

Unify Corp has set up an Australian subsidiary - Unify Australia - in conjunction with the Lionel Singer Corporation to distribute Unify database products down under.

The slowdown at OEM customers like Nixdorf Computer, IBM and Unisys Corp has forced Cipher Data Products to reduce its workforce by 525 or 24%.

Pyramid Technology Corp has signed a joint marketing agreement with the Plexus Software Inc subsidiary of Recognition Equipment Corp under which its Unix RISC machines will be used as the large-scale database servers for Plexus' image processing systems: the joint marketing agreement is expected to generate some \$3.5m business in year one.

Informix Software Inc has Unix versions of its SmartWare II office automation software in the pipeline, which will provide DOS to Unix connectivity for the range of database, word processing, spreadsheet and communications facilities as well as the Smart programming language - SCO Unix and Unix V.3.2 versions will ship in the fourth quarter.

CONTACTS

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OSF CALLS FOR MOTIF SOFTWARE WITH THREE NEW RFT'S SET FOR NEXT YEAR

Despite the mutiny that has been simmering within its ranks for the last few weeks over the plans for OSF/1, (UX Nos 255, 251) - the Open Software Foundation's alternative Unix operating system - the group has nevertheless been gathering wide industry support for its graphical user interface - Motif. In London last week, a European Motif developers conference - packed with enthusiastic Unix "techies" armed with awkward questions - heard the Foundation's Director of European Operations, Henning Oldenburg, disclose a new phase of the project - the adoption of a desktop manager for the interface. It will be chosen - like the Foundation's other imported software - by a Request for Technology to be issued around the middle of next year, and likely to provoke fierce competition amongst the contenders. Unlike Unix International's Open Look graphical user interface, Motif has no desktop manager, it is an X-Windows-based toolkit contained within a user-friendly graphical environment for application building. The two main products on the market which are meeting head-on to fill this void are X.desktop from UK company IXI Ltd, Cambridge, and Looking Glass from Visix Software Inc, Arlington, Virginia. Complementing this, two other Requests will go out at the same time, for a user interface tool and an interactive design tool, for use with Motif and the manager. The latter will enable application developers to design to a consistent format, but the request is likely to concentrate on finding a methodology for this task rather than products, the likes of which are already offered by Visual Technology's Emix and Unica Inc's Expression tools. Also at the conference it was revealed that the next version of Motif, 4.0, will support the ability to design windows with irregular shapes, unlike the strictly rectangular configuration at present.

...AS DEC MIGRATES DECWINDOWS INTO OSF/MOTIF

In another twist to the story, it seems that DEC is - for all intents and purposes - to literally turn DECwindows, currently offered on all of its hardware, into Motif. Such a move is a fairly logical progression to integrate the two environments and offer a single user interface right across its ranges. Motif was originally built upon DEC's toolkit application programming interface, the core of which is the X user interface, but has been enhanced with other features. According to Jean-Claude Monney, DEC's plan is to begin shipping Motif - including the user interface language - on its systems from January of next year. The X user interface will then be migrated to Motif, so that DECwindows will become Motif in all but name, with all the existing features of DECwindows retained. Subsequently the Motif version of DECwindows will be available on its systems.

SCO OFFERS COROLLARY EXTENSIONS AS SHRINK-WRAPPED MPX

The Santa Cruz Operation Inc will offer SCO MPX for 80386 and 80486 boxes next quarter, describing it as the first shrink-wrapped multi-processor version of Unix. It adds the multiprocessing extensions developed by Corollary Inc, Irvine, California, (UX No 239), tacked onto SCO Unix System V/386 3.2 and SCO Open Desktop. It runs on AT, EISA and Micro Channel micros and up to 15 copies can be supported for up to 16 processors. Pricing is \$900 for each additional processor; the machine must already have SCO Unix or Open Desktop.

ARIX READIES SYSTEM 90 - CONTINUES DIVERSIFICATION

Arix is preparing a January introduction of its next-generation System 90, a three-member family of multiprocessor Unix-based systems it designed to meet the Treasury Multi-user Acquisition Contract - TMAC - bid speculations, (UX No 251), according to president Gene Manno. System 90 will incorporate both 68030 and 68040 chips, (UX No 246). In keeping with the TMAC specs to lower cost of ownership, users will need to move through only three systems to go from a single-user desktop system to a top-of-the-line 512-user multiprocessor. Five kinds of peripherals will be supported - including read-write optical, WORM, CD-ROM - as well as three hard disk formats, 3.5, 5.25, and 8-inch. Software will include the OSF/Motif interface, X-Windows, and three RDBMS, Oracle, Ingres, and Informix. Cobol and C programming languages and DOD B1 level security will also be available. Networking will initially start with TCP/IP and X.25, migrating to the OSI/GOSIP specification as third-parties make it available. System 90 also figures big in the company's plans to continue weaning its revenue away from over-dependence on one large OEM, namely Unisys, whose own earnings recently hit the skids, (UX No 256).

SUN'S MOTOROLA LINE HANGS IN THE BALANCE

Despite lusty promises of 250 MIPS 80486-compatible microprocessors or whatever it is from Intel Corp, and Motorola Inc talking enthusiastically about a 68050, the heyday of the complex instruction set microprocessor begins to look as if it is drawing very gently to a close. Following Microsoft and IBM's suggestion last week that OS/2 will be implemented for RISC architectures there is mounting speculation that Sun Microsystems is to trim its sails squarely on to a Risc course that may leave the Motorola based product line floundering in the wake. Sun already does around 65% of its business in Sparc systems which offer the best choice in terms of price/performance, and admits that "there is a significant drift towards a Risc position." However reports circulating in the US trade press that Sun has killed its effort to develop 68040-based successors to the 68030 Sun-3 family, and is phasing out the Sun-3 altogether because the machines would not match the performance of its current Sparc RISC systems, look premature. Sun is keeping its options open, saying it would do a 68040 machine if its users insisted. At the low end, Sun is working on an 80486-based 486i station.

..AS TATUNG SHOWS FIRST SPARCSTATION-1 CLONES

Tatung Co of Taipei, Taiwan has won the race to become the first to show a low-cost clone of Sun Microsystems' Sparcstation-1, putting pre-production desk-top and desktide models of the TWS-5000 on show at the Comdex show in Las Vegas last week. Tatung, which sells MS-DOS personal computers OEM to Wang Laboratories, Tektronix Inc and Packard Bell Inc and others that prefer to remain anonymous, is using the 25MHz Cypress Semiconductor version of the Sparc chip set and claims 15 MIPS and 3.0 MFLOPS for the machine, rather more than Sun claims for the Sparcstation-1. The TWS-5000 has support for up to 1,152 by 900 pixels in eight colours, Ethernet and SCSI controllers, and 8Mb to 32Mb memory. Tatung wants OEM agreements on the new machine and says that software companies Oracle Corp are keen on bundling arrangements. The desktide system, ostensibly multi-user, will start at some \$8,000, \$1,000 below Sun's base tag and the desk-top model is expected to be from \$7,000. Production - at an initial 1,000 a month, is planned for second quarter of 1990.

ICL PLOTS CASE STRATEGY AT CASEXpo-EUROPE

At last week's CASEXpo-Europe '89 held in London, ICL revealed that it is to begin marketing the Sema Group's Advanced Data Dictionary directly on its Unix-based kit running under Ingres from January. It is to be integrated with ICL's own Data Dictionary System, which will allow the transfer of information right across its ranges. Case tools that ICL currently supports, such as Ernst and Young's Information Engineering Workbench, Technology Corp's Excelsior and Hoskyn Group's Project Manager Workbench will be moved over to Unix during the coming months according to ICL's UK software marketing manager Bruce Millar, who expects new Case announcements at the rate of one a month. These developments will be extended to include support for ICL's forthcoming family of Sparc-based systems, previewed a couple of weeks ago, (UX No 256), which are to be offered with Officepower, Ingres, and initially a choice of either the Open Look or Motif graphical user interfaces.

Also at the show Verilog SA's UK subsidiary, based in Mayfair, W1, launched three new tools - a new version of its Geode real time design software which now includes a simulator, and generates C code; a new testing facility in its Ada-based Logiscope quality analysis tool, as well as an enhanced version of the ASA needs analysis tool for Sun Microsystems' 3/80 and Sun-4 workstations.

And high-flying Systematica Ltd, Bournemouth, was showing its Virtual Software Factory running under OS/2 and Presentation Manager on the PS/2, and DSA Software, Edgbaston, Birmingham, was showing off its DSA Generator development tool which produces C, Cobol and Pascal code on Unix, PC, DEC and IBM hardware, (UX No 210).

IXI TARGETS BIG BLUE WITH X.DESKTOP 2.0

Eager to maintain its frontline position in the desktop manager for X-Windows battle, Cambridge-based IXI Ltd says it has signed what is known as a development agreement for possible inclusion in future AIX products with IBM, for its X.desktop product. IBM was showing version 2.0 of the manager running on top of Motif at the recent Unix Expo show in New York dubbed AIX.Desktop. If IBM were to take the thing, (the main opposition is seen to be Presentation Manager), it would be able to offer a single interface across its AIX range, from the PS/2 through the RT and its successor to the 3090s. Two year old IXI, which is 80% owned by its management and staff, made a \$1.5m profit in its first year and has offices in the UK and Boston, Massachusetts. A West coast office in Palo Alto, California, will open on January 22nd, and a Tokyo operation is planned for the near future. The next version of X.desktop is set to support multi-tasking and include more adaptive features.

BANYAN HAS 80486 SERVER SET FOR JANUARY

Banyan Systems is to introduce an 80486-based server at the top of its range in March next year. The Banyan CNS/486, running at 25MHz, is optimised for version 4.0 of its Unix-like Vines network operating system. It will be offered in three models, each with 8Mb RAM. With 146Mb hard disk the price is £28,300, with 320Mb it is £28,725 and a 660Mb disk version is £30,485. A 4Mb burst-mode memory add-on board will be available for \$3,605, an 8Mb version is £6,125. An upgrade from the CNS/386 to the 486 machine will cost £10,075. At the same time prices of the 25MHz versions of the CNS/386 are reduced by 11% to £22,600 for a 146Mb disk version, or £23,100 with a 320Mb disk. Banyan will offer a CNS/386 at 25MHz with 660Mb hard disk in February for £25,000.

CONVEX ENHANCES MIGRATION TOOLS FOR VAX USERS

Convex Computer Corp, Richardson, Texas has enhanced COVUEnc/Multi bus and COVUEnc/VME in the new V2.0s, moving the protocol code from the Excelan controller into the CPU side of the ConvexOS kernel so that the number of logical links available to DEC VAX users linking to Convex's C-series of minisupercomputers is now 100. There is also an enhanced Network Control Program facility, support for VMS mail so that mail can be delivered over DECnet, and the software is now compatible with X Window and DECwindows. Priced from \$16,500, they ship in 90 days. COVUElib V2.0 increases the number of routines to 183, making it easier for users to transfer VMS applications written in C and Fortran to the Convex box and it is from \$7,300. COVUEbinary V1.0, a VAX Binary Data File Format Utility serves as a bridge between VAX/VMS files and Convex Fortran. It converts files to a record for mat understood by either the Convex or VAX system and starts at \$8,200. Convex also signed with Ingres Inc to market the Ingres relational database and tools on the C-series.

SIEMENS ADDS 1.2Gb 5.25" DISK.

Siemens AG has caught up with the competition, bringing out its first 5.25" Winchester to store over 1Gb. The Megafile 6200 series comes in versions with capacities up to 1.2Gb and has a 14mS seek time. It uses high-resolution media, thin film heads, rotary voice coil actuator, integrated motor design, dedicated servo surfaces and monocoque design. Transfer rate is 20Mbps and evaluation units will be available in the first quarter of 1990 at \$3,000 apiece.

...AND NEW SCANNING SYSTEM

Siemens is also offering a document-reading system that can scan up to 26,400 hand-written or printed documents per day. The Allfont 2800 is built its MX 300 Unix micro, and can handle A4, A5 and A6 pages - no prices given.

23,000 US LAY-OFFS LAST MONTH -**135 GO AT INTERLEAF, 30 AT NORSK DATA**

Layoffs in the US computer industry are rising rapidly, and the total to lose their jobs in October alone soared to 23,000 people, against 24,200 for the whole three months of July to September. And there is no end in sight: this week, desktop publishing software specialist Interleaf Inc announced that it was cutting 135 jobs, 18% of its US workforce, and Norsk Data's German subsidiary, Norsk Data GmbH, has announced that rising costs mean it will have to reduce its workforce by 30 to 400 by the start of next year.

UNISYS ADDS CTOS SERVER THAT CAN GROW TO 30 80386 CPUs

Unisys Corp has added an 80386-based server for AT-alikes and Convergent CTOS stations that takes up to 30 loosely-coupled processors. Running CTOS, the base XE-530 has 4Mb 80386 CPU with 64Kb cache, two SCSI channels and local net controller, with prices starting at \$28,000 for a box with 145Mb disk, tape, and support for 32 stations. First ships are set for March; a four-CPU system will take 128 stations, disk goes to 7.5Gb and Unisys says the base XE-530 matches IBM's AS/400 - at 30% lower tag.

NIXDORF TO TAKE TANDEM'S FAULT-TOLERANT RISC LINE

Nixdorf Computer AG, which already buys Unix processors OEM from Pyramid Technology Inc and Mips Computer Systems Inc, is to add the forthcoming S2 fault-tolerant three processor Mips RISC-based system from Tandem Computers Inc to its product line. Nixdorf is making further contributions in all three of its Unix alliances: it is to supply Unix system software to Tandem for the forthcoming machines, and the two are looking at combining their efforts in fault-tolerant Unix systems development using MIPS processors. Pyramid has agreed to buy future systems and system components being developed and manufactured by Nixdorf using the Mips architecture, and the two are collaborating on operating system, compiler and communications software. And MIPS is also planning to buy system components that the Paderborner's has developed for its new MIPS-based Targon Unix boxes.

ENCORE COMMITS TO 88000

Encore Computer Corp revealed plans for a new top-end Concept 32/2000 in its minicomputer line inherited from Gould Computer Systems, saying it had "unequaled" context switch times, task-to-task dispatch, input-output throughput, and totally deterministic performance - and it would ship in first quarter 1990. A Motorola 88000 RISC system for multiprocessor MPX and Unix has been in development for two years and will ship in second half 1990.

MITAC CHOOSES COROLLARY'S SMP SCO UNIX FOR SERIES 500 MULTIPROCESSORS

American Mitac last week introduced its first multiprocessor, the tightly coupled 25 MIPS rated Series 500, aiming it squarely against Compaq's brand new SystemPro. The Series 500 employs two to seven 386-25 CPUs, linked by a corollary C-Bus running Corollary's Symmetrical Multiprocessing (SMP) version of SCO Unix - see front page. In its minimal two-processor configuration, the 500 reportedly supports up to 16 users, expanded to a full seven CPUs, Mitac says it can handle 160 users. The system features a dual-bus architecture combining the high-speed Corollary bus, which links CPUs, with an industry standard AT bus for I/O, enabling the 500 to accept existing AT-compatible add-on cards and peripherals. At its press conference, Mitac took out after Compaq with a series of comparative slides. C.K. Cheng, Mitac's assistant VP of sales and marketing, was quick to point out that the SystemPro was only expandable to two CPUs as against Mitac's seven, scored only a peak 40 MIPS against Mitac's 100 MIPS and used the slower write-thru versus Mitac's write-back technology. Of course, Compaq is using a faster 33MHZ chip and offers greater internal memory: a maximum 256MB versus only 64MB. Their cache per CPU and use of the C-bus, clocking at 16MHZ and transmitting at 64MB/sec, over Compaq's less dynamic EISA bus and loosely coupled architecture. The series 500 also offers 14 slots, 6 C-bus, 5 AT-bus and 3 C- or AT-bus, SCSI and a 500-watt supply over Compaq's 11 slots, IDA or EISA, and 300-watt power supply. Mitac says in one-two CPU configuration the 500 will do 6-12 MIPS; 2-3 CPUs, 15-30 MIPS; 3-5 CPUs, 20-50 MIPS and 4-6 CPUs, 30-100 MIPS. It compares its cost per MIPS to Compaq's at \$1500 versus \$2000 and tags its entry level cost at \$15,000 for two CPUs versus Compaq at \$16,000 for a single CPU. Mitac says it's going to OEM the boxes to large concerns and hit its existing distributors and VARs. The 500 goes into full-scale delivery early in 1990. Mitac also came up with an MCA-based 486 machine, expecting an EISA version to follow when the EISA chipset is fully tested. It is beginning full-scale shipment of its 33MHZ 386, the MPC 4000G, and its 25MHZ Xenix-based system, the Series 400.

NOW GOLDSTAR COMMITS TO BUILDING SPARC-BASED UNIX FAMILY

Goldstar Co Ltd, part of the Lucky Goldstar group of Seoul, South Korea is the latest Far Eastern manufacturer to commit to building Unix machines using Sun Microsystems Inc's Sparc microprocessor. Goldstar is licensing the SunOS Unix and other system software from Sun and will buy Sparc microprocessors from "one of the six semiconductor vendors licensed to develop Sparc chips". It says its first Sparc systems will be available late next year. Goldstar has also committed to the Open Look user interface and will license Sun's C and Fortran compilers, Network File System, SunView and the NeWS 1.1 window system. Goldstar also picked the design for the more than 1,400 Sparware applications and the binary compatibility of a wide performance range of Sparc systems - and because the Korean government is standardising on Unix and is encouraging the development of distributed computing systems. Separately, ZyMOS Corp, Sunnyvale announced that it has been signed by Goldstar to develop a custom VGA chip for use in future Goldstar personal computer models.

ARNET ADDS MULTI-USER 386, 486 SYSTEMS

Arnet Corp of Nashville, Tennessee, came out with three multi-user systems for VARs and OEMs at last week's Comdex. The top-of-the-line Multiuser 486 comes with a 72K byte cache memory and runs three times as fast as the company's Multiuser 386 system. It is intended for applications involving 20 users or more, the company said. Two multiuser 386 systems, based on a 25MHz and 33MHz 386, respectively, come in standard configurations of 4Mb of main memory, a 150Mb tape drive, a 101-key keyboard, and monitor. The 33MHz system has a 150Mb hard drive, the 33MHz a 330 Mb drive. Arnet said that the Multiuser 386 system can accommodate up to 64 users. All Arnet Multiuser systems can run Unix, Concurrent DOS, and the MUMPS operating systems.

DYNATECH LAUNCHES DCS-1 WITH DIAB, SWEDEN'S D-NIX

Mountain View, California-based Dynatech Computer Systems Inc - still much better known as Cromenco - has followed up its agreement to take a licence for Stockholm-based Diab Data AB's D-NIX real-time Unix by introducing the DCS-1 series for real-time, distributed data base, heterogeneous networking, and transaction processing. The VMEbus machines come with up to four 68030 processors and support up to 256 users. Compliant with the System V Interface Definition and Posix, D-NIX offers millisecond response for real-time applications with task prioritisation, pre-emptive scheduler, process memory locking and fast interrupt latency; transaction processing support with mirror disks for data integrity, confirmed disk writes and contiguous file space allocation; simple distributed databases (whatever that means) with D-NIX handlers; gateways for IBM and Unisys hosts and Macintosh and MS-DOS micros, and support for Network File System, X25, TCP/IP and Ethernet. The family consists of a Pedestal model with up to two 64Kb cache 68030 processors, two 68882s and support for up to 42 users; the rack takes the full complement of four of everything. Processors can be added transparently to the user - the system simply runs faster. Pedestals are from \$26,820 with one 4Mb processor and floating point unit, D-NIX, 150Mb disk, four 6U VME slots; three SCSI channels at 1.5M-bytes-per-second each; and four RS232 ports. Pricing on the Rack begins at \$49,600 with two of each of the processor complexes above, a 300Mb disk, and the same complement of ports as the Pedestal. Dynatech is owned by \$400m-a-year Dynatech Corp of Burlington, Massachusetts.

COMDEX NEWS - Maureen O'Gara reports from Las Vegas

FUJITSU TEAMS WITH PARTNERS TO MAKE SPARC BUILDING EASY

Fujitsu Microelectronics Advanced Products Division, Interactive Systems Corp, Insignia Solutions Inc and Via Technologies Inc came together at Comdex last week to announce a two-staged strategy aimed at significantly accelerating the proliferation of Sun Microsystems Inc Sparc-based desktop personal workstations. Fujitsu will license to computer makers a Sparc VME Board Set manufacturing package with all the specifications, layout, drawings, bill of materials and such needed to produce a Sparc-based three-board set running SunOS at 12 to 15 MIPS, and will include Insignia Solutions' SoftPC so that the resulting machines can also run the over 50,000 MS-DOS applications out there. SoftPC comes with a pre-installed version of MS-DOS 3.3 and the Microsoft manual, MS-Mouse driver, GW-Basic 3.0 and SlavePC for direct cabling between the host and an MS-DOS box. And to make the things much cheaper to build, Via will provide support chip sets that will help reduce the Sparc three-board set to a single board by late 1990. The board set will support both the S-20 and S-25 processors operating at 12 and 15 MIPS respectively. Fujitsu supplies the Integer chip, Memory Management Unit and EtherStar Ethernet controller; the set will also use Weitek's 3170 Floating Point Processor and support Sun's graphics frame buffer. It will come with 8Mb and support up to 64Mb.

PCs VERSUS UNIX WORKSTATIONS - STILL A FIXTURE FOR THE FUTURE

Don't hold your breath. The long-anticipated marketplace confrontation between 386-based PCs and high-performance Unix workstations may be further off into the 1990s than most marketeers and industry watchers currently expect. Analyst Craig Whitney of Computer Intelligence Corp (CI) of La Jolla, California, last week told a packed Comdex session on PCs versus workstations that a recent survey of 100,000-plus PC and 42,000 workstation end-users revealed little overlap in usage in industries that buy PCs and workstations, respectively, in the last three to six months. Users still buy PCs primarily for word processing and spreadsheets, while workstations - Unix or otherwise - are used for software development, and CASE, CAD/CAM, graphics, imaging, mechanical CAD, engineering, research, education and other technically-oriented applications. So while 386 PCs and Unix workstations may overlap in price and performance, Whitney said, they don't in applications. And users won't shift buying patterns for PCs and workstations by application or industry segment any time soon, indicating that a confrontation between PCs and workstations is far off. Interestingly, CI's data also revealed one big reason why OS/2 and Micro Channel Architecture have not taken off. 286-based systems comprised 39 percent of all PC purchases in the last six months, while 386-based systems totalled only 7 percent. Indeed, the two top-selling systems in the last three months were the 286-based PS/2 Model 50 and the 8086-based Model 30. "Users are still pretty happy with 286 systems," said Whitney. "Users have more horsepower than they need." And although Sun held a commanding lead among installed workstations users, with 34 percent, Whitney said 45 percent said they intended to purchase DEC equipment in the following year - mostly VMS-based VAXstations, not Unix-based RISC systems.

SIEMENS MAY BUY A US UNIX FIRM

Siemens Data & Information Division, which has never sold any computers in the US, is toying with the idea of entering the American market with its MX300, MX500 and MX2000 Unix machines, writes from Las Vegas. When Siemens Worldwide was reorganised on October 1, a new, more aggressive managerial group, anxious to expand in the US, took the helm, Siemens Information Systems sources say, and two German Data & Information employees have teamed with two Americans from Information Systems to look at ways of entering the US. They have five months either to find an acquisition or a joint venture partner willing to take MXs.

SUN'S TOPS DIVISION ENHANCES ITS INBOX ELECTRONIC MAIL SOFTWARE

The TOPS Division of Sun Microsystems Inc - well it is at the moment, but is said to be on the block, (UX No 253) - used the show to introduce a range of electronic mail systems for work group, enterprise-wide and global networks. The company is demonstrating version 3.0 of the InBox and InBox Plus electronic mail software and a set of gateways to private and public mail systems for MS-DOS and Apple Computer Inc Macintosh computers. The software is claimed to cost from \$25 per user; InBox Plus gateways to be offered will connect to IBM Profs, DEC All-In-1 and VMS Mail, and SMTP on Unix-based systems. A DASnet gateway provides a connection to MCI Mail, Easy Link, AppleLink, Genie and CompuServe and "more than 50 other E-mail systems around the world". And InBox can exchange mail with local-net-based electronic mail systems for Novell NetWare, 3Com and Banyan networks, including QuickMail and Microsoft Mail. In Box and InBox Plus have been "completely rewritten from the ground up using object-oriented programming techniques". The InBox software runs on each individual's personal computer and does not require a central file server. It is also claimed to be "so easy to install that users with no technical training can set up an electronic mail network and start communicating with each other in a matter of hours". The company offers the InBox electronic mail products off the shelf from dealers and software stores and reckons users can install them without help. InBox 3.0 is \$330, InBox Plus \$1,000, both available January.

SHOWPIECES

Doug Baker, founder of the old MAI Basic Four, long-time president of Quantel and a refugee from the failed New World Computer disk drive venture, has turned up as president of Pick Blue, Pick's RT unit, now in the process of becoming a separate company. Pick, which was showing a port to AT&T's 3B2 at Comdex, is promising to be seamlessly integrated with AIX on IBM's upcoming Rios boxes, Big Blue's next-generation RT's, by Uniform in January, but still figures its real growth will be in the 286/Xenix after-market. Pick has had serious bugs in its RT software, which almost cost it its prized reseller, IBM Australia, but Baker, who quietly moved into his new office six weeks ago, says the technology has been 90% patched up by now, salvaging the situation.

Proving it's serious about the selling of shares in Unix, AT&T is currently preparing a stock prospectus to offer pieces of the Unix Software Operation to interested industry players, according to USO president Larry Dooling, speaking at Esther Dyson's standing room-only software summit at Comdex last week. The basis of the prospectus is Dooling's business plan. If it comes to fruition, the offer would be for other firms to share in a "potentially profitable company," Dooling said.

SWEDISH TECHNOLOGY ADVANCES ON A MATURE MARKET

John Abbott reports from Stockholm

Last week's Unix 89 trade show in Stockholm was the fifth annual show to highlight the Swedish marketplace, and revealed what is now a remarkably mature sector of the industry in Sweden. Show visitors were typically representing government institutions, large companies or academia, and there was no sign here of the industry simply selling to itself. Many of the companies and visitors said that they had been using Unix since the late 1970s and early 1980s, and expressed the belief that the Swedish private sector, which has been lagging behind the Government and Defence Department's widely publicised commitment to Unix, was now ready to look again and move away from its traditional dependence on IBM mainframes. The Government's preferred list of hardware suppliers - currently Diab, Nokia Data, NCR and Unisys - is currently under assessment, and a new list is due to be issued in January.

Diab Data collaborates on secure systems - exports multi-processing technology to the US

The show also revealed a home grown Unix industry not simply relying on imports from the US, but offering its own hardware and software as far advanced as anything available elsewhere. For the outsider, one of the big surprises of the show was the dominance of Diab Data, based in Taby near Stockholm. Diab, a major supplier of computer systems to the Swedish Government, has a range of multi-processor 68030 systems that include the DS90-30, using up to two 25MHz chips, and the DS90-31, with up to four 33MHz 68030s, supporting up to 250 users. These are shared memory multi-processors that dynamically allocate the processor load without any need to alter the application. A Unix company since 1981, Diab took an early decision to re-write its Unix kernel for real time operation, and this now serves as the basis for all of its systems. The multi-processor extensions have been established for four years. Diab is now a member of 88Open, and plans to introduce Risc-based versions of its hardware next year. Diab, a subsidiary of Swedish Telecom, is still relatively small, with a turnover last year of 160m Swedish Kroner (£16m), but is expanding rapidly, with a new office just opened in Oslo. At the Show, Diab revealed that it was collaborating with Cominvest System AB, Fiberdata AB and Nordnet on a secure computer package for the Government, including a fully tempered Diab DS90-30 running AT&T's MLS secure Unix, with secure terminals using a Smartcard access system from Cominvest and Nordnet, directly connected through Fiberdat's FiberSafe fibre-optic transceivers. But Diab is also attracting attention outside Sweden: it has sold manufacturing rights to the US ISC Systems Corp (now a subsidiary of Olivetti - UX No 218) for the banking and finance market, which already produces three times more machines than Diab itself. Other OEM deals include Dynatech/Cromemco and Consolidated Computer in Denver, Colorado (see page3). Diab is currently looking for European OEMS for the major European markets.

Nokia fills out Unix range with 80486 systems.

More well known the general European marketplace than Diab is Nokia Data, which was showing its full range of Unix-based systems not yet widely available outside Scandinavia. Joining the established Sun-based Alfaskop System 20 range - which Nokia has adapted as a commercial multi-user system rather than as a workstation - Nokia was showing the Sparc-based System 30 range, currently sold mostly to the software development market, and its own-made System 10 Alfaskop line, using Intel processors, including the recently launched Alfaskop System 10 Model 57 80486-based system, which with 8Mb memory, 300Mb hard disk and 150Mb tape streamer costs 200,000 SEK (around £20,000). System 10 machines are Unix-specific, and are compatible with X/Open's XPG II common applications environment standard. The company is currently working on converting its Alfaskop Office software to run across all the platforms.

Siemens to enter X Terminal market with Tandberg

Siemens AB is preparing an entry into the X terminal arena, showing a prototype from its 70%-owned Norwegian affiliate Tandberg Data A/S at the Unix '89 exhibition. The thing is built around Texas Instruments' 34010 graphics signal processor with 1Mb to 5Mb memory and a 13" 1,024 by 768 pixel screen at about \$4,000; although a cheaper, personal computer-based version will be \$3,200 when the things become available early in 1990.

Native software dominates the show

The software industry in Scandinavia is booming, largely due to the inflexibility of imported products in dealing with support for languages other than English. Understandably, Swedish users demand their own language on screen - and that includes error messages. Some foreign products, such as Uniplex II Plus, can adapt to these requirements, and Uniplex was widely seen around the show. But native packages such as the Mimer database from Uppsala-based Mimer Software, and the widely used Nectar fourth generation language for Unix, VAX and MS-DOS systems from Ceratina Systems AB, Hasselholm, were more commonly seen around the stands, Ceratina chose the show to launch the new version 4 of Nectar, which now supports Informix and Oracle as well as Mimer, and has been ported to AIX for the PS/2. Nectar is used in 300 installations, 10% outside of Sweden. Another major influence on the Swedish software market is the Government, which has mapped out its requirements for office automation software by specifying an integrated package known as KIS, compiled together from the offerings of various software houses by the Swedish purchasing agency Statskontoret, the Swedish PTT and consultancy Statskonsult PVAB. Along the same lines is the Swedish version of the GOSIP OSI protocol stack, known as SOSIP (Statskontorets OSI-profile for statforvaltningen). And a group of Swedish companies including Diab Data, ICL, and Siemens, were demonstrating document transfer under the Sigdoc banner.

Objects cut development time

Object-oriented programming appears to be taking off in Scandinavia, with a number of companies, including CEC of Kista and Abalon, Bromma, showing products. CEC distributes C++ products from Oregon and Glockenspiel, but Abalon was showing a prototype of its own Xancus II software development environment on the Informix stand. Xancus II is a development tool that works over the relational database and provides an interface into the data - it has already been used to develop a number of software packages now out on the Swedish marketplace. The Abalon product could be the answer for those database companies such as Informix to move towards object-oriented database technology - Informix has introduced Binary Large Objects, or BLOBS into its database technology, but not gone any further. The Abalon system is a set of object oriented class libraries that can be used to describe the database and presentation aspects of a software application, and can be used as they stand or modified to suit. According to Abalon, development that takes a day and a half using a traditional fourth generation language can be achieved in an hour. Sun-View, Motif, X.11 and MS-Windows versions are under development.

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In addition to the multi-processing Mach 2.5 kernel from Carnegie-Mellon and the B1-secure parallel file system and TCP/IP from Encore Computer, the Open Software Foundation is to incorporate networking streams technology from Mentat Inc of Camarillo, California, into its OSF/1 operating system, (UX No 257) - early versions of OSF/1 will go out members in January next year, with general availability scheduled for November.

Perihellion's Helios parallel programming environment is now available on Sun-3, -4 and 386i workstations with Inmos, Parasytec or Transtech transputer boards - prices start at £1,750, from Distributed Software Ltd, Bristol.

Acorn has reduced the price of a complete R140 system - with hard disk, Ethernet, PC emulation software and 19" monitor - to £2,999.

Systech Corp, San Diego, California, has signed an OEM deal with Pyramid Technology, which is to take \$10m worth of Systech's Unplug terminal I/O controllers which use 16MHz versions of Motorola's 68020 microprocessor.

Speciallx Inc, Los Gatos, California, is to integrate its SI/32 intelligent I/O controller board into Mips Computer Systems' RC3240 Risc system, which will now go from a previous high of 32 users, up to 128.

Ofis Systems Ltd, Southampton, Hants - the Unix software division of the Business Management Group - has a new accounting package for Apple Macintoshes: Ofis Manager is written in Informix 4GL and runs under Unix and Apple's A/UX - cost is £350.

Informix Software Inc says that it plans next year to offer versions of its Wingz graphic spreadsheet for the NeXT Computer System, for OS/2 with Presentation Manager, for MS-Windows, an Open Desktop Wingz for the Motif interface and Wingz for Unix workstations; it is presently offered on Mac under A/UX.

US approval for the sale by Cray Research Inc of six old Cray 1 supercomputers to Israel has been held up amid suspicions that the Israelis may have illegally shared US technology with South Africa, reports United Press International.

Sun Microsystems Inc says it will establish its International Centre for Network Computing in France. It will develop new products for the SunNet line, initially at the Sun France base in Boursidiere: it looks to have 38 staff by end-1990.

Motorola Computer Systems and Logitek Plc have signed a marketing agreement under which Logitek is to be Motorola's primary UK commercial distributor for its Delta 8000 series of 88000-based RISC Unix boxes: Motorola is excited about the deal because it hopes to raise its profile by badging its own products while maintaining its industrial distributors and OEM customers; Logitek views the agreement as a way of fulfilling its dealers' growing need for a larger box than Altos Computer can offer, however, it stresses it is still committed to the Altos machines.

Co-founder Ed de Castro has given up the posts of president and chief executive at Data General to take the new post of chairman - Ronald Skates, chief operating officer, is to run the show as president and chief executive; co-founder Herb Richman, becomes the vice-chairman.

Apple Computer Inc is considering flotation on one or more European stock exchanges of a minority in its Apple Europe SA subsidiary, Agence France Presse reports from Paris: there was no word on where any flotation might take place, but Paris is likely as Apple France is the Cupertino company's second largest operation after Apple US - a flotation would give Apple much higher visibility with the financial community, and would also enable it to raise money locally for European expansion.

The First European Conference on the Practical Application of Lisp, Europol '90 is to be held in March 1990 at Cambridge, England: the conference wants to popularise the capabilities of Lisp as a programming language, as well as emphasising its role in the development of the next white hope, object-oriented systems; people wishing to participate in Europol '90 by attending or giving papers should contact David Lloyd at Applied Workstations Ltd, Dorking, Surrey.

Intergraph Corp says it has signed up with Pantone Inc for its colour graphics arts software, Matching System, which it will offer on its Clipper RISC based workstations - it will be available from the fourth quarter, no prices were given.

Sun Microsystems is to distribute Verdix Corp's Ada Development System - VADS - on its Intel and Motorola based workstations in an agreement signed with the Chantilly, Virginia, company last week: VADS includes a compiler, debugger and program generation tools.

And Verdix is to integrate VADS with Interactive Development Environment's Software through Pictures application, Atherton Technology's Software Backplane and Sun Microsystem's Network Software Environment.

Bristol based software house Ampersand Systems Ltd, is to offer Unisys users Pick applications on their Unix systems through its 4GL called &Pace, it can build packages within the Pick environment which can also be run under Unix.

Uniplex has now released version 7 of its Business Software in the UK, incorporating a user interface for X-Windows based upon IXI Ltd's X.Desktop manager which has been available in the US since August.

One bright spot in the gloom that shrouds the Unisys Corp empire is Nippon Unisys Corp, which has achieved the strong profit growth looked for from the merger between Nippon Univac and Burroughs KK: the merger created the sixth largest computer company in Japan, moving ahead of Mitsubishi Electric Corp and Oki Electric Industrial Co - ironically both major suppliers of processors to the Nippon Univac side of the house - in sales; in the year to March 31, Nippon Unisys increased its sales by 57.8% and profits by 55.8%, and sales of computers, around 40% of the total sales, rose a whopping 81.7%; in April, it also amalgamated its two software units to create Nippon Unisys Software Co, which is budgeting to increase its software development staff to 1,000 within the next three years.

We have it on good authority that the building block chip set business is so lucrative these days that Motorola Inc plans to swallow its pride and come out with a three-chip set for building 80386-based personal computers - and that with one chip changed, the set would support the 80486 microprocessor.

Chuck Peddle, whose original claim to fame was that he designed the Commodore Pet before going on to create the IBM-incompatible MS-DOS personal computer business with his Sirius Technology, the company that degenerated into Victor Technologies but not before it had put Apricot Computers Plc on the map in the UK, still has start-ups in his blood: his latest effort is called THStyme Inc - say it "this time", he has tapped Chris Buckham, formerly with Apricot to handle marketing communications, and the new company is planning a machine that can be offered as a "universal solution" in the Unix market by supporting applications written for a wide variety of Unix machines.

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AT&T TO SET UP DIRECT MARKETING FOR COMPUTER SYSTEMS IN EUROPE

AT&T has been quietly setting up an international division of its Data Systems Group, to be headed up by AT&T executive John Boyd, and based at Norfolk House in London's St James's. The new division, to be called Data Systems Group International, will mark AT&T's most serious move into the European market to date. AT&T's European interests were previously handled through its partnership with Olivetti, but as the two drew further apart over the last year, AT&T has increasingly found itself in need of a direct presence. Earlier this year it started direct sales of its 3B line in France (UX No 229). Olivetti still sells around 30,000 PCs a year to AT&T for long term contracts, but AT&T's low-end Intel-based line are now sourced from Intel's system division. Most Olivetti subsidiaries now focus on the company's own LSX line for minicomputers, although some, such as British Olivetti, have built up extensive business through value added resellers using the 3B line from AT&T. AT&T is now working on setting up its own sales channels in the UK. At the end of September, AT&T acquired UK systems integrator and services company Istel Group Ltd for £180m.

CONCURRENT REVEALS REAL-TIME ALPHA O/S PROJECT NEW MIPS SYSTEMS OUT NEXT JANUARY

Concurrent Computer Corp is working on a project - codenamed Alpha - to produce an operating system capable of handling huge, distributed, military and commercial applications in a real-time environment - and is seeking "strategic partners" to help with the thing in Europe. The project has already been funded to the tune of \$10m by the US Department of Defense, and Alpha is designed to run on a new generation of multi-processor RISC and complex instruction set systems networked with the Fibre Distributed Data Interface, from the Tinton Falls, New Jersey firm. The first of these is due to be unveiled in January, using the MIPS Computer Systems chip with which the company has been working for some time (UX No 220). The operating system, implemented in C++ (with possibly an Ada version in the future) will incorporate some aspects of expert system technology, with non-deterministic behaviour for assessing strengths and weaknesses of alternative courses of action, as well as being able to fire off multiple instructions simultaneously, rather than one after the other. Although it is still a couple of years away from completion, experimental versions of Alpha will be installed at test sites from the middle of next year, and prototypes have been in operation at Pittsburgh's Carnegie Mellon University and at General Dynamics Corp in Fort Worth, Texas, since late 1987. Concurrent says that its existing Unix System V.4 compatible real-time operating system, RTU, will plug into Alpha in its next release, as will other similarly compatible operating system technology. Concurrent is working with SRI International to produce an A1 secure version of Alpha, and with General Electric to develop fault-tolerance and application software. Primary beneficiaries will be the military, where Alpha will be used for battlefield response systems in air and space, and on sea and land. However Concurrent is also eyeing the potentially lucrative financial and banking industry, hungry for globally integrated real-time systems, and the opportunities that integration of the European market will bring in 1993. Thomson-CSF and INRIA, the French national research institute for science are among those understood to have expressed an interest in the technology. Alpha will be licensed free to those agencies that have put money into the project, and it is already in the public domain for governmental use in the US. Licences will be sold to industrial users, though no prices have been fixed yet. Alpha is the brain-child of former Carnegie Mellon researcher Doug Jensen, who has been working on the thing for over ten years, realising that conventional operating system technology cannot support the requirements of bigger and bigger applications. Jensen was signed by Concurrent last year and brought the project with him.

KLAUS LUFT QUILTS NIXDORF

Klaus Luft, who had been groomed to succeed Heinz Nixdorf as chairman and chief executive of Nixdorf Computer AG, shocked the company's supervisory board by tendering his resignation ahead of its meeting last Monday. Luft succeeded to the top job on the sudden death of the company's founder at the Hannover Fair in 1986. The tidal wave of users demanding vendor-independent standards gathered pace soon after his accession and caught the Paderborn company on the hop, and it was hit by a sharp plunge in business last year, which has accelerated this year. Luft is succeeded - at least on an interim basis - by Horst Nasko, director responsible for telecommunications, one of the bright spots in the gloom at Nixdorf. Nasko is named as board spokesman.

APRICOT HAS DUAL 486 FTSERVER

Following the announcement of Corollary Inc's multi-processing extensions to Unix at Unix Expo, which have been packaged by Santa Cruz Operation and endorsed by Compaq (UX No 256, 257, 258), the UK's Apricot Computers has emerged as the latest customer for the new system, which it will run on a 25MHz dual symmetrical processor version of its i486-based VX FTserver, announced last week. Apricot's Dual Symmetrical Processor Architecture - DSPA - gives each processor its own high speed 128K hypercache, and the two processors share the main memory and interrupt structure of the Micro Channel. The system also includes dual SCSI controllers, and Apricot says it will double the performance of current VX FTServer models running LAN Manager, SCO Unix or Novell NetWare, though only SCO MPX will support symmetrical multi-processing. Deliveries start late in the first quarter of next year: no prices.

SUN OFFERS 486 UPGRADE BOARD

Sun Microsystems is still being rather coy about when we will see an 80486-based addition to its workstation range. The bug found in the microprocessor by Compaq Computer, (UX No 256), will have certainly deferred any possible announcement to later rather than sooner, with volume shipments of the part now not expected until well into next year. However for those unable to wait, Sun has an 80486 board upgrade for its 386i workstation which it says increases performance by 2.5 to four times. The new board includes a 25MHz 80486 - rated at a rather tame 12 MIPS - and enhanced input-output components. It costs \$5,000 in the US, or £4,000 in the UK, available from the second quarter of 1990. Sun has also cut 386i prices; the 8Mb 386i/250 with 16" colour monitor and a 155Mb disk is cut 10% to \$16,490, effective immediately.

INTERGRAPH RE-PACKAGES CLIPPER FOR LOW-COST SYSTEMS

Intergraph's Advanced Processor Division has introduced a new version of its Clipper Risc microprocessor which sits below the current low-end C100 offering. The Clipper C200 chipset module comes with a central processing and floating-point unit, two cache and memory management units and a clock chip. A 25MHz version rated at 6 MIPS is \$200 for 5,000 up, the 8 MIPS, 33MHz set is \$220 in the same quantity. The central processing and floating point unit is also available separately in 25MHz and 33MHz versions which cost \$75 and \$83 respectively, again for 5,000 and up. Although structurally identical to the Clipper C100, the C200 is claimed to use a more advanced complimentary metal oxide semiconductor - CMOS - technology, which with a smaller geometry process, produces a smaller die, and more good die per wafer.

NOW ULTRANET CONNECTS SILICON GRAPHICS, FPS AND MIPS

Ultra Network Technologies Inc, San Jose, California has a family of VME host adaptors that link Silicon Graphics Inc's Professional Iris and Iris Power Series workstations to the UltraNet high-speed network, providing data transfer rates of over 5Mbytes-per-second memory to memory; host adaptor packages start at \$10,800, and include UltraNet Adaptor, coaxial transceiver and UltraNet software licence; a fibre optic transceiver is also offered; there are also UltraNet adaptors for FPS Computing Inc Model 500 series at \$14,000; and for MIPS Computer Systems Inc M/2000 servers and the new RC3260, with a version planned for the RC6280; UltraNet software is \$4,000, the hardware for MIPS starts at \$8,500 and is available for the smaller machines in the first quarter, and for the RC6280 in the second quarter, 1990.

PYRAMID SIGNS WITH SYSTECH

Pyramid Technology has signed up with Systech Corp for \$10m of its Unplug terminal input-output control subsystems for use in its MIServer systems, where they will offload terminal processing functions from the CPUs. Unplug includes terminal control functions residing in the Unix operating system kernel which provides the software interface to the single Motorola 68020-based HPS-6200 Series board, running at 16.6MHz. Pyramid will integrate these with Systech's HPS-7080 and HPS-7088 cluster controllers. Systech launched Unplug back in May, (UX No 230), and has its European headquarters in Winchester, Hampshire.

PHILIPS TO SEPARATE DATA SYSTEMS, TELECOM AGAIN

Yet another company has failed to find the expected synergy between computers and telecommunications, and having merged its Data Systems and Telecommunications divisions four years ago, Philips NV has decided to separate them again. The move is seen in part as an effort to bolster its computer side by seeking joint ventures with outside firms. The two units together do an estimated \$3,300m or so a year.

40 GO AT DATAPOINT

Datapoint Corp is slashing its marketing and sales operations in the US, reducing the unit to about 50 people from the present 90. The cuts will cause the company to take a charge of about \$2.3m against its fiscal first quarter figures, which are due to be announced any day. It did \$2.8m net this time in 1988.

QNX MOVES CLOSER TO UNIX WITH POSIX VERSION, OPEN LOOK INTERFACE

Quantum Software Systems Ltd, the Ontario, Canada-based company with the counter-Unix operating system QNX, is developing a Posix-compliant version of its real-time, multi-tasking, multi-user networked operating system. Focusing on the 1003.1 (system interface), 1003.2 (shells and tools) and 1003.4 (real-time) levels of compliance, Quantum hopes to be able to release the new version at the end of the first quarter, 1990. Binary compatibility with 386/Unix (QNX is only available for Intel architectures) is a longer term goal, according to product manager Dan Hildebrand. The Canadians, who scoff at some of the technical issues besetting Unix which they claim to have overcome in QNX, have also come up with their own object-oriented graphical user interface. By-passing X-Windows as too slow and too memory intensive, they have written their own 400k windowing system for Open Look. QNX, QNX Windows and Open Look can be booted up on a 286 machine with 1Mb RAM from a floppy, says the company, while Unix with X-Windows would require a 386-based machine with 6Mb. Like X-Windows, the QNX version is server-based, and takes advantage of the message-passing architecture of QNX to provide distributed, device-independent computing. Earlier this year, Quantum was involved as the operating system component in a sale of 550 6386 PC workgroup systems from AT&T to the Ramada hotel chain in the US and Canada (UX No 220).

PROGRESS TO UNIFY DEC ENVIRONMENTS WITH VERSION 6

Progress Software Corp is to add an interface gateway to Version 6 of its Progress fourth generation language, giving it access to DEC's Rdb/VMS relational database management system. The new version, due for release in the second quarter of next year, will also support Oracle Corp's DBMS, and will transparently read and write DEC RMS files. Progress will continue to be offered with its own RDBMS as well. The move should make Progress the first 4GL to run across RDB, RMS and Oracle for all DEC environments, allowing distributed applications across VAX/VMS, VAX/Unix and Risc/Unix operating systems. Progress supports ANSI standard SQL, and will interface with Rdb through DEC's Rdb SQL. As well as its own Data Dictionary, Progress will also support DEC's Common Data Dictionary, CDD/Plus, and native DEC editors such as EDT. The Progress Rdb Gateway, available as a front-end application development module, will cost from \$2,550 to \$115,000 depending on the processor, and will be available, with version 6, in the second quarter of the year.

INGRES ADDS SIMPLIFY INTERFACE

Ingres - the company that used to be known as Relational Technology - has a new interface for its relational database developed in conjunction with Sun Microsystems. Simplify is based on the Open Look interface, and allows users to interrogate a database and manipulate information without any knowledge of database query or report generation languages. Its four components are DataBrowse, a query editor, ReportWrite, to manipulate and format reports, SchemaDesign to design, edit and save data, and Ingres Utilities for utility selection.

EVANS & SUTHERLAND GIVES UP ON THE ES-1 AFTER TECHNICAL SNAGS

Evans & Sutherland Computer Corp, Salt Lake City, Utah has thrown in the towel on its brave effort to diversify into supercomputers with the moderately parallel ES-1, and says it will close the business down if it can't find a buyer or partner for it in 60 days. Part of the reason is that the firm has run into hardware and software problems on the ES-1 - the launch of the machine only four months ago (UX No 241) had been long delayed by problems with the chip technology (UX No 205) - and the company says it now finds that its competitive advantage is less than it had expected. If the operation is terminated, the graphics systems specialist will report a one-time loss of up to \$14m including the costs of closing the operation and writing down the assets. If it does find a partner, it will take "a number of months to make needed changes" to the big machine.

MCDONNELL R/370-MVS RUNS PICK APPLICATIONS UNDER IBM MVS

McDonnell Douglas Computer Systems Co, the Santa Ana, California company in the process of becoming a UK-registered public limited company quoted in London, has a new Pick implementation for IBM MVS mainframes. R/370-MVS runs under MVS Time Sharing Option and enables Reality and Pick applications to run on the host while maintaining the integrity of MVS. Time Sharing Option, which is designed for development and for interactive applications that require ad-hoc data manipulation, making it, claims McDonnell, the "most ideal environment for Reality and Pick applications, which are designed to maximise relational data base management concepts and real-time interactive processing." R/370-MVS is designed as a functional Reality and Pick environment and maintains MVS operating system integrity by using industry standard sort routines, and IBM's VSAM as its file structure, JES for its spooling and printing, and ISPF and its full screen editor. An early customer is Dallas-based PetroData Business Systems, which has completed installation of its Reality-based Oil & Gas Trust Accounting and Management software on a major Texas bank's IBM mainframe. McDonnell Douglas is offering the technology to US resellers operating in vertical markets where IBM mainframes are commonly used.

APPLE GEARING UP TO FLOAT OFF ITS CLARIS AND EUROPEAN OPERATIONS

Apple Computer Inc seems determined to alter its monolithic structure, and is said to be considering flotation on one or more European stock exchanges of a minority of its Apple Europe SA subsidiary, Agence France Presse reports from Paris. A flotation would give Apple much higher visibility with the financial community, and would also enable it to raise local money for European expansion. And Apple is also looking again at its plans for the Claris Corp software subsidiary in Mountain View. The original plan to float at least a minority in the unit is said to be back on the front burner now; president William Campbell told Reuters that flotation would be in "the next few quarters."

HP RE-ORGANISES RISC AND NETWORKS DIVISIONS

Hewlett-Packard has consolidated its Risc development efforts under Rick Plumer from the Apollo side of the business: HP was said to have been impressed with the DN10000 Risc development team, and now HP's other Risc development teams in California and Colorado report to Plumer in Massachusetts. And Hewlett-Packard Co has folded its Information Networks Group into its Information Systems Group to achieve tighter integration of its strategically-linked office-systems and computer-networking businesses.

TANDEM IN BULLISH MOOD FOLLOWING CYCLONE LAUNCH

Tandem Computers Inc forecasts its turnover to grow by over 24% to \$2,000m this year despite the widespread turn-down in the industry, the company told Reuters. Tandem looks for the new top-end Cyclone machine to account for half its sales volume by the end of next year, and sees the market coming from users that want to make all their data accessible to their desktop machines and can't afford to have the system go down. According to the company, the Cyclone is "half the price of a standard mainframe." It blames the relative slowdown of its European operation, which accounts for 25% of its total, to the fact that it concentrated perhaps too much on winning new accounts last year - this year it hopes to upgrade all its existing users here.

NIPPON UNISYS ADDS SUN'S SPARCSTATIONS TO ITS LINE

Although Unisys Corp is committed to building future Unix systems around the Sparc RISC microprocessor designed by Sun Microsystems Inc, it has not hitherto included any Sparc-based machines in its product line-up. Last week, however, Nippon Unisys announced that it would be taking the Sun Microsystems Sparcstation family OEM for the Japanese market, joining Fujitsu Ltd, Toshiba Corp, Oki Electric Industrial Co and Fuji Xerox as OEM customers for the Sun workstations.

...AND AT&T SAYS IT WILL FRONT-END PIXEL MACHINE WITH SPARCSTATIONS

AT&T Co has made its first positive move in the direction of Sun Microsystems Inc's Sparc microprocessor - but it is a pretty tentative one: the phone company says that its AT&T Pixel Machines graphics systems business will buy Sun Sparcstations OEM for use as front ends for the Pixel Machine graphics processor; and AT&T's Network Systems organisation will use Sparcstations in its Total Network Surveillance system to assist telephone companies in monitoring their phone networks; the two companies will also join forces for major systems integration contracts where appropriate, initially in financial services, federal and telecommunications work. AT&T is thought to be working on a new Sparc-based line to replace its aging 3B Series, but confused the issue recently by signing an OEM and joint development deal with Pyramid Corp for a new range of systems using the Mips Risc processor.

IBM AND MICROSOFT CHANGE MOST OF THE RULES ON OS/2 IN LAST DITCH RESCUE EFFORT

Maureen O'Gara reports

With its Unix business in limbo until the RT successors are launched in January to threaten IBM with terminal schizophrenia, the company is making what could well be the final attempt to salvage OS/2 - fewer than 200,000 copies have been sold in its 30-month life - as a real contender for uncommitted desk-tops rather than simply a de-facto proprietary operating system for IBM mainframe users.

At the Comdex show in Las Vegas a couple of weeks ago (UX No 258), IBM flooded the show floor with shopping bags and soft drink cups bearing the OS/2 logo, and blue-and-white TV sets in the convention centre lobby challenging attendees not to visit IBM's massive exhibit, some 100 times larger than the smaller stands, prompting one big-time competitor to accuse IBM of attempting to "buy the show". And on Monday afternoon, IBM's James Cannavino got together with Microsoft Corp's Bill Gates to map out what the two see as the future of OS/2. Users have of course been able to get 32-bit desk-top versions of Unix that exploit the native architecture of the Intel 80386 for years, and OS/2's credibility has been crippled by the fact that the only versions currently available are 16-bit. Now, as the first generation 32-bit Intel microprocessor sinks slowly in the west and the 80486 peeps over the horizon, OS/2 users are finally to get a 32-bit version of the operating system.

Plan for the 1990s

The IBM-Microsoft "Platform for the '90s" is defined as an 80486 or 80386 personal computer with 4Mb memory and 60Mb disk running OS/2 and Presentation Manager. The two promise that "the majority of their application and systems development resources will be applied to OS/2 solutions," and from the second half of 1990, IBM and Microsoft say they plan to make their graphical applications available first under OS/2. The 32-bit OS/2, will feature demand paging and the ability to run multiple MS-DOS applications concurrently, and able to support the 32-bit flat memory model - all features freely available on Unix machines that cost no more than 80386-based AT-bus or Micro Channel machines, and less than the first 80486 machines. Presentation Manager applications will run unmodified under the new version of OS/2. Early development support for 32-bit OS/2 will be available by the end of this year with a common development toolkit, and the partners warn that software developers starting new high performance or server applications for 4Mb 80386SX machines and above "should build directly on the advanced Applications Programming Interfaces of this forthcoming 32-bit version of OS/2". And OS/2 is to slip the surly bonds of the Intel architecture and be implemented for other architectures and instruction sets, including RISC. That's all very well, but plenty of people working with computers today have experience of the mainframes of 15 years ago that had no more than 512Kb memory and think that it is ridiculous to have to pay for 4Mb memory to run a simple application - and IBM and Microsoft are finally addressing this block. "Today's OS/2 1.2 is recommended for systems with at least 3Mb of memory and 30Mb fixed disk drives" they say cheerily without a trace of irony or shame.

But to make the thing a little less greedy, as a first step, they are to make the over 512Kb of memory used by the MS-DOS compatibility box available to OS/2 when the MS-DOS program is inactive - later this year. And "both companies are making a concerted effort to enable OS/2 for 2Mb entry systems," although users should plan on Microsoft Windows to implement graphical applications on machines with less than 2Mb of memory. But you'll need 4Mb to take full advantage of advanced system features such as the High Performance File System, expanded local area network client features and advanced applications. The absurdity of that statement is highlighted by the fact that the biggest 9370 can still address only a maximum of 16Mb memory. Still, the vast majority of users still don't actually need OS/2, the partners finally admit: "OS/2 is currently best suited for customers using or building database applications, needing full multi-application and background processing support, or using distributed processing solutions requiring full local network client support," they say. OS/2 is also recommended for all server applications; the 32-bit version will be further enhanced for server requirements, and advanced operating system features such as Department of Defense security, full object-oriented capabilities and symmetrical multi-processing, will be available only in future releases of 32-bit OS/2.

SAA and OS/2

MS-DOS and Windows are recommended for systems with 1Mb to 2Mb of memory or disk drives smaller than 30Mb - the first time IBM has formally endorsed Windows - although "while Windows will provide the Systems Application Architecture user interface, it is not planned to include the full range of SAA support that OS/2 will provide". Windows is not intended to be used as a server, nor will future releases contain advanced OS/2 features such as distributed processing, the 32-bit flat memory model, threads, or long file names. The companies also committed to work together to make the Database Manager, Communications Manager and LAN Requester and Server functions of IBM's OS/2 Extended Edition available to all OS/2 users and to make IBM's OS/2 LAN Server and Microsoft's LAN Manager identical over time. These local network products will be designed to run under the base OS/2 operating system in both client and server configurations, like LAN Manager does today, and will exploit 80386 and 80486 functions. And, just to underline the degree of commitment IBM and Microsoft are giving to OS/2, IBM told users that OS/2 Extended Edition 1.2 was delayed and the original ship date of this month had been put back to March.

FOUNDATION'S REVISED OSF/1 WILL NOW EMERGE LATE NEXT YEAR

The revised plans for the Open Software Foundation's OSF/1 operating system have now emerged more clearly from the frantic activity of the last few weeks (UX Nos 257,258). The new plan - made in response to member requests for the inclusion of symmetrical multi-processing and B1 level security - is for OSF/1 to become generally available in November 1990, although preliminary versions will begin filtering through to members from January of next year, under the OSF "snapshot" programme. An early version of OSF/1 was demonstrated at the meeting running on a Risc workstation. As reported, the revised OSF/1 will use Mach kernel technology from Carnegie Mellon, together with symmetrical multi-processing and parallel computing enhancements from Encore Computer Corp. Alongside will be "significant portions" of IBM's AIX operating system, networking streams technology from Mentat Inc, and the BSD 4.4 network file system code from the University of California at Berkeley. The aim is to create an operating system composed of modular elements with a small secure micro-kernel, a set of extensible server processes and transparent shared libraries for backward compatibility. And the move away from any dependence on AT&T code is highlighted in the latest set of written material from OSF, which avoids any mention of the Unix trademark throughout, and therefore does not have to credit AT&T as the trademark holder.

Mentat's Portable Streams Environment

The Mentat contribution will be its Portable Streams Environment software, a fully compatible superset of AT&T Streams that is also available for other environments, including VAX/VMS, Novell's NetWare 386 and intelligent network boards, with OS/2 and other operating system implementations in progress. Over and above Streams as implemented in Unix V.3, PSE supports fully asynchronous I/O, and scheduling and synchronisation mechanisms that, according to the company "allow real-time and multiple CPU operating systems to exploit Streams capabilities more fully". The product was developed "entirely from AT&T's publicly available Streams specifications".

HP "still prefers OSF/1 to V.4"

The new plan means that the Foundation will be in a competitive position with AT&T's Unix System V.4.1 (the secure version) and V.4.2 (the multi-processing version) by the end of 1990. There is apparently some question among OSF members as to whether the description of the two next releases of AT&T Unix have changed over the last months, and whether these versions were once called Unix V.5. The forthcoming Unix roadmap expected from Unix International should finally set this in concrete. According to an Hewlett-Packard spokesman, there was a lot of fear after the OSF Monte Carlo meeting in May that it would take two years to complete OSF/1, because of the AIX problem. But intensive work since then has cut the timescale down to this latest schedule. Because of press reports that HP wants to get out of the OSF, the company has been getting a lot of calls from other OSF members asking if it is true. HP said it would like to squash the rumours, but without disrupting the peace talks now in progress. According to Glen Osaka, manager of Open Systems Software Planning, HP still prefers the notion of OSF/1 over V.4 because of the modularity of the kernel, allowing different parts to be selected for different applications.

UNIX IN THE UK

Gossip in the Pick world is that plans to float McDonnell Douglas Information Systems International Inc on the London Stock Exchange have hit a sticky patch and that ICL has expressed interest in buying the company: such a move would greatly strengthen ICL's hand in the UK local authority market, take it into the Pick world in a big way - with particular benefit in Australia - and provide it with additional products to offer to resellers in the US; a spokesman for McDonnell said he had heard nothing of the talk, and that as far as he was aware plans to float the company in second quarter 1990 were on track.

Basingstoke-based Frontline Distribution Ltd is "under notice" from Amstrad Plc for not meeting Amstrad's criteria of "energy, commitment and success": Frontline has been an Amstrad distributor for about three years (back to the days when it was known as First Software) and has recently dropped Amstrad's PCW and portable products in favour of concentrating on the high end of the company's personal computer range - Amstrad, however, is not convinced that Frontline has the necessary commitment for such products (after all the buck for those nasty results has to stop somewhere); Frontline had no comment and is awaiting the return of chairman John Weatherhead on Thursday before making a statement - but it stands to lose half of its turnover from Amstrad's decision. Meanwhile, Frontline is set to announce a distribution deal with Sun Microsystems this Wednesday.

Employees at ITL Plc, in process of being acquired by Apricot Computers Plc, have been bracing themselves for major lay-offs. About 175 redundancies are expected, since the only aspects of the business that interest Apricot are the maintenance operation, the networking division and the Silicon Lab medical systems business. The fear is that only 30% of the current ITL staff will still be employed there in six months' time.

In the end of an era move, ICL has vacated Bridge House, situated on the picturesque banks of the River Thames at Putney Bridge, better known as the scene for the annual Oxford and Cambridge boat race: ICL UK centralised its headquarters operations in Bracknell, Berkshire at the tail end of summer; since then, any remaining ICL staff have relocated to the other Putney offices, including group headquarters at ICL House in the High Street.

Leeds-based VisionWare's XVision software, (UX No 255), which allows a PC to serve as a LAN workstation and as a Unix-based X-Window server, is now available from Unix specialist house Sphinx Ltd, Maidenhead, Berkshire. XVision allows both DOS and X-Windows applications to be viewed on the console at once - PC users can access both environments from within Microsoft's Windows graphical user interface. Installed on PCs, XVision supports TCP/IP, can host window managers such as OSF/Motif or Open Look, and will run alongside VisionWare's PC-Connect, allowing users to transparently add X-Windows to the PC - it costs £350.

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Mips Computer Systems Inc has retained Tandem Computers Inc to do on-site service to Mips customers throughout the US, with Mips continuing to administer the service.

- 0 -

Telemetrix plc's Westward Technology subsidiary has a new 20" colour 4420 terminal with Tektronix 4111 and 4014 emulation, it has a 1280 by 1024 resolution and eight colour planes.

- 0 -

McDonnell Douglas Information Systems has beaten IBM, DEC, Unisys and others to a \$63m seven-year pact to implement a state-wide computer net for the state of Queensland's major public hospitals: the system is intended to achieve savings of \$75m.

- 0 -

Intei Corp is now offering a system level 80486 processor: the AT-bus Intel 486 MicroComputer Model 401 is offered in a floor-standing version with 8Mb of 80ns memory and 8Kb of cache with room for eight half-height 5.25" devices and eight expansion boards and is £11,600 with 170Mb Winchester, cartridge tape and 3.5" and 5.25" floppies.

- 0 -

Alpha Microsystems Inc has completed acquisition of the operating assets and liabilities of Fujitsu Microsystems of America Inc, which is the Japanese company's Pick systems business and adds Fujitsu Microsystems dealers to its roster.

- 0 -

Axis Digital SA, Paris master distributor for the Santa Cruz Operation Inc, is joining forces with Synersoft SA, local distributor for Locus Computing Corp to offer a more complete range of Unix services, embracing the X-Window System, training, engineering, office automation, databases and networking.

- 0 -

Drastically downsizing itself from its new base in Greenwich, Connecticut, Elxsi Corp has sold its computer maintenance operations to National Computer Systems Inc of Minneapolis, leaving Elxsi with eight to 10 employees responsible for liquidating Elxsi's assets and satisfying liabilities, in preparation for the parent company's previously announced programme of acquisition and management of manufacturing and distribution firms.

- 0 -

Dallas, Texas based Pernetix Inc has some new software that allows MS-DOS users to access Unix using DOS commands, and Unix users to access DOS using Unix commands - PCs are linked using Pernet/pc, which goes from \$2,000 to \$4,000 for 8 to 24 users, Unix users through SMB/ix, which costs the same - the networks are connected through Net-Bios programming interfaces.

Intel is reported to have spun out the development of 80860 board and system level products to a company in which it has also taken a stake - Aquest Inc. Kanwar Chada, former product marketing manager for the 80860 Risc processor, has gone over to Aquest to take charge of this change in direction, together with Les Kohn, also from Intel. Aquest is likely to concentrate on developing a new range of high performance graphics workstations, a task for which the chip was originally intended, (UX No 221). Intel will retain overall development of the processor.

And it now seems that the much talked about enhanced version of the 80860 - the 80870 or i870 - is likely to appear in the first quarter of next year, with more support for multiprocessing, including bus snooping and cache coherency, (UX No 244).

Bedford, Massachusetts-based Interbase Software Corporation has released version 3.0 of its relational database - InterBase - incorporating distributed processing capabilities, for hardware running HP-UX, VMS or Ultrix, as well as on Sun workstations: new features include event alerters, blob filters, array support and user defined functions - prices go from \$5,000 to \$100,000 depending on configuration; five year old Interbase, part-owned by Ashton-Tate, reckons to have around 2,300 licences worldwide.

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Lynx Real-Time Systems Inc is to develop a version of its LynxOS real-time operating system for Data General's Motorola 88000-based Avilion Risc machines.

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UniForum, Santa Clara, California - the former /usr/group - has appointed Van Weathers as its director of marketing - he comes to the job from Dataquest Technology, where he was research director.

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The French Ministry of Equipment, Transportation, Lodging and Sea - Melatt - has chosen Informix's SmartWare II as its office automation package, in what Informix reckons is its largest single office automation license sale in its history, the installation will take three years to complete.

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Raleigh, North Carolina-based Yourdon International's Case tool - Cradle - which supports Yourdon's own structured methodology, YSM, is now available on Sun and Apollo workstations; it will run under X-Windows and across TCP/IP, cost is £3,000 per user: and Yourdon's Analyst/Designer toolkit now runs across Netbios-compatible networked PCs - the multi-user version starts at £3,000.

Active Memory Technology's massively parallel Distributed Array Processor - DAP - is getting some enhanced Fortran software that has been developed by a spin-off from the UK government's Alvey project, the collaboration between three companies and four universities which finishes in February next year: previous versions of the language required the user to map the problem in question on to the DAP square array - in the Fortran-Plus Enhanced version of DAP's high-level language, the compilation system maps vectors and matrices of any size and shape on to any DAP.

- 0 -

Convex Computer Corp began trading on the New York Stock Exchange last week, under the symbol CNX - the company's stock has been traded on the NASDAQ national market system since it went public in 1986: and Convex has adopted the OSF/Motif user interface for its C Series of supercomputers.

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The inaugural meeting of the European X User Group was held at the Institute of Electrical Engineers in London last week, with over 200 enthusiasts turning up to set the thing in motion. Niall Mansfield of Unipalm Ltd, Hardwick, Cambridgeshire was elected chairman and a newsletter is planned before the end of the year. An exhibition and seminar session is planned in for Easter, to be followed by a full conference and exhibition in the Autumn. The group hopes to establish similar bodies on the continent, and links with the X User Group in the US. For more information telephone 0954 211797.

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Correction: Sun Microsystems will be distributing Verdex Corp's Ada Development System on all three of its platforms, including the Sparc - not just Motorola and Intel workstations as implied in UX No 258.

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STARDENT UNVEILS NEW GENERATION MIPS-BASED TITAN STATION

Mini-super newly-wed Stardent Computer Inc, nee Stellar, nee Ardent, has produced its first offspring this week - the Stardent 3000 graphics supercomputer. It comes with one to four 32MHz MIPS Computer Systems R3000 processors, and is rated at 128 MIPS, 192 MFLOPS fully configured. With up to four 128Mb memory boards it is claimed to offer vector and three-dimensional quadrilateral-drawing speeds of up to 300,000 and 150,000 per second respectively. It supports Dore, Ardent's object oriented graphics library, but not yet Stellar's Application Visualisation System, which will be up in the first quarter of next year. Shipping in volume next month, the entry level 3000, with one 32Mb processor, a 380Mb disk drive, graphics, two SCSI channels, Network File System, a VMEbus interface, Ethernet and Unix V.3 is £72,300 in the UK - the server version without graphics is £56,000. A four processor model with 64Mb and 760Mb disk is £151,100. The 3000 comes from the Ardent side of the relationship - Ardent used the MIPS part in its Titan series, and says it will standardise on MIPS in the future - and is compatible with the Stardent 1500 system, formerly the Titan II. Upgrades to the 3000 are £20,300 each, and it claims 100 orders already. The 128Mb memory board version costs £97,500. Kubota increases Mips, Stardent output - page2.

AMDAHL DUMPS FUJITSU SUPERS, "PLANS ITS OWN"...

Amdahl Corp has abandoned its efforts to market Fujitsu Ltd's VP scientific supercomputers after selling no more than a dozen of the machines, most of them in Europe - but that will not necessarily be the end of the company's efforts in supercomputers. It seems that the reason Amdahl paid \$30m for Key Computer Laboratories in February - at the time it said only that it was interested in Key's Unix and ECL technology - is that Key has been developing a supercomputer to run under Unix, and according to Electronic News, Amdahl is hoping that the work will lead to a product that it can announce by the end of next year. According to the US trade weekly, the aim of the project is to develop a machine that would have comparable single processor vector performance and three times the scalar performance of the Cray Y-MP, and configurable up to eight processors. Amdahl declines comment on the work going on at Key, and was non-committal when Electronic News asked if it would be taking the new top-end VP2000 supercomputer from Fujitsu - but it earlier told Unigram/X that it definitely would not.

...AS THINKING MACHINES SETS 1m CPU 1 TFLOPS SUPER

Thinking Machines Corp, the Cambridge, Massachusetts firm that specialises in massively parallel supercomputers using very simple custom processors, has been awarded a \$12m contract by the US Defense Advanced Research Projects Agency to try to develop the first machine to operate at up to 1,000 GFLOPS - but don't look for it any time soon. Danny Hillis, co-founder and chief scientist, says that the thing will have as many as 1m processors, will cost \$80m to develop to production, and won't hit the streets until the mid-1990s. The US contract requires it only to deliver a scaled-down version of the new system, in 1992; Thinking Machines will also invest \$12m in the project. The company has sold about 40 of its Connection Machines and expects the first order from Japan soon - turnover last year was \$30m and it is growing at 50% or more. Its second generation CM2 machine uses 64,000 processors.

GaAs SPARCMAKER PRISMA SHUTS DOWN

In yet another shock for the supercomputer industry, Prisma Inc, the Colorado Springs, Colorado company that planned to do a computer built around a Gallium Arsenide implementation of Sun Microsystems Inc's Sparc microprocessor (UX No 198) has thrown in the towel and closed its doors. All 45 employees lost their jobs as the company decided that ECL implementations of the Sparc were coming on so fast that its market window had closed. The company had planned to begin shipments by the end of this year. Prisma was founded in 1986 to design and manufacture supercomputer-class systems for general purpose and technical computer applications.

...BUT SYSTEMS & PROCESS ENGINEERING GOES AHEAD

Despite Prisma Inc turning up its toes, there is going to be a Gallium Arsenide version of Sun Microsystems' Sparc RISC: the company has licensed Systems & Processes Engineering Corp to do one in GaAs for use in satellites and probes, data telemetry analysis ground stations and image processing and analysis. Under the agreement, Sun can license the GaAs version back and have it fabricated by any of its six other licensees; set for late 1990, the parts are to run at 200MHz, and to deliver 200 MIPS.

JAPAN'S SIGMA PROJECT OPTS FOR AT&T'S V.4

AT&T Co's Unix System V.4 has received another boost in its battle for supremacy with the Open Software Foundation's still embryonic OSF/1 Unix: the Information Promotion Agency, which is the body running the Japanese Ministry of International Trade and Industry's Sigma Project, developing a complete set of hardware and software building blocks to streamline the software development process, has decided to standardise on Unix System V Interface Definition. The Agency sees System V.4 as a solid standard for software development; AT&T aims to use the connection to design specifically for the Japanese market.

NIXDORF UK UPGRADES TARGONS TO 68030

Nixdorf Computer's UK subsidiary has begun the task of upgrading its Motorola-based Targon line with new 68030 systems, a task it began in Germany as long ago as March 1988 (UX No 172). The first system out in the UK is the 32 user Targon /31 M15, which by using a single board design to host the 33MHz processor, performs at 5.5 MIPS, according to Nixdorf. Also on the board is a Motorola MC68882 maths co-processor and 32 Kbytes of on-board cache. Upgrades can be carried out on site, and main memory can be expanded from eight to 24Mb by adding a 16Mb memory extension board. By using a new Asynchronous Terminal Controller, up to 64 terminals can be connect, although usage is limited to 32 concurrent users. A disk capacity of up to 2.1 Gb is managed by a MC68020 input/output processor.

AT&T'S INTERNATIONAL DIVISION WILL INCORPORATE ISTEEL

AT&T's new London-based international division of its Data Systems Group revealed last week, (UX No 259), will be known as AT&T Computer Systems - International, and will incorporate the computing activities of its British information technology services firm - Isteel - acquired at the end of September. In addition AT&T says that its reseller marketing operation will be joined with its Computer Systems' direct sales force and be put under the charge of vice-president Curtis Crawford.

SOFTWARE ARCHITECTS HAS OPTICAL DEVICE DRIVERS FOR A/UX

Software Architects Inc, a Bothell, Washington specialist in hooking SCSI peripherals to the Mac, has come up with drivers for attaching optical drives to Apple's A/UX-run widget set. The new software, dubbed FormatterTwo and priced at £375 each, should work with Sony, Ricoh and Mac Optics drives, though Sony is the only company producing the things in volume as yet. Software Architects sells its stuff mostly to systems integrators and figures it stands to get a piece of the recent US Air Force order for a possible 80,000 Macs over the next five years, (UX No 246).

SUN STRIKES \$10M DEAL WITH ANDERSEN CONSULTING

Sun Microsystems Inc looks for at least \$10m during the first year of an agreement under which Andersen Consulting will remarket Sun's entire line of computers and software under commercial systems integration contracts. Already under way are projects to develop software for imaging and document management, distributed databases, computer integrated manufacturing and artificial intelligence for commercial applications in the securities, insurance, air transport and manufacturing industries; a new Andersen Consulting New Age Systems Group will handle the Sun-based projects.

INFORMIX'S SMARTWARE GOES UNIX

Informix is set to release a Unix version of its SmartWare II office automation package next year, which will integrate with its database engines including the recently announced OnLine, (UX No 256). It will provide DOS-to-Unix connectivity and retain a single user interface design.

ORACLE AND STRATUS COLLABORATE FOR OLTP BUSINESS

Stratus Computer is continuing its push into the Unix market with the announcement that it is to offer Oracle V.6 on its fault-tolerant, on-line transaction processing systems from the first quarter of next year, under a five-year marketing and technology sharing agreement signed recently. First available on the Stratus XA 2000 machine under the proprietary VCS, it will be moved on to Stratus systems running Unix System V.3.2 "later in 1990". Pricing is to be announced along with product availability. Stratus launched its first full Unix option for the XA 2000 Model 30 back in October (UX No 252), promising availability for the first quarter of next year.

KUBOTA SETS THREEFOLD INCREASE IN MIPS, STARDENT OUTPUT

Agricultural machinery and building materials manufacturer Kubota Co's fledgling Kubota Computer unit is almost overnight becoming a major computer manufacturer, and pressing requirements from the two US companies in which it holds stakes, Stardent Computer Inc and MIPS Computer Systems Inc have persuaded the company of the need to triple the manufacturing capacity in its plant in the Japanese prefecture of Yamanashi. A new plant is to be built, starting next month on 40,000 square feet of land adjoining the existing plant, and is planned for completion in July next year. Capacity after completion will be around 250 units per month of Stardent's Titan, and 500 units of MIPS's M120 systems. A total of 130 people will be employed there by 1991. Kubota Computer holds 22% of Stardent Computer and 20% of MIPS Computer. The plant opened for business in 1988, and produced a total of 530 machines in the first half of 1989. And any slackening of demand in the US for the computers that Kubota manufactures is expected to be compensated for by growing demand from the Japanese market.

INDIA'S HCL OFFERS PROGRAMMING SERVICES ON UNIX V.4 IN US

It has taken many years for Indian and other third world software and systems companies to make their mark in the US and Europe, but to the consternation of those concerned that America's dominance of leading edge technologies is rapidly being eroded, the floodgates are beginning to open, and the talents of highly-skilled third world programmers that expect dramatically lower salaries than their First World counterparts are being made freely available in the US and Europe. Hindustan Computers Ltd, the New Delhi company licensed to assemble Apollo Computer workstations in India (UX No 154) realised that it was no good sitting back home in India waiting for the business arrive, and went out and established HCL America Inc in Sunnyvale, California to hawk its human wares. Now HCL has launched a software business unit to provide contract programming services to software developers that want to take advantage of the large commercial market opportunity opened up by AT&T Co's release of Unix System V.4. The Indian company boasts a staff that represents 1,200 people-years of Unix applications development experience and another 1,000 people-years of Unix system kernel development experience, the new Software Business Unit plans to capitalise on its parent's experience with multiprocessor systems in the world of commercial Unix applications. Services offered include specifying and developing commercial applications; implementing System V.4 or its applications to a variety of RISC and complex instruction set computers; supplying contract quality assurance; translating existing programs from one language to another; enhancing Unix via kernel-level writing of device drivers; and performing final product maintenance. The company is a member of Unix International's Early Access programme, which provides members with beta test versions of Unix System V.4 source code prior to general availability, and claims to be participating actively in the continuing development of Unix System V. HCL America launched its 68030-based M3000 VME-bus hardware on the the American market back in April (UX No 225).

ALSYS AND INMOS SAY ADA TRANSPUTER BUSINESS IS BOOMING

Ada specialists Alsys Ltd got together with hardware partners Inmos Ltd this week to announce the availability of the first military qualified versions of the transputer, including validated Ada compilers. Inmos is offering military customers the 16-bit IMS T222M and 32-bit IMS T800M, and says that the T400-based T425M will become available next year. The two Alsys compilers validated are a DEC VAX to transputer cross compiler, and a self-hosted version for the T800 transputer "mothered" by an IBM PC or compatible. Alsys and Inmos first announced their partnership in July 1988 (UX No 188) and say that since then there has been "a dramatic surge of international interest", including orders from Plessey, Ferranti, British Aerospace and Easams in the UK, NASA and Hughes Aircraft in the US, and The European Space Agency, IBM Germany and Inmos' parent company SGS Thomson in Europe. The suitability of Ada and the transputer for embedded applications, and complementary fault tolerant features of the language and processor are cited as the main reason for the success. As well as UK fabrication at the Inmos plant in Newport, the chips will be made at SGS Thomson's Carrollton plant in Texas.

* At its joint press event with Inmos last week, Alsys revealed that it was winning considerable business from the Japanese marketplace for its Ada compilers on Motorola processors, despite the Japanese interest in fifth generation languages.

CONCURRENT COMPUTER ADAPTS MICRO FOCUS COBOL, TOOLS FOR ITS OS/32, REAL-TIME UNIX

Concurrent Computer Corp has launched a Cobol development software package called CoDE which it claims can improve the efficiency and performance of Cobol applications by more than 75%, while cutting development time. CoDE is based on the Micro Focus Cobol product set including as it does a Cobol compiler and interpreter, Animator symbolic debugger, Forms-2 package, a performance profiler, utilities and additional tools, but it differs from it in three main ways: firstly Concurrent had to write a new code generator for its chip set, translating the Micro Focus Cobol intermediate code into Concurrent's object code. Secondly changes had to be made via the pre-processor to the compiler itself to provide an easy conversion path for users of Concurrent's proprietary Cobol compiler. Finally run-time changes have been made so that the Micro Focus symbolic debugger runs within Concurrent's Reliance transaction processing package. CoDE's performance is achieved because it compiles and debugs in intermediate code, rather than having to go into binary to reach the hardware. The intermediate code can be interpreted directly providing a quick turnaround, since code can be compiled and seen executing. In this way run-time errors or logic errors can be spotted in the intermediate code by running Micro Focus' Animator which displays source code line by line on screen. In other words, CoDE has a fully functional symbolic debugger enabling the programmer to execute one part of the code, highlight it and see the output beside it. CoDE is designed for real-time applications such as securities and trading systems, banking, health-care, government services and insurance. It runs under Concurrent's proprietary OS/32 operating system as well as under real-time Unix and is available direct from Concurrent. There is a tiered pricing structure for the set depending on the processor the developer uses.

CONTROL DATA'S MICROGNOSIS IN JAPANESE SOFTWARE PUSH

The Micrognosis Corp financial dealing systems subsidiary of Control Data Corp has established an Asia-Pacific Development Centre in Sydney, to develop software for the region, giving priority to developing software to meet the needs of the Japanese market, which suffered the least and recovered the quickest of any of the world financial markets after Meltdown Monday: the Micrognosis system is already installed at Mitsubishi and Mitsui Banks, giving a total number of dealer terminals - based on Sun-3s or Micro-VAXes and running a Japanese language version of the Micrognosis software - in the several hundreds; the company is hopeful that it will win a contract due to be awarded shortly that will run into thousands of dealer terminals.

IBM LAUNCHES 80860 PS/2 BUSMASTER WIZARD ADAPTOR

IBM has launched its first major bus-mastering coprocessor for the PS/2 in the shape of the Wizard Adaptor, an 80860 RISC board that will ship before year-end to customers and third party application developers. Wizard enables compute-intensive tasks or whole applications to be moved from the 80386 or 80486 and execute much faster on the 80860. The new board, with a 33MHz Intel 80860 microprocessor, is an application accelerator busmaster card for PS/2 Models 70 and 80 designed for advanced, numeric-intensive applications. The 80860 processor features a RISC integer core, an advanced floating point processing unit, a graphics unit, and internal instruction cache and data cache in a single 1m transistor chip. The adaptor has 2Mb of random access memory, expandable to a 8Mb using the PS/2 Wizard Memory Expansion Option. The Adaptor uses a set of application device drivers for OS/2 which control the processor and provide interface functions to the 80386 and 80486. IBM intends to provide AIX support in a future release. Applications have to be recompiled to run with the 80860 processor. The Wizard Adaptor, which IBM rates at 3.8 MFLOPS on the Linpack Single Precision benchmark when installed in a 25MHz PS/2 Model 70, costs \$7,000 in the US, and Wizard Memory is \$3,685. Both are available on a limited basis from December 29, and on general release in the second quarter 1990.

...AND ASSEMBLER, C TOOLS FOR IT

The Intel 80860 OS/2 Software Development Tools is a program containing the software tools required to develop applications for the application accelerator busmaster card, PS/2 Wizard Adaptor. It increases performance by adding an 80860 microprocessor for advanced, numeric-intensive applications. The Tools comprise an assembler, linker, simulator debug facility, C compiler and C libraries, with access to all 80860 microprocessor capabilities. Intel plans to announce a similar toolkit for OS/2 Fortran applications in the second quarter of 1990, which IBM will remarket. Special support will be provided by IBM to registered software developers for a limited time, via a Limited Availability Developer Support Programme. There is limited availability from December 29, with full availability in the second quarter of 1990, and a one-time charge of \$1,475.

HOW COBOL WITHSTOOD THE FOURTH-GENERATION

by John Abbott

Just as Unix is turning hardware into a commodity item, reducing a user's dependence on a single supplier, so the gradual establishment of the SQL structured query language is doing the same thing to database vendors. So says a new report on fourth generation languages, written by research team Martin Butler and Robin Bloor, which appropriately takes an end of the decade look at a market sector that seems to have promised a lot more than it delivered. From the early eighties on, unfortunate Cobol developers were bombarded with sales and marketing pitches telling them that they were shortly to become obsolescent, replaced by technical users (not necessarily programmers at all) with tools that could produce complex applications at ten times the speed, with the added benefits of portability and flexibility thrown in. In theory, most commercial software authors should have abandoned 3GLs altogether by now. In practice, it is estimated that Cobol is still used for over 40% of the current systems produced in the United States, while use of the C language, spurred on by its advantages of portability and close ties with Unix, has boomed. What went wrong, and what is now right?

The report - 4GLs: an Evaluation and Comparison, published by ButlerBloor Ltd of Hull - identifies a number of crucial factors essential to the success of a fourth generation language that were not widely recognised initially. The common factor that tied the twenty-two fourth generation language products studied in the report turned out to be their use of a data dictionary, holding fields, database tables, forms, and occasionally procedures. The 4GL is simply a front-end for exploiting the information in that dictionary, and code should be developed with this in mind. It is better, says the report, to think in terms of a fourth generation environment, consisting of dictionary, forms management package, query language, report writer and conventional 3GL, which encourages more effort on the original analysis and design stages that many 4GL vendors have led us to believe are no longer necessary. 4GLs impress when generating routines of commonly used functions - such as a simple file maintenance transaction - but often fall down when a non-standard task is required. One case study in the report tells of a user spending two weeks "bending" a 4GL product to produce a bar code routine that would have taken one hour in a conventional language.

Performance trade-off

One aspect of 4GLs that did become rapidly evident was that functionality in 4GLs was nearly always gained at the expense of performance. Early 4GL-produced software was often notoriously slow and memory hungry. Not only that, but the advantages of elements adaptable by the end user often led to the production of over complex reporting tasks that could take up vast amounts of CPU time. Looking for ease of use led many of the early 4GLs to opt for a non-procedural approach to their languages, leading to an inflexibility that has been avoided by the newer, procedural 4GLs. And one area that is still rarely addressed in 4GLs is a good debugging facility - surprising since a recent survey by Ready Systems Inc revealed that software maintenance can account for 67% of the total project cost, with testing set at 15%, requirements, analysis and design at 11%, and coding itself a mere 7%.

\$3,000m market is target for 4GLs

Despite all this, the 4GL market is very healthy, with estimates of a \$3,000m market for databases and 4GLs during 1990. The products themselves have developed from the earliest versions, and new generation hardware is now more capable of coping with the extra overheads 4GLs demand. As the report points out, most of the major independent software houses - Computer Associates, Oracle, Ashton-Tate, Ingres, Cincom, Software AG Cognos and Information Builders - are all offering 4GL products, and there are promising products from smaller, but significant companies such as Sybase, Unify, and the Netherlands-based company Uniface. Around 40 products on the market are available on DEC VAX platforms, and 30 or so run on Unix. Very few are now specific to a single hardware platform. The report covers 22 products including the VAX specific Systel and IBM specific Synon/2. The other 20 are all available on Unix, aside from Software AG's Natural product and Computer Associates CA-DB:Gen, which will both be available in Unix versions "soon".

The report divides product assessment into six categories: development environment, performance, architecture and scope, inter-operability, end user functionality and portability. Overall, the best ratings are achieved by Computer Associates and Software AG, which both score top marks on performance and architecture and scope. CA-DB from Computer Associates is in fact the software it acquired from its takeover of Cullinet last year, and is not strictly a 4GL at all, but an applications generator producing 3GL code with embedded SQL, resulting in high performance, and "open" Fortran, Cobol or C code not constrained to either a proprietary database or 4GL.

The good, the bad and the ugly

The pay off is maintenance, as there is currently no means of reverse engineering the 3GL code produced back to the 4GL. The other products singled out by the report include Accell from Unify, and Uniface, which is also bundled in Europe with the Sybase database as Fastbuild. These products gain top marks for the development environment, with the Uniface product making extensive use of a powerful data dictionary, with good forms management and full database independence. Those not faring so well include Today (now owned by the giant Computer Power Group), which is criticised for its largely non-procedural approach, and the older 4GLs such as Microprocessor Development Group's Sculptor (hard to interface with 3GLs) and the UK National Computer Centre's Filetab. Other products covered include Focus, Informix, Ingres, Mimer, Oracle, Powerhouse, Pro IV, Progress and SAS.

Commodity databases will force 4GL differentiation

The 4GL explosion is only just beginning. The widespread use of SQL means that database prices will begin to fall, and vendors must find a way of differentiating their products from their competitors. Of the trends in the 4GL marketplace, the most important is database independence, identified astutely by Unify Corp, which recently unbundled its Accell set of tools from its own database, and even persuaded its deadly rival Oracle to market them. Taking inter-operability further, it is likely that some vendors will release "reverse engineering products" that will allow users to switch from one 4GL to another if they wish, thus breaking the language lock-in. This has already been done with 3GLs such as Cobol, and should be far easier with 4GL products. Object-oriented functionality will become increasingly important, with closer ties between 4GL and 3GL class libraries. And says the report, the move in hardware to client/server configurations will largely address the performance limitations, particularly associated with functions such as scrolled areas, windowing and the use of high level constructs - client/server hardware architectures being "the ideal hardware set-up for 4GL systems". Perhaps the days of Cobol are numbered after all.

4GLs: an Evaluation and Comparison, is available from ButlerBloor Ltd of Hull, UK, priced at £380. Telephone +44 482 227511.

HEWLETT CHALLENGES IBM, DEC WITH NEWWAVE OFFICE

Hewlett-Packard Co yesterday laid down the gauntlet to IBM with OfficeVision and DEC with All-In-1 by introducing HP NewWave Office, an integrated office system for its MPE-V and MPE-XL HP 3000 machines, HP-UX, and OS/2 and which brings together some 15 new or enhanced capabilities. Designed to enable users to integrate systems and applications from multiple vendors, the system is already supported by "over 60 software developers and resellers" which are contributing a full range of word-processing, spreadsheet, database, graphics, communications and multimedia applications, as well as vertical market applications. The major components of HP NewWave Office are the existing NewWave environment, designed to offer a consistent graphical user interface and integration of existing and new applications on micros running OS/2; information services, which provide access to a range of data sources and electronic mail over public and private networks; and system services for networked personal computer management and sharing of computer resources. Pricing ranges from \$1,300 for a four-user licence to \$84,210 for multi-user-server licences, depending on the services bought and the size of the system, and there is a choice of user-based and system-level pricing. US orders for it are being taken from December 1.

S&H'S TSX-32 OPERATING SYSTEM DEBUTS AT DEC USER SHOW

S&H Computer Systems, Nashville, Tennessee, introduced its TSX-32 operating system at last week's DEC User show in London, through UK distributors Ace Microsystems and JPY Associates. TSX-32 is touted as a jack-of-all-trades, incorporating real-time, multi-user, multi-processing and networking features for Intel's 386 and 486 microprocessors. It is claimed to offer a similar interface to the majority of operating systems on DEC PDP-11 and VAX systems, and to offer an upgrade for 386 and 486 machines without the trials and tribulations of having to adapt to Unix or Xenix. It provides a multi-user MS-DOS environment, will run "well-behaved MS-DOS programs," and supports DECnet, TCP/IP and Novell's Netware networking software.

METIER LAUNCHES ADEPT PROJECT MANAGEMENT FOR UK GOVERNMENT

Metier Management Systems, Hayes, Middlesex, has launched a new software package - Adept - that supports the UK government's Prompt methodology, and the new Prince structured methodology for the control of IT projects from the first quarter of next year. It is based on the Artemis database language, and follows three years of work between Metier and the CCTA developing an automatic planning and control system integrating Prompt with SSADM. Adept operates in conjunction with Artemis 2000 or 7000 and runs under Unix, VMS or on PCs - inclusive prices for Artemis with Adept start at £1,600.

AT&T ENHANCES OPEN LOOK, HAS NEW X GRAPHICS TERMINAL

Although AT&T's Unix Software Operation took up most of the attention at the recent Unix Expo show in New York, AT&T Computer Systems also took the opportunity to launch graphics related products, including a new software tool to help developers to write applications for the Open Look graphical user interface, and two X-Windows products: the 730X Terminal and software allowing PCs to act as X Terminals. The new tool, called Open Look Express, simplifies the task of writing Open Look applications by offering an interface drawing tool that negates the need for coding. The tool is designed for developers who are not X-Windowing system programming experts. Other enhancements to Open Look included improvements to the graphical user interface and end-user systems, as well as to the toolkit and XWIN windowing system. AT&T will also be selling on Locus' PC Xsight Server Release 2.1 to run on its Intel-based MS-DOS PCs. The new 730X Terminal is an X version of AT&T's 630 MTG multi-tasking terminal with graphics. The terminal includes a 1024 x 1024 high resolution screen, and includes a StarLAN 10 network access unit with ISO or TCP/IP protocols for 10 Mbit/sec host connections. MS-DOS applications can also be accessed on AT&T hosts by using AT&T's Simultask software, which includes a limited MS-DOS emulator, and allows users to move back and forth between X and non-X applications (including the MTG environment). The terminal includes a removable cartridge containing the X software.

APPREHENSION RULES AT ITL AFTER APRICOT FIRES 175 OF THE WORKFORCE

ITL Plc, in the process of being acquired by Apricot Computers Plc, now calls itself Apricot/ITL, and has confirmed that 175 members of staff lost their jobs in Apricot's overhaul of what was the last independent minimaker in the UK. Managing director Peter Aldershaw says that the redundancies were in sales and marketing, in design, and in areas of central overhead duplication. There have been suggestions that maintenance and networking operations were to expand and achieve a greater degree of autonomy, but Aldershaw says that any expansion in headcount arises from internal re-organisation. Staff formerly included in the manufacturing headcount, a total of 25 in October of this year, but working on networking systems, have been shifted to the networking count. ITL has been designing a fault-tolerant processor to run Sequoia Systems' fault-tolerant implementation of Unix, and in the interim, buying Unix machines OEM from Motorola Inc. When Apricot announced the agreed acquisition in October, ITL expected both activities to continue, despite the apparent overlap with multi-processor Unix machines that Apricot buys OEM from Sequent Computer Systems. Apricot hasn't confirmed that the design project will continue, but has said that existing Sequoia and Motorola customers will be supported.

ICL WINS £3M UNIX DEAL FROM PORTUGUESE GOVERNMENT

ICL is to supply an office automation system for the Ministerial Cabinets of the Portuguese Government in a deal worth £3m that will involve up to 4,000 employees - first recipient will be Prime Minister, Professor Cavaco Silva. Phase one of the project includes 28 DRS 400E and DRS 300 minis running Unix and OfficePower, 100 DRS 30 workstations and 57 laptop PCs. Phase two will include the networking of systems.

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C.Itoh Electronics, Irvine, California, is pitching itself into the booming X-terminal workstation market with its CIT-X monochrome Network Display Station, which supports X-Windows and DECwindows. It is built around a 12.5MHz Motorola 68301 processor and a Texas Instruments 34010 graphics chip, with VT52, VT100 and VT220 terminal emulation. It comes with up to 2.5Mb RAM, supports Telnet, TCP/IP, Ethernet, and a 15" monitor. It costs \$2,795, and C.Itoh says that DECNet compatibility will be added by the middle of next year.

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Graphics software outfit V.I. Corp, Amherst, Massachusetts, has introduced a new version 7.0 of its object-orientated DataViews toolset for developing graphical user interfaces. The new release includes a menu handler, allowing developers to choose from a set of pre-defined input objects. Unlike other interfaces - such as Motif and New Wave - DataViews provides facilities for output in addition to input. DataViews 7.0 is available running under X-windows, on VMS, Ultrix, and Sun and Hewlett-Packard workstations. It will be running under AIX by the end of the year and supports all Risc processors and Intel 386 based PC systems. Price is £14,700, and upgrades are free. DataViews was used by scientists at NASA's Jet Propulsion Lab to produce two-dimensional real-time displays of the Voyager II spacecraft's recent encounter with the planet Neptune. Three-year-old V.I. reckons to have sold over 2,000 DataViews licences, and has a marketing agreement with Concurrent Computer Corporation - formerly Masscomp - which goes back to March 1987. (UX No 121).

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Also at the Show, Demax Software, now with UK offices in Wimbledon, was showing its Securepak security management software, which it claims would have protected users against the much publicised "Worms Against Nuclear Killers" worm which attacked the NASA computer network and DECnet installations: Demax was formed in April this year with the acquisition of Ottawa, Canada-based disk management and security firm Demac Software, and with 60 employees worldwide, is headquartered in San Mateo, California - the company is planning to migrate its VMS products into the Ultrix environment "sometime" in the future.

Data management and analysis specialists SPSS has produced a version of its SPSS-X software that runs on the Mips Risc-based DECsystem 5400 and 5810/5820 running under Ultrix: now available in the UK, the cost is £4,000 and £7,400 respectively.

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Information Builders Ltd, Wembley, Middlesex, now has an Ultrix implementation of the Focus 4GL and database for DEC's range of Risc systems, as well as on the new top end VAX 9000 Series, (UX No 255).

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Sybase gave the first public showing in the UK of its Version 4 on-line relational database system at the recent DEC User Show in Wembley.

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The European Database Group of Ascot in Berkshire held the debut of its Digital Information Access Library, DIAL-Europe, at the show: the aim is to link DEC and Unix suppliers with distributors and users throughout Europe.

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Canadian software outfit Cognos announced that it has signed up the Hoskyns Group to distribute its range of PowerHouse 4GL products worldwide: Hoskyns recently acquired specialist UK Unix house the Instruction Set, (UX No 252), and is making a determined drive into the Unix marketplace.

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General Motors Corp's Hughes Aircraft Co has picked sister company Electronic Data Systems Corp, plus Data General Corp, Autometric and Spatial Data Enterprises to join its bid for a \$210m four year computer modernisation contract with the US Bureau of Land Management: the project requires an integrated communications network involving more than 1,000 workstations running geographic information systems and office automation applications.

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Unify Corp has set up an Australian subsidiary - Unify Australia - in conjunction with the Lionel Singer Corporation Pty to distribute the Unify database products Down Under.

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Ferrari Holdings Plc, determined to build a third party computer maintenance business to rival that of Granada Group Plc, and MBS Plc, now a rump of the original company in which maintenance is the main surviving business, say they are holding discussions that may lead to Ferrari making an offer for MBS.

Unisys Corp is in such a parlous state these days that a \$1.625 jump in the share price, as happened on Friday, when the shares closed at \$16.125, raises more than the odd eyebrow: Wall Street gossip is of a bid from AT&T Co, and a break-up bid is also a possibility, although many of the assets would be difficult to dispose of at good prices.

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International Data Corp has been looking at desktop Unix systems running commercial applications, and reckons that at the end of last year, there were just over 1m such systems installed worldwide: 42% were running Xenix or another personal computer Unix on Intel iAPX-86 family systems; 26% were running Unix System V; 13% were running one or other of the three Berkeley versions; 6% were Hewlett-Packard HP-UX systems; 5% were Apollo Computer's Aegis, which now adds to the Hewlett-Packard total; 3% were DEC's Ultrix on MicroVAX; 3% were IBM's AIX; leaving 2% for others.

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Ingres Corp says that its Ingres 6 relational database is now available to IBM 6150 users.

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BBN Advanced Computers has been working with Advanced Rotocraft Technology of Mountain View California, to port the Flightlab simulation design software to its new TC2000 multi-processor: the TC2000, which uses from 8 to 504 Motorola 88000 processors, will be used for producing helicopter flight simulators at NASA's Ames Research Center.

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SUN UNVEILS FIRST PURPOSE-BUILT SPARC SERVERS

Sun Microsystems has expanded its server range with the launch of two new products, including a low-end SPARCserver 1 and a new top-end system - the SPARCserver 490 - which is Sun's first server system to be purpose designed rather than derived from its mainstream workstation line. The SPARCserver 490 uses the 33MHz Cypress implementation of Sun's SPARC processor, rated at 22 MIPS and 3.8 MFLOPS double precision, and includes a more powerful input/output subsystem with a 64-bit memory bus capable of sustained throughput of 120 Mb/sec, a new Sun-patented I/O cache, and higher speed VMEbus that supports I/O transfer rates of 22 Mb/sec. The box is intended as a general purpose file, database and compute server, and the boosted I/O allows the system to take advantage of Sun's Intelligent Periphera! Interface (IPI) disk drives, first introduced with the SPARCserver 390 last April (UX No 227). A new memory management system increases context switching speed, allowing the server to also act as a multi-user system for up to 130 terminals - typically, the machine would support from 30 to 200 network users, depending on the mix of workstations, PCs and terminals in use. A system including 32Mb of main memory (expandable to 160Mb ECC memory) and 1Gb of IPI storage costs £89,400. The Sparcserver 1 is aimed at workgroups of between 5 and 15 users, and has the same 20MHz, 12.5 MIPS SPARC from LSI Logic used in the SPARCstation 1. With from 8-16Mb memory, up to four external 327Mb external disks, three SBus expansion slots, support for the new SunCD ROM storage unit and 150Mb tape backup, the system is claimed to be as fast as the DECsystem 3100 server but 40% cheaper and with 10 times the applications, according to Sun. Cost is £16,900 for a system with 8Mb main memory, 654Mb disk storage and 150Mb tape. Database vendors Informix, Ingres, Oracle and Sybase supported the launch.

SONY'S RISC PLANS REVEAL TWO MORE MIPS CHIPS IN THE PIPELINE

In London last week, Sony Microsystems - ostensibly in town for the UK announcement of its already previewed Mips Computer Systems R3000-based NWS-3800 NEWS Risc workstation, and a new low-end 1500 Series NWS-1520 offering - surprised industry observers with news that it is currently working with unannounced R4000 and R3500 Risc microprocessors from the Sunnyvale, California chipmaker, with a view to adopting either one or the other - or both - for use in future NEWS workstation products. Previously the R4000 was mooted by observers to be the name of the ECL successor to the R3000 part. However Mips preferred to call that chip the R6000 - because it is claimed to double the performance of the R3000 - and launched it in a new range of systems last month, (UX No 256). Along with Japanese rivals NEC, Sony has already committed to fabricating the R6000 processor - it says volume shipments should be available by the middle of next year. The new 50MHz R3500 and 33MHz R4000 Mips Risc processors Sony is using in its research and development laboratories in Tokyo have been cast by semiconductor outfit LSI Logic - Mips has previously used Bipolar Intergrated Technology as the initial source of supply for its chip technology. Sony has been working with early versions this month, but expects to receive more substantial quantities by March of next year according to Mr Nakamura, general manager of Sony Microsystems Europe. He said that future development plans could include one or other, or both both the R3500 and R4000 - indeed both were plain to see in a slide presentation of Sony's product evolution plans for the early 1990s. In light of these revelations, the R35000 processor - an upgraded R3000 chip set - is likely to hit the streets by the middle of next year, though the R4000 is reckoned to be at least a year away from delivery onto the market, according to sources. For its part Mips Computer Systems is keeping quiet about the new processors, furthermore according to a spokesperson it seems unlikely that much will be heard from the company at all until towards the end of January - reason is that Mips is under a legal obligation not to disclose any business information until the plans for its public offering have been finalised, (UX No 257). New Sony workstations - see page 3.

SAMSUNG WILL SECOND-SOURCE INTERGRAPH'S CLIPPER

Intergraph Corp, which has been looking for second sources for its Clipper RISC microprocessor family for some time has, as expected (UX No 254) signed the Samsung Semiconductor Business Division division of Samsung Electronics Corp to manufacture and market Clipper components on a worldwide basis, and the two companies will co-operate in development of future chips based on the Clipper architecture. The value of the "multi-million dollar" accord was not released. Samsung, which already has a similar agreement with Hewlett-Packard Co for the Precision Architecture RISC, will initially focus on manufacturing and marketing the second generation Clipper C300, in both chip and module formats. It is also permitted to manufacture and market the lower cost C200 (UX No 259) and future versions of the chip. Samsung expects to begin production of the C300 wafers in July 1990, with volume by December 1990. Intergraph claims that over 33,000 Clipper-based systems have so far been shipped around the world.

AT&T STRIKES PLEXUS DEAL

Plexus Software Inc, the remains of Plexus Computers after its withdrawal from the hardware market and acquisition by Recognition Equipment Inc (UX No 204, 238), is now actively looking for takers interested in its XDP Extended Data Processing imaging software, and has entered into an agreement with AT&T to market the package on AT&T Unix systems through systems integrators. The two companies will jointly work on industry specific applications for the system, which uses optical storage, laser printers and optical scanners connected via local area networks such as AT&T's StarLAN system. Primary markets are federal and state governments, health care, pharmaceutical companies, insurance companies and banks. Prices vary with the configuration. Plexus is also working on deals with Am-dahl Corp and NCR.

X/OPEN, UNIFORM TO COOPERATE - UI AND OSFTALK

X/Open has confirmed that it will be joining forces with Unix User Group UniForum in "a broad cooperative relationship that will accelerate the emergence of practical open systems" (UX No 257). The two plan a multi-vendor, multi-platform portability demonstration at the UniForum show in Washington DC next month. And Unix International and the Open Software Foundation have reportedly begun joint work on a business plan for a combined organisation.

AMI OFFERS 486 UPGRADES FOR AT COMPATIBLES

American Megatrends Inc, Norcross, Georgia, has two Intel 80486 upgrade boards for AT bus-compatible systems. The Voyager/486 is rated at 11 MIPS and runs at 25MHz, with a 33MHz version planned when the chips become available. The motherboard comes with 8Mb memory and an additional 8Mb plug-in memory card. It has eight input-output slots and starts at \$4,900 in single unit quantities. The Gemini/486 is again rated at 11 MIPS at 25MHz with a 33MHz version planned, has a total of 16Mb RAM, but with less on-board peripheral support it costs \$4,500.

GUPTA MOVES ITS SQLBASE SERVER TO SUN'S SPARC

Gupta Technologies Inc, the Menlo Park, California company that provides database and SQL solutions for PCs over local area networks, with connections to mini and mainframe computers, is knocking on the Unix door with the announcement of its SQLBase Server version 4.0 for Sun Microsystems' Sparc systems, available from the beginning of next year. SQLBase will reside on a PC running DOS or OS/2 acting as a database server for the Sun over standard PC LANs. Initially it will run under SunOS 4.0 using TCP/IP, with Network File System and Open Network Computing support planned - it costs from \$5,000 to \$15,000. Gupta's Microsoft Windows and Presentation Manager environment - SQL Windows - will run on the system, bringing a true database windowing package within the reaches of the Unix community - it allows the transportation of data to and from different database applications. Gupta is also set to begin challenging the established Unix software fraternity - it is currently working on an X-Window version of its software - at present there are no X-Windowing database applications available from the Unix houses. SQLBase Server connectivity now extends to the Oracle relational database and OS/2 Extended Edition Data Manager, and Gupta has plans for a full Unix portfolio by the middle of next year together with a Case tool, browser and report writer for SQL Windows. Gupta has also started up a European operation - Gavin Whichello is vice president for Gupta Europe, and John Wilson becomes general manager for Gupta Technologies UK - both are based in London's Oxford Street in the West End. In the US Chuck Ellison, formerly with Ashton-Tate and Microrim has been appointed vice president of sales and marketing.

DEC EXPANDS IMAGE OFFERINGS

DEC has joined the scramble to win a seat at the top table in the suddenly fashionable world of image processing. Few details are available but it has come out with new and enhanced image products, and has teamed with Eastman Kodak Co, saying that the two will work closely together in the development and marketing of imaging products, in particular Kodak's image management system and optical drives. A new DECimage Storage Manager is designed to enable companies to develop and access big centralised image data files, and there's a new DECimage Application Service and DECimage Scan program.

IBM JAPAN'S LOW-END 80386SX PS/2 "HERALDS SIMILAR OFFERING IN US"

IBM has been saying for some time that the entire PS/2 line would ultimately go 80386, and the 80386SX has hastened the day. IBM Japan has been given the pioneering role in bringing the Micro Channel PS/2s down market and has come out with a low-price version of the PS/2 Model 55Z aimed at the home and small business market, reports Newsbytes Japan, which says that the machine is also expected to be launched in the US next spring. The PS/55Z Model 5530Z SX has 2Mb memory expandable to 16Mb, a 12" colour display putting up 1,024 by 768 pixels and the machine sells for \$3,000 with a 3.5" floppy in Japan - but personal computers are rather cheaper in the US than in Japan, so the US pricing is likely to be rather keener. IBM Japan insists that the US version will have the same basic configuration as its own, and suggests that the new model will take over from the Model 30 as the workhorse of the family in the early 1990s.

GIPSI, FRANCE WEIGHS IN WITH FOUR HIGH-PERFORMANCE X TERMINALS

Gipsi SA, Paris has entered the X-Window display terminal business with the tX family, aimed at networked computer systems, offering users concurrent windowed access to multiple machines on a network, Electronique Actualites reports. The infant X terminal market is said to be growing at about 100% a year, and Gipsi forecasts that value of the overall market addressed by the tX reach \$50m in 1990 rising to \$120m in 1991. Anxious to launch itself into this market niche, the manufacturer pitches the terminal as an alternative to entry level workstations and networked micros: it combines a Motorola 68030 CPU with the GROB Gipsi RasterOp Booster graphics co-processor. The company also plans to support extensions of the X protocol, such as the PEX Phigs Extended X which supports connection different peripherals and sets up a utilities window so that the user can adapt the terminal for specific requirements. The original tX has been available since September, three further models, the Me, C4 and C8, arrive this month with prices ranging from \$3,600 for the basic 2Mb model to \$8,800 for the top of the range. These additional models have up to 8Mb of memory and all are equipped with 19" screen, except the C4, which has a 16" screen. The number of memory planes varies from one to eight, each with its own graphics co-processor, all operating in parallel.

UNIXSYS UK DISTANCES ITSELF FROM UNIXSYS FRANCE

Unixsys UK, the independent distribution arm of the Paris-based systems maker Unixsys, is distancing itself from its French namesake, which has been undergoing financial difficulties over the last few months. The French company, that a few years ago claimed to have the largest installed base of Intel Unix systems in its domestic marketplace, has a 15% to 18% stake in Unixsys UK, which has until now sold on Unixsys-badged machines, sourced from Taiwanese manufacturer Acer. Unixsys UK has re-focused its operations, selling off its hardware engineering department to concentrate on value-added software, including SoftQuad publishing software, general business systems and health care: it now buys Acer hardware from Dacom Ltd, and is also a value-added reseller for Bull HN. A name change may be also be in the pipeline, according to managing director Jan Klin, who says that the similarly named (but much larger) Unisys Corp is currently negotiating to acquire rights to the name in the UK.

SONY LAUNCHES NEW WORKSTATIONS - SETS UP DIRECT UK OPERATION

Sony's NEWS workstation range now has a new head and tail. The top-end NWS-3880 Risc machine, which was unveiled in Japan back in October, (UX No 254), has a claimed 20 MIPS and 3.5 MFLOPS performance, and will cost around £22,000 in the UK when it becomes available from February. It features a dual-processor configuration, with a 20MHz Mips R3000 Risc chip acting as CPU and a Motorola 68030 Cisc part controlling input-output functions. Software includes BSD 4.3 Unix, X-Windows, TCP/IP and NFS. Hardware supplied is a 640Mb disk, 150Mb tape and two SCSI controllers. The entry-level NWS-1520, built around a 25MHz 68030, with 4Mb memory and 3.9 MIPS performance costs £4,500, with the same range of software as the 3800. All the Risc and Cisc systems in Sony's NEWS range are source-code compatible. AT&T's Unix V.4 is being ported across to the range, and will be standard from the middle of next year. In other new year resolutions, Sony promises a new DAT system, video and workstation interfaces, and parallel processing capabilities. In the UK, Sony Microsystems has appointed former Apollo product marketing manager Steve Boniwell to head up its new operation based in Staines, Middlesex - a porting and support centre will be established in the future. Boniwell expects to sign up some five or more new UK distributors over the course of next year.

...BUILDS ITS NEURAL COMPUTER FUTURE AROUND INTEL 80860 RISC

Sony Corp claims to have developed the basic technology needed to produce neuron computers - and has adopted Intel Corp's new 80860 RISC microprocessor as the building block element in its system. It currently has a four-processor prototype but its target is a 128-processor system built around the RISCs, which it reckons should be capable of making up to 1,000m connections - or firings of synapses between the node processors, per second, to be finished in 1992.

TI INTRODUCES NEW 386-BASED SYSTEMS

Texas Instruments has introduced the first member of a new line of intel-based workstations - the TI 386/33, which it says will provide "an economical complement" to its Motorola-based T1000 multi-user systems. Using the 33MHz version of Intel's 80386 processor, the new machine will be used either as stand-alone systems or as network stations attached to T100 installations. For \$6,995, the system includes 2Mb RAM (expandable to 36Mb), one parallel and two serial ports, 32k cache, seven expansion slots and a 1.2Mb floppy disk. An IDE hard disk controller and support for a floppy disk controller are also included. Available immediately.

HP - APOLLO INTEGRATION IS ON SCHEDULE

HP says that the integration of Apollo Systems Division into its Workstation Group is moving ahead on schedule, and that it hopes to realise reduced manufacturing costs on all of its workstation products as a side benefit. The company plans to continue investment in its 80X86, Motorola 680X0 and Risc platforms, and extend its multi-vendor connectivity Team Computing strategy. Around the middle of year, the company will bring out its first merged 68000 family of systems.

HP EXPANDS ON ITS 1990 RISC PLANS

Hewlett-Packard Co, which early last month was already promising fault-tolerant multiprocessor models in its Precision Architecture RISC-based families for next year (UX No 257) amplified on its plans to analysts this week. As well as promising much enhanced transaction processing software, Hewlett said that new CMOS versions of its RISC will more than double the performance level of the company's current top-end HP 3000 Series 960. The new chip set will be available as a board upgrade on both the HP3000 MPE and HP9000 Unix systems; a workstation version of the chip set is nearing completion, with product-specific details to be announced in the second half of 1990. HP says its design technology enables it to put its entire RISC on a single chip, thereby at least doubling the performance of its minicomputers and workstations: the chip is about 2" square and integrates nearly 1m transistors; it has 400 pins and will be fabricated in 0.8 micron CMOS; it will draw less than 10W of power and will offer clock speeds greater than 48MHz; HP claims that integer performance will reach 50 to 60 MIPS and floating-point performance 12 MFLOPS to 16 MFLOPS; the chip will go into machines that will be priced at between \$12,000 to \$1m for high-end multiprocessors and a key feature is the capability to build in different cache designs depending on whether the chip is destined for workstations that will be required to do intensive floating-point operations or for integer-intensive business applications.

...BUT MAY BE HEADING FOR LAYOFFS

The end of January may see the first ever layoffs at HP's Silicon Valley divisions, though they might not be called that. In a continuing effort to cut costs and improve its sagging finances, sources say administrative positions within the Business Systems Division in Cupertino, at corporate headquarters in Palo Alto, and possibly elsewhere within the vast and geographically dispersed computer maker's organisation, have been declared "excessed", not laid off. Sources say those unlucky excess employees were given 90 days, beginning this past November 1st, to find other jobs within HP or else. Most disturbing, they add, is that many long-term HP veterans are on the line. Already, in a series of internal departmental reorganisations, HP is said to have eliminated some positions and consolidated others. In addition, HP's cost-cutting moves have had a chill on the Silicon Valley infrastructure that supports HP and other vendors. HP divisions have curtailed and in some cases completely eliminated the use of outside consultants and other contract employees.

NEW WAVE "STILL A YEAR AWAY" FROM UNIX - AND NO DATE FOR PM/X

Hewlett-Packard formerly introduced its already previewed NewWave Office environment into the UK last week, (UX No 260), and outlined some details of its future plans for the New Wave graphical user interface. New Wave, which has no desktop manager, will be running on top of Motif by the end of next year, as well as on Presentation Manager. HP says it is currently engaged in the difficult process of porting the OMF - object management facility - at the core of NewWave, over to the two environments. Meanwhile the project to produce an X-Windows version of Presentation Manager - PM/X - which will be a Motif emulation of PM, (UX No 203), is also creeping along slowly. The translation is not expected to be complete for some time yet, and when it is, the application will be sold as Motif. NewWave Office costs from £160 to £73,000, and is available now.

MEMORY COMPUTER SPLITS IN TWO FOLLOWING MANAGEMENT BUYOUT

Computer reseller outfit Memory Computer Systems, headquartered in Dublin, with a UK subsidiary in Potters Bar, Hertfordshire, is being split into two separate companies this week following a management buyout of the Irish operation by two directors. The move prompted the suspension of trading in its shares on the London Stock Exchange at seven-and-a-half pence last week. Both companies are to continue operating under the Memory Computer Systems logo. According to David Stern, chief executive of the English arm, Memory's business is fairly evenly divided between the UK, and the now privately-held Irish operation, and he expects the firm - in the UK at least - to carry on much as before for the time being. However, now Memory is but a shadow of its former self, the possibility of acquisition or a buyout cannot be ruled out given a catch-hungry market which makes small fish look extremely vulnerable. Stern stresses that although it has no concrete plans in this direction, the company is "looking for opportunities." Memory, which resells Prime, Olivetti and Unisys' Convergent hardware, was also involved in Sphinx Ltd's International Consortium for Open Software. Stern later revealed that a refinancing scheme is being put together which will be presented to shareholders for approval "within a couple of weeks," though no further details were forthcoming. The board of directors, originally composed of 13 members - 12 of them Irish - was thought to be far too many for a company with annual revenues of around £13m. Following the buyout, and further resignations - including that of Pearse Mee, one of the company's founders - David Stern and Irishman Aden McKinna have been left to put together the restructuring package, though Stern expects a further three English members to be appointed to the board in due course. The English operation currently has a payroll of 90 employees.

COMPANY DOCTOR IN AT DAISY SYSTEMS

Dr Norman Friedmann has resigned as chairman and chief executive of troubled Mountain View, California-based Daisy Systems Corp, to be replaced by outsider Gary Sbona as president and chief executive: Daisy has retained Sbona's firm, Regent Pacific Management Corp, to try to help the company out of its pressing financial problems. Regent Pacific, in Cupertino, California, specialises in advising and managing companies in financial difficulty and assisting their turn-around. Sbona is a founder and chief executive of Regent Pacific. Daisy has not made the most current interest payment and certain other fees due to its senior lender, Heller Financial Inc and is thus in default of loan pacts.

MENTOR GRAPHICS TO ACQUIRE PERFORMANCE CAD

Mentor Graphics Corp of Beaverton, Oregon is to buy Sunnyvale, California-based Performance CAD Inc, which develops integrated circuit timing analysis tools. Most significant of these is Circuit Pathfinder, used to do fast interactive timing analysis of full custom circuits. Under the agreement, Mentor Graphics will hire the company's employees and make an undisclosed cash payment on completion of the agreement this month. Mentor will start integrating the company's products into its electronic design automation environment as soon as the acquisition is complete. Performance CAD is a privately-funded company and was founded in 1986.

MICROSOFT BACKTRACKS ON COMDEX OS/2 COMMITMENTS...

Those that greeted Microsoft Corp's dutiful chorusing of the IBM statements of direction on the future of OS/2 at Comdex in Las Vegas last month (UX No 259) with a large dose of scepticism seem to be fully vindicated in their belief that Microsoft's attitude towards things that IBM wants it to do is that "words cost nothing". The cracks in the united front were quickly exposed by *Computerworld* when the Microsofters got back to their offices. Despite the assertion "both companies are making concerted efforts to enable OS/2 for 2Mb entry systems", *Computerworld* could find no-one at Microsoft that believed it would happen. "We are trying to squeeze it down, but right now we cannot commit to a 2Mb version," said Peter Neupert, an OS/2 senior general manager, but commented that anything below 3Mb would be severely limited in function. Indeed he is counting on memory chip price erosion to make a 4Mb minimum acceptable, saying that at 3Mb, the best you can run is a limited local network client, certainly not a server. And those that believed that IBM's endorsement of Windows for low-end machines with the caveat that it would never provide many features already or planned for OS/2 meant that Microsoft had agreed to scale back further development of Windows are also confounded. "We haven't capped Windows in any way, shape or form," vice-president of system software Steve Ballmer told *Computerworld*, adding that next year, Microsoft will bring out "the most significant Windows release ever".

APRICOT HOPES TO DIVERT ITS ITL ACQUISITION INTO SYSTEMS INTEGRATION IN A BIG WAY

Birmingham-based Apricot Computers Plc was in London last week talking informally about how recent developments had affected the structure and direction of the organisation as a whole, especially in the wake of the acquisition of ITL Plc, which meant 175 of ITL's staff losing their jobs (UX No 260). Apricot denied that this could be described as "asset-stripping," arguing that the loss-making areas needed trimming anyway. Apricot sees its future direction as being an "open systems integrator", and is incorporating ITL into its existing structure accordingly: ITL's Cablestream division will go in with Apricot's own network and cabling business, while its maintenance group will continue "independently," while reporting to Apricot's maintenance division to allow the two services to be efficiently coordinated. A new Systems Integration company will be formed out of ITL's Consultancy and Software Services arm, and Apricot's extensive public sector operations; Apricot Financial Systems and Sigmex, acquired around 18 months ago by Apricot, will continue unchanged. When asked what it thought of merchant bank Singer & Friedlander's interest in it - Singer & Friedlander wants to increase its present 14% plus holding in Apricot to at least 20% - Apricot claimed that it found this interest by and large gratifying, although it was still not sure what Singer & Friedlander was intending to do with its stake. Apricot will be formally announcing more details about strategy and structure next month.

INTEGRATED INFORMATION PART COMBINES VGA, 8514A ON ONE CHIP

Santa Clara, California-based chipmaker Integrated Information Technology Inc, which has a maths co-processor compatible with, but much faster than Intel Corp's offerings has followed up with a graphics controller, the IGA, that combines VGA and IBM 8514A graphics from the PS/2 on one chip. The Integrated Graphics Array needs only standard dynamics rather than video RAMs. The part is sampling now; no price was given.

SCIENTIFIC COMPUTERS TO SELL COGENT'S LINDA-BASED TRANSPUTER SYSTEMS IN EUROPE

Sussex-based technology specialists Scientific Computers has become the European distributor for a new range of parallel processing workstations and servers based on the Inmos transputer. The Cogent Research XTM range is the result of work by Cogent founder Charles Vollum, an Apple Mac software developer who liked the idea of providing ultra-high performance desktop computers using familiar environments. The result was the XTM Series, which uses up to 30 T800 transputers in conjunction with the Linda high level parallel programming language, a new Unix-like operating system called Qix and based around a Linda-like approach, and a windowing system that uses the specification of NeWS from Sun Microsystems. Apart from functions (such as forks) which depend on memory management support, Qix, independent from hardware topologies, is Unix compliant, and Unix applications can apparently be ported over with little difficulty. The use of Linda allows for easy development of parallel programs - Linda, invented by David Gelertner at Yale University, adds four additional commands to languages such as C, C++ and Fortran, that allow data to be transferred between processes and synchronise their execution without specific knowledge of the system architecture. The idea is becoming increasingly popular, with Linda support now offered from companies such as Encore, Sequent and Intel. To complete the picture, Cogent has developed its own Postscript and NeWS compatible windowing system in C++, and has added its own compilers to the transputer, offering C, C++ Postscript and Fortran.

Parallel Bus

In the XTM, the transputers all share an ordinary parallel communications bus through which messages and data can be sent. Separately, the four serial-communications channels from each of the transputers are connected to an intelligent switch. Inside this, the serial communications from all the transputers are arranged in a network, but have no permanent connections. On request, the intelligent crossbar switch can directly connect any two transputers on the network. It takes less than 40 microseconds to establish such a link, and 200-400 microseconds to reconfigure the entire computer. The XTM is sold in two configurations: a two processor workstation and a resource server with up to 30 processors, offering a range of performance from 10 to 160 VAX MIPS. The workstation comes with a monochrome or colour monitor, 8Mb RAM, 4 serial ports, 90-190Mb hard disk, 3.5" floppy, sound generator, SCSI port, and 4 Nubus slots. The resource server version has a 16 slot proprietary Lindabus backplane to accommodate XTM compute or communication cards. The Cogent machine is already selling in the US and Japan, for applications varying from just-in-time scheduling for factories to image processing of satellite data. In Europe, Scientific Computer will target the University, CAD/CAM and military markets.

BORLAND ADDS PARADOX ENGINE FOR C PROGRAMMERS

Borland International Inc has taken its Paradox relational database into the C language world with the introduction of the Paradox Engine, a C library designed to open the architecture of Paradox and give corporate developers new ways to create and manage data. The Paradox Engine enables C programmers to build applications that create or access Paradox data, and such programs are standard .EXE files, so that applications can access and manipulate Paradox tables. Technology from the core of Paradox was extracted to build the Paradox Engine, the Scotts Valley company says. It provides an applications programming interface of more than 70 functions for manipulating tables in single and multi-user environments. It comes in the form of a C library that can be linked with any C program. Database functions include ones to create, read and write Paradox tables, records and fields with support for Paradox multi-user concurrency control; index and sequential access methods are supported, as are Paradox data security features. The C version of the Paradox Engine is expected to ship during first quarter of 1990 at \$500, but registered users get it for \$200 for the first 90 days after the launch. A Pascal version is planned for the first half of 1990, and Paradox for OS/2 and for Windows are also under development.

PROGRESS SEES DATABASE INDEPENDENCE FOR APPLICATIONS LANGUAGES IN 1990s

Progress Software Corp, Bedford, Massachusetts, predicts a move for the 1990s from database-orientated strategies to application development environments that will exploit nearly any relational database management system environment. The aim of the fourth generation language, with the advance of technology, is to increase the speed with which application programs are created and information accessed using standard-query language, which has liberated fourth-generation languages from the need to be tied to database software and a data dictionary to manipulate information. Progress, as with many other fourth-generation languages, is written in C. This gives access at a very low functional level, enabling portability as well as incorporating some extremely powerful features. Initially Progress focused on fast and efficient applications builders but then turned its attention to interoperability, the ability to insulate the application from changes in hardware, operating system, database system and graphical interface. Version 6 of the Progress application system will allow access to information stored in DEC's RDB/VMS database as well as Oracle and the firm's own database manager (UX No 259). Via the protocols TCP/IP, NetBIOS and DECnet it will access Oracle, RMS, RDB, both embedded and dynamic Standard Query Language and X Window. Plans for future developments include triggers, new graphical interfaces, interfaces between software engineering tools and Progress and support for additional database managers. Progress is sold directly or through value-added resellers that can custom build an application. Version 6 will be released in the second quarter of next year, prices range from £1,000 for a small personal computer to £100,000 for a VAX multi-user system. There are about 300 off-the-shelf applications and Progress Software hopes to increase this number by 50% next year. Customers include the International Treasury of the New York-based Citibank and the retail division of ICL. Progress's fiscal year closed on the last day of November with 40% of its \$25m turnover from Europe. This is a 50% increase on last year's figure. But Progress is not the only 4GL company thinking along these lines, as our review of the recent ButlerBloor report on 4GLs revealed (UX No 260).

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NORSK'S DOLPHIN LICENSES 88000 DESIGN TO DO 1,000 MIPS ECL SERVER

The new Dolphin Server Technology A/S subsidiary of Norsk Data A/S has revealed that it has licensed the instruction set of Motorola Inc 88000 RISC microprocessor, and the accompanying diagnostic and verification software to design a compatible processor in ECL using closed circuit liquid cooling, and claims that the Orion system it is developing will be clocked at 125MHz and be able to execute eight 88000 instructions in parallel to deliver 1,000 MIPS - with prices starting at \$500,000. Dolphin says the aim is to deliver mainframe performance at the vastly better price-performance now enjoyed only by workstation and personal computer users. The Orion, which is planned for volume delivery in 1992, will come in above the Triton 88 machines announced in October, which are Motorola Computer Systems Delta 88 boxes bought OEM. Motorola is looking at implementing some of Dolphin's technology in future versions of the 88000. The Orion will achieve 1,000 MIPS only with optimising software; without, it is expected to deliver between 300 to 400 MIPS. It will have a hierarchical bus structure with Scalable Coherent Interface, Futurebus+ and VME, and use 88000s for the input-output. Chips will be produced by National Semiconductor, with a cooling module from Siemens.

STARDENT PROMISES "LOW-END" SYSTEMS NEXT YEAR - WILL USE INTEL'S i860 ALONGSIDE MIPS CHIP

Stardent Computer Inc - the result of the merger of rival graphics supercomputer vendors Ardent Computer and Stellar Inc - is planning an assault on the mainstream workstation market with new low-end graphics products due for introduction by the middle of next year. Bill Poduska, president and chief executive officer of Stardent, in the UK for the launch over here of the company's new Stardent 3000 graphics supercomputer (UX No 260), revealed that the forthcoming "mid-range" systems would incorporate "a fair amount of Intel technology", including the i860 processor, which will probably be used as a vector processing unit alongside a Mips Risc chip for scalar processing. Poduska also promised systems offering the same level of performance as the 3000 (said to be 128 MIPS and 192 MFLOPS in top-end, four processor configurations) for "a third to half price", and new systems with twice the performance for the same price in 1990. The Stardent line now consists of the 1000 Series (previously Stellar's GS1000), 1500 (Ardent's Titan 2), and the 2000 and 2500 Series (previously the GS2000 and GS2500 from Stellar). The new 3000 is Ardent's successor to the Titan 2, but Poduska said that the company was "working hard to eliminate the separate lineages". Stardent also announced the availability of the Stellar Application Visualisation System software across its platforms, and said that it was currently in negotiation with major vendors interested in licensing it for other platforms. The UK arm of Stardent, based in Guildford, Surrey, said it had seen a good response to the merger, and received nine orders worth £1m since the announcement last September.

MOTOROLA ADDS LOW-END 88000, CUTS TAGS ON OTHERS

With most of its bigger design wins having come from companies that have fallen on hard times and are looking to RISC and Unix to return them to prosperity, Motorola Inc is having to pull all the stops out to broaden the base of companies designing for its 88000 RISC microprocessor. To make the family more attractive, it has launched a low-cost 16MHz version of the part and cut the price of the faster members of the family. Motorola rates the 16MHz version of the 88100 CPU at 13.6 MIPS and is offering it at \$148 a time in 1,000-up quantities; the 20MHz version is cut 29% to \$494, the 25MHz version falls 30% to \$488 and the top-end 33MHz version falls 27% to \$652, for 1,000-up in each case. The 88200 cache memory management unit costs \$175; the other versions are cut by the same percentages as the CPUs to \$437, \$612 and \$855 when you buy 1,000 or more. Motorola is having to make a major effort in the RISC market because several of the biggest 68020 and 68030 users - Sun Microsystems, Hewlett-Packard Co and Apollo Computer Inc to name three - have already opted for their own RISCs, and its most prominent Japanese user, Sony Corp, has opted to move to the MIPS Computer Systems Inc RISC family.

NETWORK COMPUTING WINS BULL HN OEM DEAL

Some doubt has been cast of late on the value in all circumstances of dedicated X-Window System terminals, but the pioneer of the concept, Mountain View, California-based Network Computing Devices Inc, is finding little resistance in its quest for OEM agreements. Having won Nokia Data Systems for Scandinavia last month, it has now secured an OEM agreement with Bull HN Information Systems, which will offer the terminals worldwide, and new ones still under development, under its own name, with its XPS and DPX/2 Unix systems. Bull reports that it has already sold 100 of the X Terminals to US West, and says that it is looking to use the terminals for commercial applications as well as for technical graphics - a typical application being multiple windows from different hosts showing accounting information. Meanwhile, Bull is rumoured to be working on its own workstation range - probably based on the Mips Risc processors - at its Boston, Massachusetts facility.

ZEBRA PARALLEL IS NO MORE - BUYERS SOUGHT

UK software venture startup, London-based Zebra Parallel Ltd, which was developing a parallel processing environment called Equus, providing tools for developers to produce parallel programs, went into liquidation last week. Although the eight employees are now being made redundant, they retain full intellectual property rights to Equus and are actively seeking a buyer according to former managing director Richard Harris. Zebra Parallel was launched on the back of research carried out at the Polytechnic of Central London, with £150,000 venture capital backing from 3i, (UX No 215), however the company made a loss of £224,000 in its first year as Equus was still under development, and 3i pulled the stops on any further funding. Harris says he is looking for a "sensible bid" for Equus, which has 25 man-years of work behind it - interested parties should contact the liquidators, Cork and Gully, in Norwich, Norfolk.

JAPAN'S FIVE YEAR SIGMA SYSTEM DUE FOR COMPLETION NEXT APRIL

Geoff Conrad reports from Singapore

Next April, users will be able to buy the results of Japan's five-year Sigma project - a range of workstations running a standard set of integrated software development tools. According to Noboru Akima, the project planning manager, the 193 cooperating companies in the project not only agreed on all the aims and specifications, but produced the hardware and software (now in the final stages of testing) on budget and on time. (After five years of close cooperation, 193 Western computer companies would be knee-deep in blood and the survivors would not agree on anything). Speaking at the Singapore Unix Association's recent Unix Asia '89 Conference, Akima said that a new company would be formed before next April to support, modify and enhance the system, while the project will continue to work to extend the coverage of the system interface and "efforts will be considered towards the common system interface of wider applications."

V.4 standardisation

Recently the Japanese Information Technology Promotion Agency, which runs the project for the Ministry of International Trade and Industry, announced that it will standardise on AT&T's Unix System V.4 rather than the still-nebulous rival OSF/1 Unix from the Open Software Foundation (UX No 260). Akima confirmed that the System V Interface Definition was chosen because "it is very important and inevitable... to establish the common interface which will be observed by the industry... for the virtue of users and vendors, both domestic and overseas, and to promote the international mutual use of software/hardware products." The Sigma project has developed its own Japan specific and Japanese language interfaces and requirements. But, according to Akima, the international conventions for multibyte code and character handling "tend to cover the wider specification." If the Japanese language options are made available internationally, it should make it easier for foreign software developers to move into the Japanese market, but in the past MITI has never done anything to make the penetration of the Japanese market easier for foreigners!

Sigma software

The project drew up hardware specifications for the workstations and developed handling and windowing interfaces. The hardware manufacturers produced all this, with Sigma producing a test suit to check that they complied with the specifications. This is why "Sigma workstations" have been available from some of the manufacturers for some time, although the Sigma software will not be available until next April. The project has developed a core of about 50 software tools which will be available on every workstation, while various software platforms have developed a number of hardware specific tools to run on the different platforms that will be sold by the 10 manufacturers. Also, about 30 software vendors will market their own Sigma software to run on the platforms.

JAPANESE AND SINGAPORE UNIX SHOW HIGHLIGHTS PACIFIC BOOM

The recent Japanese and Singapore Unix events have highlighted the enthusiasm for Unix in the Pacific regions, with the Tokyo show, organised by the Japanese Unix Society, attracting 63 vendors (including Nippon Unigram!), and the Unix pavilion at Singapore Informatics '89, organised by the Singapore Unix Association - Sinix - including over 100 exhibitors. Sinix has grown from four members in 1985 to over 500, demonstrating the rapid growth in the area. Sinix brought in speakers from Japan's Sigma project (see above), Unix International and AT&T (to talk about the joys of Unix System V.4), as well as the president of the Australian Unix Users Group to give a one day panoramic view of everybody's favourite operating system.

MEGATEK SPEEDS X WINDOWS WITH VME ACCELERATOR CARD

Megatek Corp, San Diego, California, which takes Sun Microsystems workstations OEM and revamps their graphics capabilities, has a new X-Windows development environment for the Sun-3 and Sun-4 supporting Open Look, and the XView toolkit. The X-cerator VME board uses a Texas Instruments 34020 graphics chip as a co-processor for the X server, executing on either the Sun-3's Motorola 60303 or Sun-4's Sparc CPU. This allows graphics functions to be significantly speeded up, whilst reducing the load on the CPU. Each board comes with up to 7Mb memory - to which an extra 4Mb can be added - and supports an additional keyboard and mouse on the workstation. Multiple X-cerator boards can be configured in a single system, price is £4,000 each. Megatek, with UK offices in Basingstoke, Hampshire, offers a range of enhanced graphics systems, including the recently introduced Sigma 70, IGW 200 and Megatek 944.

DANSK DATA ADDS MIPS RISC OPTION TO MULTI-CPU SUPERMAX

As hinted back in May, (UX No 233), Copenhagen-based Unix super minimaker Dansk Data Elektronik AS is launching a Mips Computer Systems Risc option for its unusual multi-CPU Supermax Cisc series that first appeared way back in 1984, (UX No 3). From April next year, the top-end Supermax model will take up to eight CPUs that can be any combination of 20MHz or 25MHz Mips R3000, 25MHz or 33MHz Motorola 68030, and 20MHz Motorola 68020 processors. A full complement is claimed to deliver 150 MIPS performance - or around three times the processing power of the previous top-end configuration. Memory goes from 4Mb up to a total of 256Mb per CPU with the addition of 16Mb expansion boards. As well as running Unix V.3 - V.4 is expected during the course of next year - software, like the hardware, is interchangeable - the Supermax will run applications written for both the Mips and Motorola 680X0 ranges, as well as the transaction processing version 6.0 of Oracle's relational database. Across the four models in the series disk capacity runs from 85Mb up to 15Gb, and the top-end Rack and Vertikal options will support up to 256 users. Prices start at around £70,000 and go up to £1m.

INTEL'S AQUEST SPIN-OFF WORKS ON i860 BUSINESS PLAN

Aquest Inc, Santa Clara, California, the company that was started by three former Intel employees a few weeks ago, (UX No 259), has been given \$50,000 "seed money" by Intel to draw up a business plan that will eventually see the new company taking over responsibility for the development of 80860-based board and system level products. Intel, which is to retain overall control of chip development, says it will take a stake in the company once the business plan has been formulated, though it may be anything up to a year before an Aquest product comes to market.

MISSION CYRUS MOVES ON WITH PC UNIX PLANS - BUT SPARCSTATIONS DELAYED

With its efforts to become a Sparc clonemaker stymied earlier this year by the withdrawal of Phoenix Technologies from the Unix BIOS business (UX No 247), US start-up Mission Cyrus must now decide whether to get a SunOS license direct from Sun (a la Solbourne) or to go to Interactive Systems in the hope of greater added-value for its projected range of Sparc systems, originally expected to appear by the end of this year (UX No 227). Despite the setbacks, Mission is still keen to become a Sparcette, and hopes to have a decision early next year: both firms have approached it for the business. In the meantime, Mission is running Interactive's 386/IX on its innovative new 386 MCA portable, the Darius ProPortable, which supports a 200Mb hard drive and a 120Mb tape backup. The 20-lb ProPortable features a built-in ink jet printer and gas plasma VGA screen. Unix is also available on Mission's 386 Darius file server (oddly subtitled CentralIntelligence), and will be on its 25MHz 486 version once it becomes available next year, sporting fault tolerance and a basic 8Mb memory, plus a 256Kb cache. For the graphical user interface, Mission has chosen OSF Motif and Looking Glass from Visix. Mission Cyrus, whose UK-based parent company Mission Electronics has made a name for itself in top-of-the-range stereo systems, and whose sister firm Mission Technologies plc has been building and supplying PCs in Europe for the last few years, intends to distribute its machines in the States solely through dealers, targeting 10-15% of IBM's top resellers as potential recruits. Unusually, Mission will offer to support the end-user directly. The company is building a 30,000 square foot facility in Mountain View, California, and has enticed Computerland's vice-chairman Ed Faber onto its board of directors.

\$2m Y-MP MODEL, SMALLER SYSTEMS IN CRAY'S PLAN

Cray Research Inc plans to add an entry-level version of the Y-MP by the middle of next year to sell for about \$2m against the \$5m current entry price to the Cray line, chairman John Rollwagen told analysts. The company is also expected to extend its line below the \$1m mark to compete with Convex Computer Corp, likely to use bought-in technology, but that is not expected to be ready until later. Rollwagen also told the analysts that the company hoped to begin delivery of its high-end C-90 supercomputer by 1992, adding that the product transition problems that plagued the company this year with the introduction of the Y-MP are not expected to recur because the C-90 "is in a class by itself" and there won't be an overlap with other product lines. Rollwagen also said the \$2m version of the Y-MP would be one component in a supercomputing network that will one day be available to users. The company's goal is to provide users with a Cray solution at "every node" of such a network, and that while not every component will be built by Cray, it is likely to introduce products to fill some of those functions - in particular a file server. Rollwagen noted that environmental forecasting is taking the place of military applications as the main force behind government orders. While others are challenging Cray's dominance in the supercomputing field, Cray continues to have the technological advantage - NEC Corp provided the only competition for the European Centre for Mid-range Weather Forecasting and was beaten by Cray: the Japanese system won't even be available until end-1990.

MORE DELAYS? - THE CONTINUING NON-APPEARANCE OF IBM'S RIOS

With the frightening speed of events nowadays in the Unix industry, all that we can hope to offer subscribers is a snapshot of the industry that was correct at the time of publishing - but snapshots fade like old Polaroid film, and so we now have to report the IBM's promised RIOS workstation, which was to have made its debut at the UniForum trade show in Washington next month (UX No 254), has again been delayed, and is now unlikely to see the official light of day until towards the end of February - probably! The alleged delays on IBM's successor to the RT Unix workstation are commonly attributed to a number of factors, including continuing and fairly serious bugs in the AIX operating system and compiler that have caused difficulties for software developers, and also to the inevitable internal arguments over pricing and distribution. But one of the reasons may simply be that pulling a system like Rios together is very hard. Observers are expecting its AIX 3 operating system to have impressive capabilities such as mirrored disk partitioning not found in AT&T's Unix System V.4. However, industry watchers such as UBS Securities VP Marc Schulman are dubious that IBM will add the multiprocessing expected in some quarters much before 1991, because of the negative impact such power could have on IBM's bigger boxes. In that regard, some feel that IBM could be postponing Rios to buy more time for assessing the immediate impact it will have on items like the AS/400. Another reason for the delay is thought to be a lack of applications software. Unusually, IBM appears to be paying out large sums of money to software developers in a move to encourage applications porting to Unix, and not only for the new RIOS box: Alsys Inc, for instance, has reportedly been funded by IBM to the tune of \$1m to develop an Ada release for AIX/370, without receiving any sales rights to the resulting product.

ASHTON-TATE SELLS ITS STAKE IN SYBASE TO LOTUS DEVELOPMENT

Making it clear that there is substantial foundation for suggestions that all is far from sweetness and light in the SQL Server nest, Ashton-Tate Corp, Torrance announced yesterday that it had sold its interest in Sybase Inc of Emeryville, California - bought in April 1988 - to Lotus Development Corp. Lotus bought 15% of Sybase in September with options on 10% more; the size of Ashton-Tate Corp's holding has never been disclosed; Apple Computer Inc also has a shareholding. Explaining the decision to divest, Ashton-Tate says that although it remains committed to supporting SQL Server, which is based on Sybase technology, with a dBase IV version 1.1 Server Edition, "we plan to support multiple servers, including our previously announced future support for DEC's Rdb and IBM's Extended Edition". The company said its investment in Sybase had caused considerable confusion among its customers since its subsidiary, Interbase Software Corp, is a competitor of Sybase in the minicomputer database arena. It hopes that the sale will now clarify its position.

HITACHI SIGNS UP FOR SUN'S ONC/NFS TECHNOLOGY FOR MAINFRAME LINE

Hitachi Ltd has signed up with Sun Microsystems to license Sun's Open Network Computing/Network File System technology for implementation on Hitachi's near-IBM compatible range of mainframes, which run under Hitachi re-writes of IBM's MVS and VM operating system. The technology will allow Hitachi systems to operate in mixed-vendor computer networks by sharing files and resources. Hitachi said it would be developing "a sophisticated version" of ONC/NFS for its non-Unix mainframe systems worldwide. Open Network Computing supplements the widely used Network File System by providing a platform and tools for building a range of network services. Sun claims that more than 280 organisations have now licensed ONC/NFS, with 90 system vendors currently delivering technology.

THE LONG AND WINDING ROAD TO ANSI C

by William Fellows

For anyone who enjoys a good "shaggy-dog" story - international readers note, this is a kind of joke that builds up suspense as it goes along before crumbling with a futile punchline at the end - we reported in April of last year, (UX No 175), that, despite criticisms from principal C originator Dennis Ritchie, the ANSI X3J11 standard for the C programming language was nearing completion, with the end of the time period allowed for public comments on the proposed draft, and that a full release could be expected thereafter. However with no standard forthcoming, we heard from the British Standards Institute in July of this year, (UX No 242), that the standard would be late because of objections, raised on the grounds that as it stood X3J11/88-158 as it is known, would present a number of problems for embedded C programmers. Whilst we are now - finally - assured that the ANSI C standard will be published this week, apparently it has not changed one iota from its original guise, established some eighteen months ago or more. Why?

From C to D

It seems that after the period set aside for public comment had elapsed, one disgruntled US C programmer, Russell Hansbury, asked, quite rightly, why he had received no reply to his comments regarding the pitfalls that awaited embedded systems programmers in the standard as it stood. Very broadly Hansbury proposed changing the precedence of operators in C - and although this may have improved the language for some at least - such changes would have made most C software obsolete, in the words of one observer it would have effectively meant changing C into something else, "like D". The X3J11 committee found that Hansbury's comments had been received by its technical group, but been lost somewhere between there and its reviewing body. X3J11 eventually considered his objections, but then rejected them and sent the standard off to the American National Standards Institute - ANSI - for adoption. Hansbury, somewhat miffed at the blunt rejection of his comments, and with the support of other like-minded C-types, subsequently wrote to ANSI with the same objections. ANSI, somewhat wary of adopting the standard as it stood with potential opposition, agreed to review the comments, but had no appeals process to do this. In the face of the bureaucracy he was encountering, Hansbury eventually gave up and withdrew his appeal, which had already held up the standard process for some considerable time, and as a result the ANSI C standard will be adopted this week.

Procurement

The standard - albeit rather belatedly - paves the way for government procurement contracts to go ahead, specifying requirements for C compilers that conform to the standard. Indeed it is thought that many companies have been waiting patiently in the wings for ANSI C to materialize, and are set to release ANSI-compliant C compilers - IBM and DEC amongst them. Furthermore, insiders reckon that as yet none of the C compilers on the market would pass the conformance tests that have been established as a result. The British Standards Institution for one has a European conformance testing service for C compilers that has been lying idle for some time, and is now to begin offering its testing suite to C compiler manufacturers. At the same time, ANSI C is also about to undergo a process of revision that will address and document all the known problems with the existing draft - without any fundamental changes - that will lead to its adoption by ISO, the International Standards Organisation. Again a period set aside for public comment will be followed by a review process, estimated to take up to a year all told. This revised draft will then be adopted by ISO and ANSI as their definitive standard for the C programming language.

Trouble brewing

It has also emerged that there is trouble brewing over UK standardisation procedures in information technology. Currently a whole host of committees meet under the umbrella of the Information Standards Technology group - IST-5 - to monitor events and establish standards processes, which are administered by the Department of Trade and Industry. These are open to all interested parties from industry, government and education alike. However, ructions are in the air as the DTI, under the auspices of "Project Disc", is set to change all this. It reckons that the industry spends vast sums on trying to establish its own standards, but not enough on contributing to the bodies that oversee them. Consequently, from next year, delegates will have to pay for the privilege of sitting on these committees, with those who pay the most eligible for the most representation. Insiders say that there is much opposition and bad feeling about this move, and that standards work has all but ground to a halt for the present. The BSI was in the process of trying to set up a C++ standards committee, but has given up on its efforts until the new guidelines become clear. Meanwhile the US is gaining a clear headstart - ANSI has set up a C++ language group and is pushing ahead to define a standard.

UNIQUE NEWSLETTER READIES UNIX QUARTERLY VIDEO

Unix has now spawned its own video series. The editors of Unique, the Unix newsletter, are currently in the throes of editing the first segment of their new Unix newscast, Unix Video Quarterly. Their idea is to put interesting Unix news and analysis on tape, figuring that a lot of it will be easier to watch than to read about. The service is aimed at large corporate end-users and some industry folk, priced at \$195 a year for four tapes. Video number one, due out some time next month, will cover the Unix Expo and InterOP exhibitions, a book review segment hosted by Jim Joyce of the Unix Book Service, and close-ups on the Visix Looking Glass and Lynx real-time Unix operating system products. There will also be interviews with George White on Corollary's 486 multi-processor, George Pajari on the Clarendon Datex Unix fax, and AT&T on its Open Look Express. Producer David Fiedler notes that one of his technical problems is the superiority of workstation resolution over a TV screen, so he won't be focusing on screens for a long period of time. The VHS tapes will be available in PAL, Secam and NTSC formats. The production of Unix Video Quarterly marks the end of the monthly Unique newsletter, which started publishing in 1981. The final issue, dated August/September 1989, featured a major article on the editor's new baby!

INTEL SIGNS DDC TO PROVIDE ADA FOR THE i860

Ada compiler specialist DDC International, Phoenix, Arizona, has been signed up by Intel to do a version of its DDC-1 Ada compiler system for the i860 Risc processor, and an Ada cross compiler for VAX host computers. Named the DACS-80860, it will include an Ada compiler, symbolic debugger, run-time system, downloader and program library. Whilst the the DACS-80860 will be available to all system developers, the cross compiler is aimed primarily at i860 system developers in the military arena, and Intel's Military Division will retain exclusive marketing rights for the thing. DDC expects to do a Unix version of the compiler set in the future. Intel reckons it will begin shipping military temperature samples of the i860 by the second quarter of 1990, and producing MIL-STD-883/C Class B parts before the end of next year. A validated version of the compiler is expected sometime during the first half of 1991.

SUN'S INTERNATIONAL BUSINESS BOOMS

Sun Microsystems says that 45% of its total revenue now comes from sales outside the US, with Europe accounting for 25%, the Pacific rim 20%, and with 200,000 or so systems now installed, Sun says 60% of this revenue was derived from its Motorola-based line in 1989 - down from 80% last year - Sparc systems accounted for 25% and Intel processors 15%, up from 15% and 5% respectively in 1988. By application type 68% of sales were evenly split between software engineering and design automation and manufacturing, whilst the customer mix is split 25% to OEMs, 22% to end users and governments, 20% to VARs and 11% to universities. The trend reflects the declining importance of the Motorola systems in Sun's product line. As reported last month, (UX No 258), Sun has shipped 40,000 Sparcstations 1s since their introduction in April, (UX No 227), and expects to sell another 100,000 in 1990.

AT&T, TO BE DOWN 25,000 BY YEAR-END, PLANS FURTHER STAFF CUTS IN 1990

AT&T Co will have reduced its headcount in the US by 25,000 by the end of this year, by attrition, hiring freezes and unannounced lay-offs, and at least 8,500 jobs, and likely many more, are to go next year. The company has announced plans to cut 6,000 jobs in its 37,600 Network Services division next year, 700 are to go from the 15,000-strong Business Communications Division, and the 8,700-strong Material Management & Services unit is to lose 1,400 people. AT&T Network Systems, with 60,000 employees and Microelectronics with 16,000 have yet to report their cost-cutting plans for 1990. The company has already warned that 1989 job cuts may lead to a \$150m charge against pre-tax profits for the current quarter, which may be offset by the gain on the sale of its Olivetti shares. The latest reduction is expected to cut \$1,000m off the overhead in the long distance operations, where AT&T's share has fallen below 70% of the market, against over 90% at the time of the break-up of the Bell system five years ago, but analysts say it needs to cut about another \$1,000m off the \$32,000m annual overhead to bring its cost structure down to that of its fiercest rival MCI Communications Corp.

WYSE AGREES TO BE ACQUIRED BY TAIWANESE INVESTORS

Taiwanese and South Korean companies are really starting to flex their muscles in the computer industry, and following Daewoo's acquisition of Leading Edge Products, Acer Corp's purchase of Counterpoint, and sundry other smaller deals and investments, display terminal and microcomputer maker Wyse Technology Inc, San Jose announced that it has agreed to be acquired by Channel International Corp, an investor group based in Taipei, Taiwan, for \$10 a share. The principals of Channel International include personal computer maker Mitac Group; China Trust Group, a private firm whose principal operations include China Trust Corp and Taiwan Cement; Taiwan's Development Fund; Grand Pacific Petrochemical; and USI Far East Corporation. The proposed new owners say Channel "contemplates no significant near-term changes in Wyse's product lines or its approach to the business." The investor group has contributed \$120m in equity to finance the transaction. Channel has a commitment from Algemene Bank Nederland NV for up to \$90m in senior financing.

TERADATA TEAMS WITH CHARLES RIVER ON UNIX SERVERS

Teradata Corp, Los Angeles is taking its challenging DBC/1012 back-end relational database management system, which harnesses scores of Intel 80386s for superfast parallel searching, into the Unix world - and has chosen Cambridge, Massachusetts-based Charles River Data Systems as its partner. The aim is to develop an extended client-server offering for the large systems market, and the first products from the partnership will be a Unix capability added to the DBC/1012, and a remote Data Base Computer capable of serving multiple clients, while acting as a client itself to the central DBC/1012. These two products are set for announcement in the spring. Until now, the DBC could serve clients but not other servers, Teradata notes, adding that the new agreement will lead to a layered architecture, within which a remote server can also be a host-client to the DBC/1012 and sees the combination enabling users to gain the advantages of both IBM's Systems Application Architecture and open systems environments. Teradata says that it remains committed to Systems Application Architecture principles and protocols but also intends to integrate the Unix environment to integrate the islands of information found in large enterprises.

AUTODESK SETS DECSTATION VERSION OF AUTOCAD UNDER ULTRIX

Autodesk Inc, Sausalito, California announced plans to move its AutoCAD mass market computer-aided design software, written for MS-DOS on the IBM personal computer, over to DEC's DECstation line of Unix-based desktop engineering workstations. The DECstation version of AutoCAD, running under Ultrix, is to be available on or before January 31, 1990 and will be compatible with the 12 MIPS DECstation 3100 system but will be priced the same as AutoCAD for other 32-bit machines - currently \$3,000. Autodesk will also continue to support DEC's VMS-based workstations. Recommended configuration for DECstations running AutoCAD is one disk, at least 8Mb of memory, an SCSI port, mouse and an Ultrix licence.

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Discussions around the fate of AT&T's **Unix Software Operation**, which now looks likely to be sold off to companies interested in acquiring a stake - thus marking the end of the **Unix International/Open Software Foundation** conflict that has dominated the industry this past year - now appear to be concentrating on just how much USO is actually worth. The problem is that no one knows how to assess its value. AT&T has let it be known that it has not made a profit out of its Unix software activities, and royalty revenues are currently low, at about \$50m annually. **Computer Systems News** argues that, comparing USO with companies such as **Adobe Systems** or **Microsoft Corp**, USO would have a market value of around \$200m, despite its lack of profits. The true worth of USO, however, would be more sensibly valued by its strategic importance to the interested companies, which apparently include **Hewlett-Packard** and **DEC**. That strategic value would presumably increase following a cessation of hostilities between **UI** and **OSF**.

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Rumours that AT&T might be making a play for troubled **Nixdorf AG** were dismissed as "rubbish" by AT&T president **Rich McGinn** in a conversation with **Unigram.X** last week: there have been meetings between the two companies, he said, but they've been about how each will develop and distinguish the systems they're building out of kit from **Pyramid Technologies**, which OEMs to both companies, and also had representatives at the meetings.

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Surprise! Surprise! **IBM's** workstations chief **James Cannavino** says the next generation RTs will run **OS/2** - one day - as well as **AIX**: the news should cause few flutters because we all know the new RTs will use the **Micro Channel**, which is designed to support bus mastering, where any processor on the bus can take over the system or run concurrently without reference to any "main" CPU so it should be child's play to do an 80386 or 80486 board for **OS/2** to plug into the box; **IBM** and **Microsoft** have said that they would be doing **OS/2s** for other architect users, so there may be a native version, but there seems little point.

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The \$700m **DeskTop III** contract for personal computers for the **US Air Force**, awarded to **Unisys Corp**, has been put on hold by a **General Services Administration** judge after **Zenith Data Systems** protested that the **Unisys** bid failed to meet the "Buy America" rules on US content.

AI Ltd's Strand Software Technologies division is now offering its **Strand88** parallel programming language on **Mips Computer Systems** and **Encore's Multimax** hardware.

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Industry talk suggests that **Hewlett-Packard** may have already given up on its in-house fault-tolerant project built around its own **Risc** processors (**UX No 257**), and is about to sign an OEM agreement with **Sequoia Systems** for **68030-based** machines: some say that **HP** may be preparing to buy an equity stake in the **Marlboro, Massachusetts-based** company.

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Meanwhile, **AT&T** is taking more of an interest in fault tolerance, and is likely to sign an agreement with **Tandem Computers** that could lead to major sales in the federal market.

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Despite **Stardent's** proposals to use **Intel Corp's i860** chip in future products (see front page), president and CEO **Bill Poduska** was less than happy with some aspects of the system: half-way through his presentation he admitted "it's a pig to compile!"

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Anthony Latchoo, a product manager at **NCR Corp's Waterloo, Ontario** base, was arrested by **Federal Bureau of Investigation** agents as he left **Unisys Corp's** headquarters in **Blue Bell, Pennsylvania** and charged with trying to sell **NCR** trade secrets on its document imaging technology and strategy to **Unisys**: such a theft would have cost **NCR \$100m**, but **Unisys** did the right thing and tipped off the authorities in **Philadelphia**, enabling the **Canadian** to be picked up in **flagrante delicto**.

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Wayland, Massachusetts-based Hamilton Laboratories' Berkeley C-Shell for **OS/2**, which runs in a **Presentation Manager** window or on full screen, (**UX No 210**), is now sold and supported in the **UK** by **Roundhill Computer Systems Ltd, Marlborough, Wiltshire** - price is £235. The **C-Shell** for **OS/2** was developed by former **Risc** engineer at **Prime Computer**, **Doug Hamilton**, and contains around **40,000** lines of code.

Norwegian schoolchildren using **PCs** are set to become **Unix whizz-kids** using **Locus Computing's PC-Interface** which integrates **PCs** with **Unix-based** local area networks and allows the use of **DOS** or **Unix** commands on any file in the system: the **Norwegian Ministry of Education's Datasecretariat** has ordered an initial **200** copies from **Locus' Norwegian distributor Tallgrass Technologies**, for use in three high schools.

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NCR Ltd in the **UK** has now launched its **68030-based Tower 32/300** and **32/500** systems: they cost £11,500 and £25,000 respectively, both available from **January**, (**UX No 256**).

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New York's recent **Unix Expo** show, (**UX No 255**), was attended by **19,340** **Unix enthusiasts** - against **16,500** last year - according to the show's owner, **National Expositions Company Inc**, this was despite the power failure on the last day of the show which kept many visitors outside, and those inside all in the dark.

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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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Cambridge, Massachusetts-based Mosaic Software Inc now has versions of its **Lotus 1-2-3** compatible spreadsheet - **Twin/UX** - available for **Sun-3** and **Sun-4** systems.

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