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GENERAL AUTOMATION TO BUY PARALLEL COMPUTERS FOR PICK?

General Automation, Anaheim, California, announced just before Christmas that it had a letter of intent to acquire Parallel Computers Inc, the Santa Cruz, California manufacturer of fault- tolerant Unix machines based on 32-bit Motorola MC68020 chips. Terms of the agreement were not disclosed, and the deal is subject to approval by the boards of both companies, but the acquisition was due to be completed by New Year's Eve. Parallel's systems will be offered to General Automation's existing Zebra dealers and customers, as well as to new markets. Despite the Unix bent of Parallel, General Automation's chairman Leonard Mackenzie emphasised his company's commitment to the Pick operating system, saying that the Parallel acquisition was a way of branching into new markets. Parallel's chairman, James Lally, described the joining as "an ideal combination; Parallel designs will make General Automation's Zebra systems the premier choice for fault-tolerant Pick computing, and General Automation will open new markets and maximise penetration of current markets for Parallel products."

WANG UNVEILS ITS VS IN/IX UNIX SYSTEM V FOR VS 85, 100 COMPUTERS

Wang Laboratories has unveiled its long-awaited implementation of Unix for the VS computer - initially making it available only on the mid-range VS 85 and VS 100. VS IN/IX, much later than Wang had hoped because the company switched from Wollongong Group and went to Interactive Systems Corp, Santa Monica, halfway through the project. VA IN/IX is designed to run coresident with the VS operating system, enabling a user at a workstation to switch from one operating environment to the other with a single keystroke; two-way file transfer facilities are also provided. The implementation includes Interactive's Ten/Plus menu interface, and conforms to the AT&T System V Interface Definition. It consists of three modules - base system, software development tools with C compiler, and text processor, and supports up to 64 users. It costs $15,000 for 16 users, $24,000 for 32, $33,000 for 64; versions for both smaller and bigger models of the VS are promised for the future.

HIGH LEVEL HARDWARE ADDS TEXT PROCESSING FEATURE TO THE ORION

High Level Hardware has launched a Unix-based text processing system to run on the Orion minicomputer. The system uses the Transcript software from the developers of Postscipt; Adobe of Palo Alto, California, and includes troff, ditroff and plot. It is integrated into Unix 4.2BSD spooling architecture. High Level Hardware say that the reason that its system will sell is because the powerful typeseting features of Unix have been restricted to a few people in the past because of the expensive typesetter required and claims that most people can afford its system at £5,495 which comes with software and a laser printer. High Level Hardware of Headington, Oxford says that it has made ten sales of the system since its launch just before Christmas.

AUSTEC ADDS AT&T AND GOULD TO ITS LIST OF CELEBRITIES

Austec Inc has signed licensing agreements with both AT&T and Gould under which both companies will sell Austec's range of networked Cobol software, AceNet, AceCobol, AceMenu and AceGen. The Gould agreement gives Gould the worldwide distribution rights for Austec products on the PowerNode 6000 and 9000 series. Austec Ltd, the European arm based in central London, is hoping that as Gould move more into the commercial marketplace in Europe this will bring them "an active European account". The Austec - Gould agreement runs until 1999. AT&T has signed to distribute the Austec products on its 3B family for three years. AT&T's agreement calls into question the validity of its VS/Cobol project, its IBM Cobol emulator, being undertaken jointly by AT&T and Microfocus. Microfocus had claimed this contract as one of its greater sucesses. If this project were abandoned it would fall into line with AT&T's move away from standalone computers to networking which is mirrored by the dissolution of similar agreements such as the ones with Omnicad and Counterpoint Computers. Austec's customers also include IBM, DEC, ICL, Unisys, NCR, Honeywell and Olivetti.

Inside this issue:-

CONTROL DATA SEES PROFITS BY SECOND QUARTER 1987 AFTER LIKELY $250m 1986 LOSS

Control Data Corp believes that the $200m in write-offs it announced before Christmas will represent the final plank in its bloody recovery programme, and that the business is in sight of a return to profits, if not in the first quarter of 1987, then later in the year. The lastest series of charges affect many of the remaining socially-oriented "good works" projects instituted by founer William Norris, and new finance chief John Buckner is making it clear that those are a thing of the past. The latest charges, he says "clearly signal that Control Data henceforth will engage only in those businesses that strategically fit its mission and meet its criteria for financial success." The company is writing down its investments in unprofitable health care operations and in its Earth Energy Systems Inc joint venture on wind power. It is facing up to the decline in demand for bureau services by closing its data centre in Rockville, Maryland, and maintaining only the one in Kansas City, which provides scientific super-computing services. It is also planning to sell the buildings which house its business technology centres in five cities, but will continue to run them; the centres provide fledgling companies with the electronic, telephone, data processing and support services on a shared basis that none could afford on their own. Again stressing that the old days are gone, chief financial officer John Buckner says that he expects the company to make "tremendous progress in terms of reporting systems, improved budgeting and forecasting" in the next few months. The $200m charges coupled with losses earlier in the year are expected to lead to a loss for 1986 of about $250m, down from a loss of $567.5m last year. Charges taken by the company since 1984 now total $563m, reports the Wall Street Journal. The problem for Control Data as it comes out of hospital is that it is returning to a computer world very different from the one it left after its nasty accident in 1984. The surge of DEC into the top rank and annual revenues approaching $10,000m and the combinations that have created Unisys and are in process of creating a Bull-NECked Honeywell dictate that a mainframer with annual sales totalling only about $2,500m is an anachronism - and a slimmed down and cleaned up Control Data may well look an attractive prize for the companies on the sidelines that still have ambitions to be playing in the big league in 1990.

AT&T SETS $3,200m PRE-TAX BATH; 27,400 JOBS TO GO

AT&T Co stunned the market with the announcement that it would be taking charges totalling $3,200m pre-tax, about $1,700m net, with its fourth quarter figures, leading to a loss for the quarter and only a small profit for the year. Some sort of write-off to account for job reductions already hinted at was expected, but the scale of the bath - and the job cuts - exceeds most forecasts. The company had been expected to cut up to 24,000 jobs, but in fact says that it may be firing as many as 27,400 employees, 8.5% of its 321,000-strong workforce, by the end of 1987, and that this will account for about $1,000m, one-third of the charge. The job cuts are in addition to the 5,000 identified earlier in the year, for which a charge was taken with the third quarter figures. They will involve some 10,900 managers in all parts of the company, about 9% of the total, and 16,500 other employees, 8% of the total. Some $1,200m of the charges are for streamlining operations and consolidating facilities - everything from factories to offices, and the $1,000m balance is for faster depreciation of fixed assets, and write-downs on inventories, mainly computer systems and equipment. AT&T chief James Olson stressed that the announcement did not mean that AT&T was pulling out of any market segment, but much of the pain relates to the failure of AT&T's computer business to live up to expectations. The company has already handed over leadership of the low end of the business to its Italian partner, Olivetti, and effectively abandoned direct sales of any computer products that are not supplied as part of a networking system. The company says that the positive effects of the restructuring and the refocussed strategy will probably not start feeding through to the bottom line before 1988. Despite the dismal news life must go on and the company announced that it is ploughing on with viewdata, coming out with a Unix System V-based video transaction and information retrieval processing program called Unitrax, which runs on the 3B computers and enables text, graphics and photographic images to be distributed electronically to employees, customers, vendors or other businesses: the binary licence for Unitrax is $5,000 to $20,000, and the starter application packages, at $750 apiece, contain database design structure, database linkage, and an NAPLPS viewdata and ASCII starter database on tape, cassette or floppy; binary licences for the optional Unitrax development system are priced at from $1,500 to $5,600.

RADIUS DIVERSIFIES INTO DATA GENERAL CAMP, EXPANDS INTO UNIX WITH ABT BUY

Radius Plc, the Hull systems house that went public earlier this year, has been threatening to make an acquisition for the past three months, and has now announced what sounds an interesting diversification - picking up a Data General and AT&T 3B systems house for what sounds like the value of the machines in stock. The company is the Advanced Business Technology Ltd subsidiary of P & W McClelland Plc, and it was acquired for "a nominal consideration representing net asset value at November 1", the date on which the acquisition became effective. Radius paid cash. The acquisition makes a lot of sense for Radius, because the company is by some way the largest UK reseller of Texas Instruments mini- and multi-user micro-computers, but that only makes it a big fish in a pond that has been threatening for years to run dry. Texas is in process of turning its back on its proprietary operating systems and hitching its star to Unix, but that is a hazardous strategy, and the diversification will please Radius fans. Radius also increases its geographic coverage, acquiring bases in Watford, Hertfordshire and Newark, Nottinghamshire. Advanced Business Technology is running at annual turnover of over £2m, but has not been profitable of late. After write-downs and reorganisations, Radius is expecting to get it quickly back to profits; it brings 45 people to the fold - and Radius says it expects to be hiring more for the enlarged group, which should see annual turnover of over £10m.

FRANCO-JAPANESE VENTURE LANDS $20m FROM KUBOTA LTD FOR DANA COMPUTER

The raising of finance for Silicon Valley start-ups is increasingly becoming international, with several of the hottest properties formed in the last couple of years eschewing the traditional route of going to the big names of US venture capital - the Hillmans and Hambrechts, Oaks and Whitneys - and instead looking to Japan, and to a lesser extent Europe. The package put together for Pauline Alker's Counterpoint Computer Corp came from AT&T Co, Kyocera Corp in Japan, and British & Commonwealth here, and Ms Alker's former boss at Convergent Technologies, Allen Michels, has taken a similarly unorthodox route to raise the $20m he wanted for his Dana Computer Inc venture to create a "personal supercomputer". The finance is coming from Kubota Ltd of Japan, but the firm tapped to arrange it was a Tokyo-based Franco-Japanese joint venture, Paribavan-Japan. Formed in 1983, and with 25 such financings behind it, Paribavan-Japan is a partnership between Paribas Technology, a unit of the former Banque de Paris et de Pays Bas, and Japan Associated Finance Co, an affiliate of Nomura Securities.

NEW ISSUES

Alliant Computer Systems Corp, Littleton, Massachusetts, has got its initial public offer of 1.75m shares, all of them new, away at $15. The issue is being offered simultaneously in the US and internationally, and Alliant wants the $25m or so proceeds for working capital, including the financing of increases in accounts receivable and inventory, and for additional capital equipment. Morgan Stanley & Co Inc and Hambrecht & Quist Inc underwrite.

Datapoint Corp reports that 10.5m of its shares were validly tendered in response to its exchange offer for up to 8m shares of common for shares of newly authorised preference shares, which expired on December 2. The shares tendered are being exchanged on a pro rata basis for the preference after acceptance of 5,258 from holders of fewer than 100 shares. For each common accepted, Datapoint is issuing a quarter of a share of $4.94 Exchangeable Preferred Stock, with a liquidation value of $38 per share. The preferred stock is exchangeable into 13% subordinated notes, at $38 principal amount per share of preferred stock, at Datapoint's option on or after January 15, 1989.

Sage Software Inc of Rockville, Maryland has got its initial public offering of 1.8m shares away at $12.50 per share. Of the shares on offer, 1m are new, to raise some $12m or so net of expenses for the company, which wants it for working capital. Alex Brown & Sons Inc and Hambrecht & Quist Inc are the lead managers of the initial offering.

UNIX IN 1986

THE RT IS LAUNCHED IN A BLAZE OF GLORY, AT&T PROMISES V.3

January; Everything else is overshadowed by IBM's launch of the RT Personal Computer: following the initial hype and subsequent lack of success for the Personal AT/Xenix combination, this one is being billed as IBM's real entry into Unix, the one that will legitimise the market, persuade major corporations, and anything else that bored spectators can think of speculating about. Naturally, end users are not expected to be able to get their hands on the hardware in any volume for the best part of a year. Meanwhile, ICL finally launches the Clan range in the UK, after doing it just about everywhere else in Europe. Sun Microsystems announces yet another multi-million dollar deal and goes public after pulling plans for an earlier placing.

February: DEC beats Sperry by a nose top become the first US member of X/Open. Widespread hopes of an announcement of System V.3 from AT&T fall flat.

March: IBM lives up to its reputation for confusing the Unix market with the RT PC. In the US, IBM chooses to describe it as a graphics workstation and avoid conflict with the System/36, and the general reaction is to take IBM at face value, examine the price/performance and say no thanks. In Europe, where System/36 is less overwhelmingly established, IBM is aggressively hunting resellers and software developers to promote the machine - which it would rather you called the 6150, thank you very much - as a business system to be sold primarily through third parties. A 6150 software porting centre in Warwick reportedly attracts long queues. Usr/group/UK faces credibility problems as chairman Don Hay, the only user on the board, resigns. The march of manufacturers towards Unix continues with Fujitsu, smarting from attacks from IBM over its compatible mainframe software, eyeing Unix as an alternative. Texas Instruments plans Unix boxes as the long term replacement for its proprietary minis. Hewlett-Packard, which is betting its bottom dollar in the long term on its new Risc Precision architecture and Unix, announces the first of the new range - but they are not expected here until the end of the year, and are to suffer further delays.

April: Users speak out for Unix. With a reported 70% of US Government procurements now specifying Unix, large corporations are beginning to come into the open too and General Motors makes a clear cut statement that all future computers purchased for manufacturing systems must be Unix compatible. "IBM and DEC probably don't have Unix to the degree we want it", a GM executive is quoted as saying. GM is backing the IEEE P1003 standard, an increasingly strong contender for a single standard. In the UK, Systems Designers and Altos announce a £4.5m deal to provide an office automation system for the Foreign office. AT&T promises System V.3 by the end of the quarter.

May: Ominous signs from AT&T; sales of the Unix PC built for it by Convergent Technologies have been a big disappointment and even AT&T can't find enough internal users to swallow all the machines it has ordered; Convergent is now allowed to offer the machine to other OEMs. Tandem, after years of holding out against signs a $50m deal to supply Altos machines as front ends for its fault tolerant systems where Unix is a requirement.

June: The European Unix User show is now firmly established as the biggest Unix show outside the US, and AT&T uses the show to announce the imminent availability of V.3. Then it announces V.3, but with no prices. Those who doubted whether Sperry could cobble together a convincing Unix line with machines from four different manufacturers flinch as the company wins a US army contract with a $250m potential value. In the UK, the Metropolitan Police spends £1.1m on Unix systems, while ITUSA, a standards group set up by major users, comes out in favour of the operating system. And the 80386 is providing the answer to the long term problems in attracting the number of applications available with PC-DOS - swallow other operating systems and reduce Unix to the role of hypervisor, or means of generating software revenues. Locus Computing, Interactive Systems, Phoenix Technologies, are all hacking away at Unix/DOS systems for the 386.

THE STORY CONTINUED FROM JULY

BUSINESS IS BOOMING FOR SUN AND X/OPEN SHIFTS UP A GEAR

July: A chorus of boos, whistles and catcalls from the industry surrounds the announcement of terms and conditions for licencing System V.3, and AT&T has a big job on its hands in getting manufacturers to sign on the line. Relatively minor good and bad points such as simplification of the pricing structure and source licence price rises are overshadowed by a hamfisted attempt to enforce compliance with the System V Interface Definition. To add to AT&T's problems, there is little immediate incentive to take the product at all; there is virtually no support yet implemented for the Streams/Remote File Sharing architecture that everybody was supposed to be waiting for, and customers can get much the same level of facilities much quicker with Sun's NFS. AT&T makes more friends with the intention to drop support for System V on the VAX. The cheapest Unix yet appears from Microport Systems, at $159 for a run-time system for the PC AT. ICL sets up a Unix software centre in Ireland, while Whitechapel Computer Works, at one time the great British hope in the Unix workstation market, passes in and out of receivership within days, emerging as Whitechapel Workstations.

August: As the rest of the industry snoozes on a sun-drenched beach, Sun Microsystems introduces the first phase of its merged System V/4.2 operating system, developed as part of its compatibility agreement with AT&T. ICL becomes the latest to drop its own hardware plans in favour of the Sun boxes, stopping further Perq development. Former industry phenomenon Convergent Technologies reports a $5m loss for the quarter.

September: IBM slashes prices for the 6150, before most people have yet got their hands on one. Meanwhile US reports suggest that Microsoft will take be 18 months to deliver a version of MS- DOS that fully exploits the 80386, leaving the way open for the hybrid Unix/DOS versions under development. AT&T claims a dozen European licencees for V.3, and hints that some of the licencing restrictions will be relaxed. Redwood International gets its name plastered over the front pages of most of the computer press by publicising the pending AFCAC 251 US military contract, the largest Unix contract ever with a potential value of $10bn for 20,000 Unix systems.

October: The frustration of the X/Open group over the lack of support for international character sets within System V.3 comes to a head as the group announces that it is adopting the scheme devised by its newest member, Hewlett-Packard.

ICL, which still has only a few dozen Clans installed in the UK, uses Unix as the basis of its umpteenth stab at the US market, and sets up a Unix porting centre in Washington to attract US software for ICL worldwide. Sun Microsystems, which is now so influential that it appears that anyu mention of a new development has manufacturers falling over themselves to licence the technology, announces NeWS, new software for building windowing systems. The US Department of Defence, which sponsored the Berkeley developments that turned Unix from a lean, mean machine that was easy to amend and could run in 32Kb into a behemoth with everything including the kitchen sink in the kernel, now decides that what is needed is a new operating system that is - you guessed it - lean, mean and easy to amend, and has contracted Carnegie Mellon to do it.

November: Time to face the facts at AT&T, which after standing unprecedented losses in setting up the computer business, hands over control for design and manufacturing for PC lookalikes to Olivetti. AT&T is also in full flight over the System V.3 licencing regulations, saying that V.3 based products now may diverge from the SVID to conform with standards approved by ISO, ANSI, the IEEE or NBS, and don't have to do it anyway till 1988. The speculation around AT&T's future commitment to Unix increases as it becomes clear that it is backing off the computer business that was its justification for promoting System V in the first place. Logica, which once had high hopes for its involvement in porting and selling Xenix to OEMs, sells its Xenix products business to Santa Cruz Operation, a US company with a habit of delivering Xenix ports before Microsoft. The X/Open Group announces plans for a UK porting centre, although few of the members have yet shipped Unix systems in any volume and most will not deliver X/Open conformant software until first quarter 1987 at the earliest. Hitachi and Xerox join the march towards Unix.

December: AT&T stuns the market by announcing that it would take $3,200m pre-tax charges leading to a fourth quarter loss, to account fopr job reductions, streamlining and consolidating operations, and write-downs on inventories. And job losses, largely as a result of its merging of the regulated Communications and unregulated Information Systems businesses, may rise as high as 27,400 - 8.5% of the workforce. But it scotches rumours that it will be dropping the 3B Unix line altogether with the announcement of a new range of microprocessors.

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Having ended its joint venture with Control Data on computer systems and software for schools, Wicat Systems, Orem, Utah, can in no way afford to forget about the business because it accounts for 40% to 50% of the total it does: the company is forming a new Education Systems Division that will address the entire schools market from kindergarten to twelfth grade - that's senior high - and next month the unit will decamp to Chicago to get the headquarters staff out of its hair and to be central for distribution; most of the staff will only be moving from Minneapolis, where the Control Data venture was located.

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Unix systems specialist Arete Systems Corp, San Jose, is best known for the fact that its machines are a cornerstone of the Unisys Unix line, but the company is actively pursuing international business, and has signed three more foreign resellers from whom it hopes for $29m of business over the three-year term of the agreements: in West Germany and Benelux, XTEC International of Brussels, Belgium is in for $5m a year; Datorisering Konsult AB of Danderyd, Sweden has said it hopes to sell $2m a year of kit in Sweden, and Down Under, Computer Maintenance Design Pty of Melbourne, Victoria has customers in the Tax Office, Share Registry and in hospitals, and looks to take $2.5m of kit for Australia and New Zealand; in part as a result of the new agreements, Arete is looking for sales of $50m to $60m this year, compared with $30m last year - and is still looking for more distributors over here in Europe.

Minigrams

Unisys has appointed Safe Computing of Leicester as a Value Added Reseller for the Unisys 5000 range of computers, Safe has converted its SaFeS production planning and control system to the C language and is now called the SaFeS 5000 and runs under Unix System V.

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Technology Concepts Inc, the Sudbury, Massachusetts company acquired by Bell Atlantic Corp, Philadelphia turns out to be an interesting little firm: its key product is a communications program called CommUnity, which is designed to tie a variety of machines - Personals, small multi-user Unix machines, machines running proprietary operating systems, to DEC VAX processors via DECnet - and intriguingly, Bell Atlantic said that it has decided to major on communications software, but made the acquisition in part because it is keen to make its mark in the DEC market.

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Convergent Technologies Inc, San Jose, California, went to Interphase Corp, Dallas, Texas for the VMEbus disk and tape controllers for its new S/320 and S/640 departmental servers: the contract, worth $2.4m over 18 months, is for Interphase's V/SMD 3200 SMD disk controller and V/Tape 3209 half-inch tape controller; the V/SMD 3200 SMD disk controller is claimed to be the first to use the full 32-bit capabilities of the VMEbus, and features Virtual Buffer Architecture, Unix- optimised Intelligent Caching, and zero-latency reads and writes, while the V/Tape 3209 is a Pertec interface, half- inch tape controller used for start/stop and streaming applications, which adds a feature called CacheFlow.

The first module, Asset Operational, of WIMS2 (Works Information Management System) has been installed at the Poole Hospital, Middlesborough: the DHSS commissioned London-based Digitus to produce a system design for WIMS2, software to be written in C and using the Unify Database manager, the cost for which is around £200,000 but DHSS organisations can get WIMS2 software without charge.

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Sky Software of Bromsgrove, Worcestershire will be launching a Unix version of its database package, Skybase, at the Which Computer Show in February along with Skypoint a multi-user point of sale system.

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Whilst Altos will be using the Which Computer Show to show off its new desktop publishing system, the AOM DeskSet Publisher.

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Usr/group/UK is now taking booking for its February seminar on Desktop Publishing and Document Prepartion: the first session will be held at the St Ermin's Hotel in London on the 3rd and the second at the Britannia Hotel, Manchester on the 10th - details from usr/group/UK on 0727 36003.

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Olivetti-Logabox will be using a 3B15 to process information from the ninth Paris - Dakar rally which is taking place from the 1st to the 22nd of January, this information will be available to French rallying enthusiasts on the national minitel network.

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FORTUNE SYSTEMS STARTS SIGNING US DEALERS AGAIN

About 10 weeks after the company cancelled all its dealer agreements, Fortune Systems Corp announced that it had signed three more dealers to its new "master dealer" network. The Belmont, California, company now has 16 master dealers, well on its way to the 50 US dealers it promised to have lined up by June 1987. Two of the three new dealers sold Fortune's Unix machines in the past: Datamax Office Systems Inc in St Louis (which will sell throughout Missouri), and Jones Business Automation Center, of Charlotte, North Carolina, (which will handle both the Carolinas) were Fortune dealers before the axe fell in early October. Computer Partners Inc, of Boise (which will sell in its home state of Idaho) is new to the Fortune family. In all, the three newly-signed dealers have promised to purchase more than $6.4m of Fortune's 32:16 and Formula systems. Fortune Systems' executive vice-president of marketing, Robert Davis says that the new master dealer agreements will keep anyone from yelling foul. "The new agreement is much more specific and demanding on both sides than the earlier dealer contracts," he says. Fortune also plans to buy in up to 1m of its own shares, saying that at recent public trading prices, it thinks the stock is undervalued, noting that the loss-making manufacturer enjoyed a continuing strong cash position.

1003.1 - IEEE STANDARD BEFORE YEAR END

The Posix 1003.1 will be voted on to become an IEEE standard in the second half of this year. This follows the group's latest meeting in Atlantic City, New Jersey, where the half a dozen outstanding issues relating to the system interface standard were cleared up by making a number of compromises and softening the Posix standard to allow systems that conform to this standard SVID compatibility. These are issues unresolved despite AT&T relaxing SVID rules. After 1003.1 is made an IEEE standard it will then be passed on to ANSI which generally rubber stamps anything presented by Posix unless contentious. After ANSI approves the standard ISO will review it and begin work to make it an international standard. This month ISO and IEEE representatives will be meeting to start this job on the assumption that it will become a standard. In order to speed up this standardising process the Posix group and the X3J11 C group has decided that anything to do with the C programming language will now be dealt with solely by the X3J11 committee, so the two groups held meetings at the same time in the same place in December.

HEWLETT-PACKARD TO USE GEC SOFTWARE's GENOS IPSE

GEC Software Ltd has made a significant breakthrough in the US in the shape of an agreement under which Hewlett-Packard Co has commissioned GEC to implement the Genos Integrated Project Support Environment or IPSE on the 68020-based HP9000/300 Unix workstation. During the implementation process, GEC Software will also integrate third party systems with Genos, including Hewlett-Packard's own software engineering aids and Cadra Technologies' Teamwork program for creating system design specifications.

HITACHI LAUNCHES UNIX WORKSTATION

Hitachi Software Engineering Ltd, the largest of Hitachi's software subsidiaries, has developed a low-cost Unix workstation called the 50-UX that will sell for from $2,500 and run HI-UX, Hitachi's enhanced version of Unix System V.2. It is built around Hitachi's version of the Motorola 68010, and the station will come with 1Mb to 4Mb of main memory. The base model will come with a bit-mapped screen putting up 512 colours in 720 by 520 resolution, and a Rolls Royce model will offer 1,120 by 780 resolution and will sell for around $3,100.

AT&T LANDS $92m CONTRACT FROM US NAVY

AT&T has landed just the kind of computer contract it is looking for these days - $92m over 10 years from the US Navy for a network to link 14 facilities in the San Francisco Bay area. The contract involves installation of System 85 digital PABXs, 3B computers, fibre optic cabling and microwave radio links and administrative software.

WEAKENING OF STANDARDS ALL ROUND? IEEE FOLLOWS AT&T'S SVID EXAMPLE

Despite complaints that the IEEE Posix 1003 effort (Institute of Electrical and Electronic Engineers Standard for Portable Operating System for Computing Environments) is too slow the body says that external events occuring during the second half of last year increased the visibility of the Posix standards efforts and encouraged speed. At the end of August the US National Bureau of Standards published notice in the Federal Register recommending the Posix standard as the basis for a Federal Information Processing Standard. This is a logical step considering the number of US Government procurements that specify Unix. At the same time the United States Technical Advisory Group for the International Standards Organisation (ISO) agreed to recommend that the Posix effort be used as the basis for ISO work to develop an international standard for an operating system environment based on Unix.

The IEEE Posix 1003 committee has three areas of interest which have been separated into sub-committees: 1003.1 deals with standards concerning a system interface; 1003.2 concerns itself with shells and tools; and verification testing is handled by 1003.3. Of the three areas the 1003.1 is the closest to becoming a standard. To date only the second volume of the SVID and X/Open have addressed the areas that concern the 1003.2 group. Concerning verification testing methods the 1003.3 group will not actually develop the tests but will develop requirements for testing that come out of a study of the 1003.1 work. The 1003.3 group had its first meeting in September 1986 and is also interested in portability of test suites in terms of installation, execution and the reporting of results. At the moment it seems that AT&T are likely to produce test suites and the Combined Services Administration (CSA) will implement the tests as it did with Cobol.

Concerning the 1003.1 trial use standard the main problem was issues where it conflicted with AT&T's System V Interface Definition. Many of the issues were cleared up at the Palo Alto meeting back in September by recommended changes but about six remained for the Atlantic City meeting to resolve. The differences between the two standards include return value types, error notifications and some areas which the SVID covers and Posix does not and vice versa. AT&T had decided that it is important for operating systems that conformed to the SVID to also conform to Posix. At the December meeting these discrepancies were resolved by compromises and weakening the Posix standard. One instance of this is in dealing with read/write system calls.

Posix adopts the UC Berkeley implementation and specifies that if a call is interrupted a record is kept of the number of units read or wrote. The SVID, on the other hand, merely specifies that a message is returned saying that the call was interrupted. From AT&T's point of view adopting the Posix method over this issue would be a disaster as it wants to retain binary compatible code for its 3B family of machines. The resolution on this issue, typical of the compromises made at the meeting, is that the 1003.1 group would like to have a partial byte count returned but if it does not -1 must be returned, but for an application to be considered truly portable it must accomodate both types of behaviour.

Some other potentially contentious issues raised at the meeting were either given to another body or will be dealt with by Special Interest Groups. One of these problems is that a negative offset in a file is defined by Posix as being an error but many applications depend on this facility. This problem will largely be dealt with by relaxing the wording of the specification but non-local gotos will now be delt with by the X3J11 body. AT&T and Posix will then add anything that they consider necessary to make it more traditional Unix. AT&T wanted a shared memory specification to be included in the standard but this was passed over as it was judged too complicated for this stage in the standard's life. IBM's main interest in the standard concerns real-time issues as its version of Unix, AIX, has real-time capabilities so its part on the Special Interest Group concerning interprocess communications is to see that any real-time standard is not dissimilar to its own. Another small group was also set up to deal with numerical limits. Posix currently states that implemntors document the limits that are enforced on users: objections were raised to this so the wording of the specification will be changed so that implementors specify a range. Military and Government pressure has been brought to bear concerning a standard for secure systems another special interest group exists to deal with this but the bets are that it will be another couple of years before it gets into the Posix standard.

/usr/group, the US commercial Unix users' group, is funding a technical writer to document the standards the background to the standards effort and it is also managing the Special Interest Groups set up and it is providing funds to help the 1003 group meet the target of a Full-Use standard by the end of this year. The next 1003 meeting will take place at the Canadian Unix Conference in Toronto, Canada during April and the next in June at the Usenix Conference in Phoenix, Arizona.

USENET NETWORK GROWING IN POPULARITY WEEKLY

The number of sites connected to the Usenet network in the UK has more than doubled in the last year to reach 167 by mid-December and the rapid growth shows no sign of slowing. Peter Houlder, of the University of Kent, speaking at the December meeting of the UK Unix Systems User Group, also said that there were 53 more sites waiting or in the process of being connected and issued yet another plea for considerate use of the network. The network is still growing at the rate of one to three sites per week, he said; the number of sites has increased from just 29 less than two years ago, to 80 by December 1985, with a further 87 added in the following 12 months. UKC needs to be contacted by both new sites and the existing site which will be connecting the new site; Houlder also relayed a plea for new sites prepared to act as links for mail and/or news.

US AGENCIES SPLIT ON WHETHER TO ALLOW FUJITSU TO TAKE CONTROL OF FAIRCHILD

The Reagan administration has extended the mandatory 30-day period for review of the proposal by Schlumberger Ltd to sell 80% of Fairchild Semiconductor to Fujitsu Ltd - but despite the increasingly protectionist stance in the US, the message is getting through that if Fujitsu is not allowed to take the company over, Fairchild may simply be closed altogether. According to the Wall Street Journal, while the Pentagon is opposed to the deal on the grounds that Fairchild does some 40% of its business with military contractors, both the Treasury and the State Department are in favour - but the acquisition could be turned down on anti- trust grounds, since the combination would create the fifth largest chip company in the world. The anti-trust issue is the only one on which the merger can be rejected under US federal law, but restrictive measures available to the Pentagon and the Commerce Department could make the acquisition unviable for Fujitsu. The Pentagon fears that the merged company will back off from developing and manufacturing the specialist military chips that its contractors need, but Fujitsu has already agreed to maintain that side of the business, and to institute controls to safeguard any classified information.

GENERAL AUTOMATION MAKES FAULT-TOLERANT PICK A PRIORITY AFTER PARALLEL PURCHASE

General Automation Inc, Anaheim, California, didn't quite meet its target of having its proposed acquisition of Parallel Computers, Santa Cruz, wrapped up be December 31 (UX No 109), but it was all over bar the shouting by the time the old year ended. General Automation's board approved the terms of the acquisition on December 31, Parallel's board having already approved them on December 29. The companies plan to sign a final agreement this month, with the acquisition to be effective from the end of last year. Terms will be disclosed upon signing. Parallel, whose annualised revenues are currently approximately $6m, will be operated as a wholly owned subsidiary of General Automation, and will retain its name and its product lines as before the acquisition. According to General Automation chief Leonard Mackenzie, the combined company "will address immediately the vertical markets that Parallel has begun to penetrate, including telecommunications, lotteries and gaming, emergency dispatching, newsroom automation, and banking and finance - fields where computer down-time is an unacceptable phenomenon, and where Parallel's mean time between failures of 20 years gives us a decided product marketing advantage". Richard Eppel, president of Parallel Computers, said that his company would "work closely with our new parent to introduce Parallel fault-tolerance to General Automation's large installed base of manufacturing and financial automation minicomputers worldwide." Mackenzie said that his enhanced engineering group would place a high priority during calendar 1987 on the transfer of General Automation's standard Pick operating system to Zebra computer systems with Parallel's fault-tolerant capabilities. "I want to emphasise that we have explicit faith in the growth potential of fault-tolerance in the Pick community," Mackenzie said. "Many Pick installations involve massive and dynamically changing data bases that can ill afford machine down-time. Among our installed verticals, one has only to look at systems in medical institutions and health care, home video shopping, pharmaceuticals, banking and finance, manufacturing, and wholesale distribution to find numerous instances where fault-tolerance would make a critical difference in selecting a system".

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Minigrams

The **Japanese Unix User Group** is on the verge of being affiliated to the US User Group as part of efforts to co- ordinate and pool resources of all the separate groups involved in Unix. **Brandt Communications** of Croydon, Surrey has developed a Unix-based telex system called Phoenix: the system comprises software, Hasler interface box and printer and it can support single and multiple lines and the company claims that it is extremely easy to use.

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Saunderson Holdings of London has adopted Root's Unix version of the **Hoskyns MAS Financial Control System. Sun Microsystems Inc** of Mountain View, California, is in line for fiscal second quarter net profit up about fivefold, and sales up about threefold, on the same period last year: the firm is expected to report sales for the period to December 29 of between $105m and $110m.

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Adobe Systems Inc of Palo Alto, California, saw fourth quarter net up 106% at $1.0m, on turnover up 168% to $5.2m; net profit for the year to November 30 rose 623% to $3.6m on turnover up 250% at $16.1m; net earnings per share were $0.19 in the quarter, $0.76 in the year.

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Despite the dispirited end-of- closing-down-sales look about **AT&T** company is still in there pitching its WE32100-based 3B supermicros at big networked systems contracts, and this month, the company is expected to give the line a major facelift, possibly incorporating the new 32200 incarnation of the company's 32-bit microprocessor: gossip is of a line of machines adding a couple of zeros to the existing ones - 3B500, 3B1500, incorporating a distributed multiprocessor architecture from

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Convergent Technologies' Megaframe, possibly including some fault-tolerant supermicro models.

Should anyone take **IBM** seriously when IBM says it's serious about Unix? Well, believe it or don't, according to InformationWeek, there are under 30 installed copies of IBM's IX/370 Unix-under-VM option.

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For the record, **Intel** claims that its internal benchmarks show the 80386 to be nearly twice as fast as the Motorola 68020, and three times as fast as the DEC VAX-11/780 processor and the RISC microprocessor in the IBM RT Personal Computer.

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Apollo Computer , Chelmsford, Massachusetts is celebrating delivery of its 30,000th Domain station.

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ADD-X Systemes SA of Toulouse has been awarded a three-year contract for IBM Personalikes and AT-alikes by the **French Ministry of Works and Transport** some $16m to $20m covers ADD-X's XT-alike built around the 8088-2, and its 10MHz AT-alike, which will be run under Xenix as well as MS-DOS.

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Hitachi Ltd has clarified its strategy in the US market, saying that it has no plans to build its own mainframe plant there, and that it will continue its OEM agreement with **National Semiconductor** (which of course doesn't preclude it establishing other US marketing outlets as well): it also says that sales of its 2020 and 2050 workstations in the US are "under consideration"; the negotiations with **Unisys Corp** for joint computer development are proceeding, suggesting that, as expected, the link between Hitachi and the Sperry mainframe arm will strengthen; it also starts disk drive manufacture in Oklahoma in April.

Anyone playing seriously with the Intel 80386 is going to need compilers that run native on the machine, and Pascal and C are now on offer from **Metaware Inc** of Santa Cruz, California: High-C and Professional Pascal are both compatible with the 80386 protected mode, and cost $895 **Ricoh Co** has signed to market the V.3 release of AT&T's Unix operating system in Japan. **Sharp Corp** says it has developed a Japanese-language natural language processor for database retrieval and update: the program is written in C, uses a word processor as the user interface and has a 300-rule grammar processor which translates inquiries into SQL, with the ability to handle Japanese phonetics and fuzzy queries; it will be packaged for sale by mid-1987, but the distribution method and price have not yet been set.

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ComputerVision Corp plans to enter the Japanese market with its CADDstation, computer-aided engineering, design and manufacture system in May 1987.

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Interleaf Inc of Cambridge, Massachusetts and a unit of GTE, GTE Directories Corp, have agreed to joint marketing of Interleaf's electronic publishing kit to publishers of Yellow Pages classified directories worldwide; in November, Interleaf and GTE signed a $3.1m pact for Yellow Page display ads.

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Ashton-Tate Inc is suing the six key people associated with database start-up **Migent Inc** of Incline Vil- lage, Nevada, alleging theft of intellectual property: included in the suit are Migent chairman Carl Gritzmaker, and Wayne Rateliff of **Rateliff Software Productions** of La Crescenta, California, Rateliff was the man who developed dBase II and sold the development to Ashton- Tate in 1983; he is now acting as a consultant to Migent, designing a database manager for the 80386 code named Emerald Bay - he left Ashton-Tate after reportedly saying he'd quit unless it paid him millions in additional royalties.

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SIEMENS TO START UNIX DEVELOPMENT IN SOFTWARE EXPERTISE RICH UK

Emphasising Siemens' commitment to Unix and its determination to "show customers that the company is in the UK to stay" (UX No 83) the company will be officially opening its research and development centre next month in Woodleigh, near Reading. The centres main thrust will be in Unix development and it is currently dealing with kernel level porting. Although not yet officially opened twelve people have started projects there and over the next two years teams of communications, expert systems, and software engineering specialists will be built up. Siemens expects the centre to employ around 150 staff in the 8,500 square foot facility within two years. Siemens in Germany say that it chose the UK because of the software talent available. Siemens sees the UK as the most volatile market in the Europe and the most competitive. Eventually the R&D centre will provide support for the UK marketing operation.

APOLLO's DOMAIN TO EMBRACE NFS, RFS, ETHERNET, ALIEN CPUs

After a nasty accident in 1984, Apollo Computer Inc is back on its feet and smokin' again, and a two-year programme unearthed by Computer Systems News to overlay its proprietary Domain local area networking environment with support for industry standards promises to do its future performance no harm at all. And to get the new concept off to a glowing start, it has lighted on a gift of a name for it - Public Domain. The US trade weekly says that the Chelmsford, Massachusetts company plans Domain support for industry-standard file systems, and a version of Domain to run over Ethernetworks; the proprietary Domain network is a token- passing ring. Apollo's ambitious plan is to embrace within Domain alien and specialised computer architectures for use as servers for parallel or vector processing; Domain already supports specialised machines from Alliant Computer Systems, Britton-Lee and Texas Instruments, and similar agreements with other manufacturers are planned. The idea is to create an environment that would enable users to mix and match computers from various sources so that they could assign tasks or parts of a large application to the machine best suited to executing each one. The first step will be to provide support for Sun Microsystems' Network File System and AT&T's Remote File Sharing within Domain this year, with the FTAM File Transfer Access Method added by 1988. The ultimate aim is to come up with a network computing kernel that is host-independent, and, with a number of servers, creating a complete networked run-time environment.

GARTNER ACKNOWLEDGES UNIX TO BE TAKEN SERIOUSLY

Gartner Group Inc has for so long been regarded as the doyen of IBM watchers that any diversification at the Stamford, Connecticut research house has to be taken as a declaration that the topic in question must now be taken seriously. It is therefore noteworthy that Gartner has hired Gig Graham from Venix developer VenturCom Inc, Cambridge, Massachusetts to lead analysis of Unix and DEC VMS markets.

AT&T-FUJITSU COMPUTER PACT COMING, JAPANESE INSIST

Japanese industry observers are insistent that AT&T Co and Fujitsu Ltd are putting finishing touches to an agreement under which the two companies would develop, manufacture and market a common line of computers that would liberate Fujitsu from its dependence on IBM compatibility and give Unix its big gest boost yet. According to the Asahi Shimbun, the presidents of the two companies have met twice since May, and a committee of senior representatives of the two companies has been formed to hammer out the details of the joint venture. Any agreement is also expected to involve Fujitsu selling AT&T communications kit in Japan.

ALLIANT ENHANCES FX/8 HARDWARE, SOFTWARE, PERFORMANCE

Alliant Computer Systems Corp, Littleton, Massachusetts has enhanced its FX/Series of minisupercomputers with a new version of the FX/Fortran compiler, disk striping, and larger, more advanced cache memory system. Version 3.0 of the FX/Fortran compiler includes new features to optimise a broader range of source code constructs and algorithms to enable more of an application to execute in parallel. Disk striping is a new operating system feature that extends Alliant's parallel architecture to the file system. It distributes individual files transparently across multiple disks and allows access to all disks in parallel, and currently supports four-way striping to provide a 400% improvement in disk input- output throughput. A new interactive processor delivers twice the computational performance of the older one at the same price (presumably replacing the original 68010s with 32-bit 68020s). These offload the proprietary 64-bit computational processors, handling interactive jobs such as editors and other Unix utilities, operating system tasks and input-output, including disk striping. Up to 12 - and up to eight computational processors - can be configured in an FX/8 at a time. The new cache, at 512Kb, is four times the size of the old one, with new prefetching logic and a more efficient multiprocessor memory access algorithm. The Abaqus finite element analysis program and the Astronomical Image Processing System program show are 29% and 53% faster respectively, and the Linpack benchmark runs 56% better at 25 MFlops. The new hardware is standard on all new systems; the software follows shortly.

SAS BUYS LATTICE C

SAS Institute, Cary, North Carolina, has acquired Lattice Inc, developer of the Lattice C compiler, the mainframe version of which has been sold by SAS Institute since 1985. Terms were not disclosed. Lattice is its first acquisition, although it bought Intel's MRI System 2000 database manager business.

ROOT TO PUSH COMPILERS FROM LANGUAGE PROCESSORS

The Technical Systems division of Root will be pushing a new family of compilers in preference to its existing range. The compilers have been developed by a Massachusetts-based software house, Language Processors Inc, and were designed to run on Unix-based systems built around the Motorola 68000 processor. Versions for the 80386 are currently under development and are expected to be available in February, the WE32100 option is already available. The East London company say that these compilers will be its main thrust because of its wide range and its compatibility with different hardware. The range includes: Cobol, C, Pascal, RPG II, Basic, PL/I and Fortran. Each language allows inter-process communication between it and any other language in the range, programmers can write sub-programs in any of the languages and link them together. Root is hoping that the inclusion of RPG II and PL/I will attract traditional IBM programmers now forced to write under Unix. Root is also casting its net as wide as possible by including a Cobol compiler that conforms to X/Open standards and is compatible with both Ryan McFarland and Micro Focus Cobol. Root Technical Systems will be the sole distributor for the compilers to Uniplus II Plus users and will act as Language Processors' representative in Europe.

FUJITSU AND HITACHI JOIN FORCES TO DEVELOP 32-BIT PROCESSOR FOR UNIX RIVAL, TRON

Tron, The Real-time Operating Nucleus, developed by 35-year-old Ken Sakamura at the University of Tokyo and announced in 1983, is shaping up as Japan's contender to be the home-grown rival to Unix as a machine- independent portable operating system: NEC Corp implemented the I-Tron variant on its V20 and V30 microprocessors as long ago as 1984, Fujitsu and Hitachi are jointly developing a 32-bit microprocessor optimised for Tron, and 40 companies have put up a total of $60m in funds and equipment for Tron hardware and software development; only problem is that while Tron is touted as a personal computer environment, its genesis was in robot control and switching systems, which makes it likely that its primary applications will be found in embedded control systems for anything from microwave ovens and washing machines to cars and aircraft. Mr Sakamura is so keen to see Tron adopted as a standard that all patents and copyrights are available free of charge to anyone who pays the equivalent of $3,000 to join an association formed to back his effort at Tokyo University.

AT&T TO DISTRIBUTE UK-DEVELOPED INFORMATION RETRIEVAL SYSTEM

AT&T will be distributing an information retrieval system for its 3B family of computers developed by a UK-based software house during this quarter. The company is Aregon International Ltd and the AT&T commissioned product is Unitrax. IVS-5 was an earlier combined effort, on behalf of AT&T and Aregon, and according to AT&T Unitrax is more economical and compact. Unitrax is a bundled system comprising a number of modules: applications for product catalogues; product ordering; training; employees' on- line access to corporate benefits information; personnel database with photographs and signatures; and a communications program that includes electronic mail, remote sales order entry, prospect file creation and access. AT&T will market Unitrax in the US and Aregon will take care of Europe. The binary licence will cost between $5,000 and $20,000 depending on the 3B hardware configuration used.

NCR BRINGS FAULT-TOLERANCE, UNIX TO RETAIL POINT-OF-SALE

NCR Corp yesterday kissed goodbye to its proprietary architecture retail computers and poured all its experience of the supermarket and department store point-of-sale business into a completely new family of modular retail systems, built around models of its 68010 and 68020 Tower line of Unix supermicros. The NCR 7000 Continuous Processing System also brings Unix as an option to the point-of-sale market, and fault-tolerance to the 68020-based Tower 32. NCR has developed a fault-tolerant hypervisor for the 7000 line that supports Unix as a concurrent option. Called CP/OS, the hypervisor supports full fault-tolerance with everything duplicated on the top 7032 model, which is a dual 25MHz 68020 machine, but also runs on 68010-based 7010 and 7011. There are four new terminals, the dumb 7050 and 7051, and the intelligent programmable 7052 and its preconfigured 7053 variant. The latter two are based on NCR's PC8 AT-alike and run MS- DOS 3.1. Two local area networks, Mirlan and Starlan, are supported, plus three wide-area communications protocols, SNA/SDLC, X25 and bisync. A full complement of hand-held and slot scanners, magnetic stripe readers and electronic scales are offered. Prices for the processors range from $11,860 for the 7010 to $48,155 for the 7032, terminals are from $3,125 for the 7050 to $4,555 for the 7052, and equipping a 10-lane supermarket with fault-tolerant CPU and terminals would cost around $70,000. All but the 7052, 7032 CPU and 7053 are available for immediate delivery.

ACTION INSTRUMENTS JOINS MS-DOS-UNDER-UNIX MARKET

Action Instruments of San Diego, California says that it will be producing a new version of its proprietary IC-DOS real-time, multi- tasking operating system this quarter. The operating system, for use on the IBM PC XT and AT, will now have Unix System V compatibility and run MS-DOS as a task under IC-DOS. Action is currently porting IC-DOS to the 80386 and has plans to produce a version that runs DOS under Unix.

UNIX FOR HITACHI MAINFRAMES BEFORE END OF QUARTER

As part of a development agreement with Hitachi Interactive Systems Corp of Santa Monica, California has ported a version of its IN/ix operating system to Hitachi's M- series mainframe. This implementation of AT&T's System V Release will be called the HI-UX/M/BS and will run as a guest under Hitachi's proprietary operating systems, VMS/ESO and VMS/ES. Interactive is promising HI-UX/M/BS availability by March.

VISUAL ENGINEERING LAUNCHES UNIX 3D PACKAGE CONFORMING TO GKS, ISO, ANSI

The Unix-based graphics software house, Visual Engineering, has announced a three- dimensional graphics library package, Visual:3D. The company claims that this is one of the first 3D modelling toolkits designed specifically for Unix systems. Visual:3D is based on the accepted GKS standard but Visual says that it has gone further in anticipating the International Standards Organisation and American National Standards Institute standard and included issues included in the current proposed three dimensional GKS extension. The modular package is intended for applications developers who intend programs to be ported between dedicated graphics workstations and multi-user systems. The package is currently in beta test sites and shipments will start at the beginning of March. Depending on system configuration the Visual:3D will be priced between $1,500 and $8,000.

IBM TIPPED TO ENTER SUPERCOMPUTER BUSINESS THIS YEAR

A string of experimental developments with New York University, Cornell University in upstate New York, and at its own Thomas J Watson Research Center in Yorktown Heights are expected to culminate this year in IBM's entry into the $2,000m a year scientific supercomputer market - with a parallel machine significantly different from those offered by Cray Research, ETA Systems and the three Japanese contenders. IBM is expected to put its seal of approval on parallel processing with a machine that implements the Hypercube concept of clusters of processors tied together - each node consisting of eight processors, and a maximum configuration having 64 nodes for a total of 512 processors. Conceptually fairly similar to the Inmos Transputer-based T-series machines from Floating Point Systems, in which each Transputer has a Weitek floating point accelerator chip set attached, the IBM machine is expected to come with proprietary 32-bit processors with floating point accelerators attached. IBM has definitely done thorough evaluations of the Transputer, and could be using them in its planned machine. However a key feature of the machine argues against this: it is believed to use an innovative memory architecture that enables the entire main memory of up to 2Gb to be switched around among the processors - and in the limit, the entire memory can be attached to one processor. Such memory access techniques are normally required for handing off tasks from one processor to another, and the architecture of the Transputer is designed to make memory switching unnecessary for that function. Work being done at Cornell on an IBM 3084Q with attached FPS-264 processors from Floating Point Systems may well also feature on the new machine. Cornell has been working on the Gibbs project to develop a free-form near-English langauge that can compile down to Fortran. Such a development could be critical to the future of the new machine, because it will be incompatible with any major machine currently available and there will therefore be no existing base of Fortran applications for it to pick up - although a parallelising Fortran compiler that can take existing Fortran applications and parcel it out for parallel processing would alleviate the problem. Some observers look for the IBM machine to deliver at least 10Gflops and to fall into the $10m to $30m price range. The reason for a high price compared with the Floating Point T-series would likely be that enormous memory, which for speed would have to be constructed entirely out of expensive static RAMs. Within IBM, the supercomputer is code-named RP-3.

DEC BOLSTERS SCIENTIFIC SIDE WITH CRAY, FLOATING POINT PACTS

With IBM gearing up to make a big splash in the scientific computing market, DEC does not intend to rest on its laurels, sit around and wait and see what happens. It has reacted by signed new interface agreements with both Cray Research Inc, Chippewa Falls, Minnesota, and Floating Point Systems Inc, Beaverton, Oregon. Under the agreement with Cray, the pair will join forces to develop a high-speed interface between DEC's VAX 8200 and the Cray X-MP supercomputer. The 2.7M-byte-per-second channel interface should be completed in time for June 1987 delivery. Cray estimates that up to 40% of its customers use a VAX in either pre- or post-processing, and says the two companies are considering interfaces for the VAX 8500 and 8650. Similar interfaces are already available from Cray for IBM and Control Data computers. Under the agreement with Floating Point Systems Inc, DEC will sell the Floating Point M64/30 and M64/60 64- bit attached processors integrated with VAXes line, so that potential customers can buy an integrated product rather than having to go to two sources and get authorisation for two purchases. The move will make 100 or more key engineering and scientific applica tions available to DEC customers.

ALLIANT COMPUTER ADDS MULTIPROCESSING SUPPORT TO FX CPUs

The key weakness of the powerful FX/8 parallel processors built by Alliant Computer Systems Corp, Acton, Massachusetts has been that much of its power lies idle in applications that are not amenable to parallel execution. The company's key software product is a Fortran compiler that automatically organises a program for parallel processing, but confines the machine to a single application. The company has now addressed the problem by introducing a job scheduler for the machine that enables applications to be directed to individual processors, so that a large parallel application can run on a group of processors, while the other processors are each handling their own smaller application or task. The downside, according to Computer Systems News, is that the cache is organised so that every time a task is assigned to an individual processor, cache capacity for parallel processing is reduced. Moreover only one parallel task runs on the FX/8 at any one time.

PPL HOLDINGS SEES QUICK RECOVERY FROM RETURN TO BASICS WITH NEW MANAGEMENT

After a truly disastrous start to its career as a public company, which culminated in its shares being suspended at the end of November, PPL Holdings Plc will this month take a few more tentative steps along the road to restoring its credibility and profitability. The company will launch significantly enhanced versions of its financial and human resources software packages on January 28, and, in the interim period, hopes to conclude negotiations with an, as yet, unnamed micro systems house, to offload its small corporate micro division. Discussions are apparently well advanced and, although the disposal is unlikely to bring PPL much, if any, money, it will halt a drain on resources and leave senior management free to concentrate on the three remaining divisions - Financial Management (Software International), Human Resources (Cyborg) and Micro Manufacturing (Sheffield Micros). Since the share suspension, five directors, including chairman Roy Taylor, have left the company but managing director Terry Forrester says none of the departees was actively involved with the continuing operations. Bravely, Forrester admits that "the management had become top-heavy" and that its attention had been diverted from the day-to-day business by the effort required to prepare the company for its public flotation on the London Stock Exchange only last February. He promises that the restructured board, including replacement chairman Ron Cohen from venture capitalists Alan Patricoff Associates, will not allow its attention to be distracted again. It has already begun to tackle the company's overheads front-on. In addition to the hiving off of the corporate micro arm and the sale, started by the old board, of the Canadian subsidiary to Kalon Co which was completed in November, it has trimmed its research and development spending and abandoned its attempts to enter new markets such as banking software.

Already, the concentration of effort on the remaining divisions appears to be paying off; the company has picked up nine major orders - from amongst others, the Automobile Association, Avon Rubber, Matsushita Electronics and the Borough of Crewe and Nantwich - since the share suspension to add to the 30 orders taken between September 30, the end of the financial year PPL will want to forget, and the end of November. The new software releases come in in-line with the schedule PPL outlined to user groups back in the middle of last year before its financial problems began to bite. The main developments are a special ICL version of the financial management software built around ICL's own Quickbuild and Data Dictionary tools, vastly improved response times for the PPL-Cyborg integrated payroll, personnel and pension administration on-line Human Resource package and an upgrade to the Unix-based Uniplan manufacturing control and accounting system. In addition, PPL is close to launching a version of the Cyborg system designed specially to integrate with Crowntek Computer Corp of America's Model 204 database management system. Although the full extent of the storm damage in fiscal 1986 will not be revealed until later this month, there is no reason why the company's smile should not have returned in full by the time the current financial period, to March 31, ends. Indeed, with ICL - since December - and IBM - still to sign but looking fairly certain to do so, according to financial management head Paul Holley - selling PPL's products directly to their own user bases, PPL at 81 pence, compared to a one-time high of 173 pence, looks one of the better mid-term prospects in the computer-related sector.

FLEXIBLE COMPUTER RESTATES 1985, 1986 SALES SHARPLY LOWER; LOSSES UP

Flexible Computer Corp, which warned last month that it might have to revise its 1985 and 1986 figures downwards because it had been recognising revenue from sales too early, has now announced the revised figures. The Dallas, Texas OEM board systems manufacturer now says that it made a net loss of $5m on sales of $1m in the nine months to September 1986; it had originally claimed a net loss of $3.2m on sales of $4.2m. For 1985, the company now says that net losses were $8.7m on sales of $777,960 where previously it had reported a net loss for 1985 of $7.6m on turnover of $2.5m.

DATA GENERAL's CEO MOVES INTO DESKTOP PUBLISHING VIA PACT WITH INTERCON

Data General Corp's Comprehensive Electronic Office software and Eclipse minis are moving into the desk-top publishing world by way of an Independent Software Vendor agreement with Intercon Associates Inc. Under the agreement, Intercon will supply desktop publishing software to be integrated with the CEO office automation software. It will enable users to take CEO files and prepare camera-ready copy with the use of any standard laser printer or typesetter. All the standard CEO functions, which include electronic mail, filing and personal and group diaries will also be available for use simultaneously. Prices for the Intercon Office/Publisher start at $5,000 for use on the low-end 32-bit Eclipse MV/2000.

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Sounds a mite far-fetched, but gossip in Sweden has industrial automation giant **Asea AB** looking at a bid for all or part of **L M Ericsson.**

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Although **Groupe Bull** is expected to be named the managing partner of its joint venture with **Honeywell** and **NEC**, the French firm plans to keep its involvement in that operation separate from its existing US holdings, which include **Microcard Technologies, Dallas, Texas; Bull Peripherals, Sunnyvale, California** , and **Bull Micral** of America, based in Minneapolis, Minnesota; while the deal has not yet been finalised, Honeywell is expected eventually to sell all but 19.1% of its interest in the unnamed venture to Bull, giving it 65.1% control; NEC will start out with a 15% interest.

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Redwood International Ltd with its UK base in St. Albans, Herts has announced that it has ported Uniplex II Plus to the recently launched Siemens PC- MX2 which runs Sinex, Siemens own implementation of Xenix: the entry level price for the Siemens PC-MX2 version of Uniplex-II Plus is £795.

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Having signed a contract with Redwood to use Uniplex II Plus as its main office automation product for Europe, **Altos Computer Systems** is adopting Uniplex II Plus as standard for the US.

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Access Technology Ltd based in Marlow, Buckinghamshire in the UK has won the 1987 Target Award presented by the US DEC magazine, Digital Review, for the best DEC-compatible Financial Software product of the year.

Minigrams

A report on the progress of Posix, the IEEE's trial use Unix standard, is available from **Sphinx Ltd** of Maidenhead, Berks for a price of £95.

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Optim Computer Group has signed to become a VAR for the Olivetti-AT&T 3B family of computers with British Olivetti, the Letchworth, Herts company estimates that the agreement will be worth about £1m to them over the first year: Optim has similar VAR agreements with IBM and Concurrent Computer Corporation.

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The Supermax from **Crellon Microsystems** of Wokingham, Berks is now available with a 20MHz 68020 processor with a 68881 floating point co- processor and it now runs an implementation of Unix System V.2 which includes a feature called the Free Processor Power Pool - in multi-user versions of Supermax the allocation of processors to users is totally transparent and the user is not logged onto any particular CPU, the FPPP controls Load balancing: Uniplex II Plus is now also available on the Supermax.

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Micro Focus will be launching a Unix version of Sourcewriter at the Which Computer? Show in February, Sourcewriter is a Cobol applications generator for microcomputers which the Newbury, Berks company claims will produce applications in one third of the time that it takes to develop applications by traditional means.

Nine workstation companies, **Apollo Computer Inc, Applix Inc, Dana Computers Inc, Data General Corp, Hewlett-Packard Co, Masscomp, Siemens AG, Sony Corp, and Stellar Computer Inc** are coming together at the Massachusetts Institute of Technology this week to support an emerging industry standard for engineering workstations - but in what area? Our guess, on very slender evidence, is that it might have something to do with windowing standards, where the leading rivals are Sun Microsystems' NeWS and X Windows, which was designed at MIT.

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Convergent Technologies and Unisys Corp have a new OEM agreement running through to the end of 1989, that extends and expands the relationship between the two companies, which dates back to 1981: Unisys may purchase the full range of Convergent workstation and server products, including the new Series 386 N-Gen workstation, the S/Series supermicros and future extensions of both lines, and again covers pre-set order levels leading to manufacturing rights to new products.

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And **Unisys** is establishing a European repair and parts recovery centre at Livingston, Scotland, partly making up for a major cut- back in its manufacturing in Scotland.

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benchMark Technologies has announced that the Rootmap suite of office automation packages is now available on the benchMark 32 Unix- based machine.

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Access Technology has appointed **Gecom** of Paris, France to distribute the 20/20 spreadsheet: Gecom, a DEC OEM, will distribute 20/20 on DEC hardware.

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AT&T JOINS X/OPEN AND SUPPORTS POSIX WITH IBM AT UNIFORUM

The Posix portable operating system standard based on Unix System V and destined to become a mandatory requirement for a large proportion of US government computer contracts, won endorsement from 57 manufacturers, software houses, universities and research organisations at Uniforum in Washington yesterday. Unix originator AT&T, and IBM, were among the companies which announced that they would support the standard. The IEEE P1003 committee that is drawing up the standard expects its work to be complete by the end of this year, and the International Standards Organisation votes next month on whether to pick up Posix; the likelihood is that it will. The US National Bureau of Standards is getting help from AT&T with its System V Verification Suite, and Hewlett-Packard with an alternative set of conformance-testing programs, and hopes to have Posix test suites for Posix available very soon after the P1003 committee completes its work. The NBS test suite will be put into the public domain. In the meantime, many US government Requests for Proposals already include adherence to Posix as mandatory as soon as it is fully defined. Posix defines only the interfaces to the operating system and will be similar to the AT&T System V Interface Definition. Implementors will be able to meet the standard either by taking licences to Posix-compliant implementations of Unix System V or by developing their own operating system to the Posix interfaces. Also endorsing Posix is the X/Open Unix applications group formed by all the major European manufacturers at ICL's inspiration - and X/Open, which has just released the second edition of its Portability Guide, scored something of a coup at the conference when AT&T announced that it was to become its eleventh member. NCR is set to become the twelfth member next month.

ELEVEN GATHER AT MIT TO BACK X WINDOWS

The gathering at Massachusetts Institute of Technology of the great and the good of the workstation world last week was called to announce that those present would support and promote the MIT-developed X Windows system set of primitives for building windowing applications. The eleven companies represented included: Adobe Systems, Apollo Computer Inc, Applix Inc, Data Computers Inc, Data General Corp, DEC, Hewlett-Packard Co, Masscomp, Siemens AG, Sony Corp, and Stellar Computer Inc. It is also believed that IBM is backing X Windows. Developers of the Andrew System, Carnegie Mellon University, have been evaluating X Windows and NeWS, from Sun Microsystem, for the IBM RT under Andrew. Andrew is the file system used on the RT. Sun Microsystems says that a move by these companies will not affect its NeWS product as this is a means of building windowing systems. NeWS, says Sun, allows X Windows to be run but the company will not stand up and be counted amongst those supporting it as a standard because X is too rigid. Sun's message to customers is not to standardise on X but use NeWS and if X does emerge as a standard no software costs will be incurred as NeWS will run X. X Windows is a network- transparent, portable windowing system that allows applications to work "seamlessly" across different architectures and is designed to work on different hardware. It is written in C and is implemented in Unix as a set of user mode processes. Porting the machine independent part of X-Windows to a new machine involves just recompilation; building a new driver for a display system is "more involved". The 11 want to extend X with high level tools for developers designing environments and interfaces and persuade standards organisations to adopt it.

V.3 AVAILABLE IN FEBRUARY FROM MOTOROLA WITH RFS OPTIONAL EXTRA

Motorola has announced that Unix System V.3 will be available from them mid-February. Motorola will be selling V.3, or V/68 release 3 as it calls it, without the remote file system (RFS). RFS, including streams, is the part of V.3 which customers are crying out for. Motorola will, however, sell RFS or, as it is termed within Motorola, Network Services Extension as an optional extra for £500. An end-user licence for a 32-user machine will cost £2,000; £1,200 for 16-user and £800 for eight users. Licences for board manufacturers will be cheaper, the company says.

INSTRUCTION SET WINS DISTRIBUTION FOR X/OPEN BACKED NLS

Hewlett-Packard has entrusted the marketing and distribution of its internationalisation interface to the Instruction Setand its associate companies. The internationalisation interface, known as the Native Language System (NLS), was developed by Hewlett-Packard for internal purposesbefore being adopted by the X/Open group (UX No 98). X/Open will take care of distribution to the ten X/Open members; the Instruction Set will sell to any European- based Unix OEM; Lachmann Associates and Interactive Systems Corporation will take care of the US. The Instruction Set was chosen to play this role because of its porting experience and involvement with X/Open as technical consultants. The London- based company say that taking on new technologies such as NLS is part of a gradual expansion plan.

TADPOLE USING AT&T AND MOTOROLA V.3 FOR EXISTING AND NEW LINES

Despite the confusion currently inherent in acquiring a licence for Unix System V version 3 Tadpole Technology has source licences from both AT&T and Motorola. Tadpole will be using the Motorola V.3 version on its 68020-based boards, to be delivered in the second quarter of this year. The AT&T 3B2 licence will be used with a new line of products currently being developed by Tadpole to be announced later this year. The new products, which will include four new processors, will be based on 32-bit technologies and Tadpole is looking at the Fairchild Clipper chip-set as well as the Western Electric chip used by AT&T. Prior to this move Tadpole used the Uniplus+ version V.2 from Root Computers. Tadpole will maintain this version on its existing 68010 and 68020 products. The Cambridge-based company says that the reason for acquisition of the source is to be independent of Unix software suppliersand it intends to carry out its own ports in the future.

ORACLE FINDS SUPPORT FROM FIVE UNIX BASED COMPANIES

Oracle Corp has announced that its SQL-based ORACLE relational DBMS, fourth-generation language tools and decision-support software will be available on: the Balance 8000 and 21000 multi-processor computers from Sequent; Sun Microsystems worksations; Plexus Computer's P/series; Altos machines; and the NCR Tower range. The software for Sequent and Sun machines will be avialbale this quarter and in April for Plexus. Oracle say that the software for Altos will be ready by the third quarter of this year. NCR have already started jointly marketing the product and of the other four companies all will jointly market the software with Oracle except Sun Microsystems.

BROOK STREET COMPUTERS LAUNCHES UNITY SOFTWARE PACKAGE

Brook Street Computers Ltd of London have just launched a new range of software written in C for the Unix market. The software is similar to the package supplied by Brook Street's managing director's former company , Computer Ancillaries - Bosspack. Brook Street assures us, however that this has been completely rewritten, by the same person, specifically for Unix. The main modules included in Unity are: sales, purcahase and nominal ledgers; fixed assets; invoicing/stock control; and payroll. Brook Street says that the package has an open architecture to allow interfacing to other packages such as wordprocessing and databases.

AMDAHL ADDS UNIPROCESSOR 5890/190

Amdahl Corp has just launched the largest single processor to run an implementation of Unix, UTS/580. The 5890/190 is half of the dyadic 5890/300 and is claimed to deliver 0.51 to 0.54 times the performance, which at announcement was put at about 38 MIPS. It comes with up to 256Mb of main memory and up to 48 channels, and supports Amdahl's Multiple Domain Feature hardware partitioning, enabling users to create up to four partitions. The 580 expanded storage and high speed channels will be available on it in the third quarter of 1987. Amdahl has boldly priced the machine a little above the IBM 3090-180 against which it is pitched - but claims 35% more throughput, offering it at $2.625m with 32Mb and 16 channels where IBM wants $2.617m for a 3090-180 similarly- configured. The Amdahl machine however takes a maximum of 48 channels where the IBM is limited to 32. Apart from 35% better perf- ormance, the new Amdahl box takes 232 square feet against 609 for the IBM, and is about half the weight.

AT&T SET WITH UNIX SYSTEM V VMEBUS RELEASE FOR OWN USE

AT&T is internally testing a 3.1 release of Unix System V that at present is dedicated specifically to its own VMEbus-based single board computers built around WE 32000 family microprocessors, says Computer Systems News. Key feature of the new release is that it supports the Streams networking facility with media-independence, so that where Streams under V 3.0 can be used only over the Starlan local area network with twisted pair, 3.1 can be used with the TCP/IP protocol or with Ethernet, and over any type of cabling system, facilities that are not available for licencees of System V 3.0. The new release on the single board computers is expected in the second quarter.

SUN ADDS BOTTOM-END 3/140M

Sun Microsystems has just launched its lowest-yet expandable workstation, the Sun- 3/140M, a 1,152 by 900 pixel 19" monochrome station with 4Mb 16.7MHz 68020 CPU and floating point co-processor, at £11,400. It has three expansion slots. A new 141Mb 5.25" disk drive is £6,100.

IBM BOWS TO RISING UNIX TIDE, FORMS MAJOR GROUP IN AUSTIN

The growing movement of national governments - led by those of the US and Sweden - to specify Unix as mandatory for many major tenders, has driven IBM to bring all its Unix efforts together under one roof in Austin, Texas and take the AT&T operating system - or the IEEE 1003 Posix variant - seriously. The new product development and marketing group, the existence of which is revealed in this week's Computer Systems News, gets the accolade of a group director to head it. Called the IX Systems Management Group, it has responsibility for AIX on the RT Personal, PC/IX on the XT and AT, VM/IX and 370/IX for 3270s, and Series 1/IX or Ser/IX, plus PC/Xenix, which it takes over from the Entry Systems Division. A key switch is that much more implementation work will be brought in-house - most of IBM's Unix work has up to now been done for the company by Interactive Systems Corp, Santa Monica, while Ser/IX was done by CMI Corp and Xenix by Microsoft Corp. IBM says that it intends to support the work of the IEEE 1003 committee and of Unix technical standards groups - but IBM's support for alien industry standards is often seen by others as obstruction. A case in point, also highlighted by Computer Systems News, is that while VM is the primary operating system for the 9370s and IBM said with a flourish at the 9370 launch that X25 packet switching would be supported, it turns out that if you want X25, you either have to run a DOS/VSE virtual machine to support the VTAM/X25 Communications Adaptor Support Function, which is a PRPQ (Program Request Price Quotation) or use either a 3725 or Series 1 front-end.

BECOS ENVIRONMENT RUNS MS-DOS UNIX AND CTOS ON 80286

Stealing a march on the gaggle of firms rushing Unix+MS-DOS hypervisors to market for machines based on the Intel 80386 chip, Becos Industries Inc of Cupertino, California has begun demonstrating a hardware-software environment that does the same thing on the IBM AT and AT-al-ikes, and for good measure throws in support for Convergent Technolo- gies' CTOS as well. Called IntOS, the operating system is designed to enable MS- DOS, Unix and CTOS applications concurrently on an AT, and the company has been showing it off at Modular Data, NCR and Unisys fa cilities in the southern US this week, before demonstrating it to financial analysts in the New York City area next week. IntOS is des cribed as a plug-in two-board set of peripherals, added memory and operating software. Set for delivery in April at around $1,500, IntOS 286 will be followed later by a version for the 80386 from Becos.

ENCORE's NEW MULTIMAX ADDS SYSTEM V, NETWORK FILE SYSTEM

Born as the team of all the talents, Encore Computer Corp, now in Marlboro, Massachusetts, had one of the rockiest childhoods of any major start-up, and after some $50m of venture capital still had very little to show for either the cash or the big names it attracted when it prematurely went public in 1985. Shorn now of most of its talents, chastened and a whole lot more modest in its ambitions, the company is now hoping that the new monster it has created from the National Semiconductor 32332 second generation 32-bit microprocessor, will finally put its finances onto a firm footing. The new Multimax 320, announced last Thursday, is a major upgrade of the original Multimax parallel processing Unix machine, and makes a nod or two more to industry standards by supporting the Sun Microsystems Network File System. Claimed to support several hundred users and to offer three times the performance of the VAX 8800 at a lower price, the new machine runs both a new Umax 3 multiprocessor implementation of Unix System V.3 as well as the existing Umax 4.2 version of Berkeley Unix 4.2. The building block of the Multimax 320 series is the Advanced Processor Card, consisting of NS32332 plus 32382 memory management unit claimed to deliver 4 MIPS. An optional floating point accelerator is offered, and up to 10 of the Advanced Processing Cards are supported in a single system, which when fitted with maths processors as well is claimed to perform 40 megaWhetstones. Up to 128Mb of shared main memory connected to processors by a 100Mbyte-per-second bus is available, and a new mass storage card support input-output traffic over three independent channels, and up to five of these can be installed for an aggregate peak input-output data rate of 60Mbytes-per-second. Disk sup port extends to 100Gb, and existing Multimax 120s can be field-upgraded to 320s by swapping processor boards. Prices go from $131,000 to over $500,000 and an 8Mb four MIPS entry system with 408Mb disk, a 6,250 bpi tape drive, console and system software licence is $131,000. Additional Advanced Processor Cards are $29,000 each and the Floating Point Accelerators are $10,000 a throw, the Mass Storage Card is $15,000; the processor card is set for April, the Mass Storage Card will follow in July.

WANG PROMISES VS VM FACILITY

Wang Laboratories has promised that it will add a virtual machine facility for the VS operating system which will enable a single VS processor to be partitioned into multiple logical CPUs. As well as faciliting the running of the company's new VS IN/IX implem entation of Unix, the capability is likely to encourage third parties to offer support for environments such as Pick under VS, and could increase VS competition with IBM's 9370s, since the VS includes the full basic IBM 370 instruction set.

DIGITAL RESEARCH LAUNCHES FLEXOS 286 REAL-TIME MANUFACTURING OPERATING SYSTEM

The new Flexible Automation Business Unit of Digital Research Inc in Monterey, California has introduced its first product, a re- engineered version of its Concurrent DOS 286 environment designed specifically for computer-integrated manufacturing. The real- time FlexOS 286 is written in C, and versions for the NEC V60 and V70, and the Motorola 68000 family as well as Intel's iAPX-86 family are planned. The company describes FlexOS as the first hardware-independent operating system for manufacturing, and is aiming it particularly at the cell controller market. It supports the GEM graphics environment manager, PC-DOS applications, and for networking, the Flexnet Resource Manager is available. IBM has already adopted versions of Concurrent DOS for its 4680 Personal Computer for retail systems control, and its IBM Plant Systems products. FlexOS costs $1,000 and is offered with several languages - the company's own CBasic, Metaware Inc's High "C" and Professional Pascal, New York University's Ada interpreter, Ryan McFarland's RM/Fortran 77, and Level II Cobol from Micro Focus Plc.

CDI PLANS PICK FOR IBM's RT PERSONAL

CDI Information Systems Inc, the former Computer Distributors Inc of Seattle, Washington, is back out of Chapter XI bankruptcy protection and raring to go. The small company, celebrated around the world for its implementation of the Pick operating system for IBM's Series 1 minicomputer, has decided that IBM's newest technical processor, the RT Personal, is the ideal vehicle for its next Pick trick. In plans to become the first outside company to take advantage of the magic Virtual Resources Manager, VRM, which isolates the operating software from the hardware of the RT, and will implement Pick on top of VRM, so that it will be easily portable to any new hardware that IBM may come up with for the RT. Pick will also take advantage of the communications offered on the RT, which include SNA/SDLC, LU 6.2 emulation and Token Ring. CDI was an IBM SuperVAR for the Series 1 until it filed Chapter XI in 1984, but did not renew the pact after it emerged in mid- 1985; it has no present plans to go back into hardware, but may think again when it sees the upcoming high-end RT.

APOLLO ANNOUNCES EIGHT NEW ARTIFICIAL INTELLIGENCE PACTS

Apollo Computer Inc, Chelmsford, Massachusetts is taking artificial intelligence very seriously indeed, and has announced a whole string of new agreements and extensions to its products, notably signing joint marketing pacts with two of the leaders, IntelliCorp and Teknowledge Inc. It will be marketing IntelliCorp's KEE Knowledge Engineering Environment, and Teknowledge's S.1 and M.1 on its Domain workstations. Apollo also plans to offer enhanced versions of standard artificial intelligence software development systems, and has new agreements with six third-party hardware and software suppliers: it has also picked up Franz Extended Common Lisp from Franz Inc; the Kurzweil VoiceSystem from Kurzweil Applied Intelligence; Mercury Computer Systems Inc's signal and image processors; the Smalltalk-80 System from Xerox ParcPlace Systems; OPS83 from Production Systems Technologies Inc; and the Phonetic Engine from Speech Systems Inc. Apollo also plans to offer enhanced versions of the Domain CommmonLisp environment being developed for it by Lucid Inc, and Quintus Computer Systems Inc has added enhanced Version 2.0 of its Quintus Prolog development system. In addition, Apollo is working with Texas Instruments Inc to integrate the Explorer symbolic processing station with the Domain System. A recently introduced Common Lisp cross-compiler developed by Lucid Inc, will also enable software developed on Symbolics Inc's specialised systems to be converted to Domain/CommonLisp.

FIFTH GENERATION COMPUTER CORP PREPARES TO SHIP FIRST DADO PARALLEL PROCESSOR

Fifth Generation Computer Corp of New York is one of the host of companies that have created a remarkable flowering of innovative and exotic computer architectures, and, reports Computer Systems News, the company is preparing to ship its first system, ambitiously looking for sales of between 30 and 50 of its Dado binary tree architecture parallel processors. The basic building block of the machine is the Motorola 68020 microprocessor, and the company is currently building modules four processors to a board, though it plans to squeeze 16 onto a board by the end of the year. The 68020s can be backed with floating point and signal processors - the Motorola 68881 and the AT&T DSP32 are offered, and program development is under Unix. Systems are offered with from eight to 512 processors - 8,192 is the theoretical limit - and Fifth Generation rates performance at from 5.4 MIPS to 1,400 MIPS. An eight-processor system costs about $20,000, a 512-processor system would be $460,000; it sees the machine selling primarily as a parallel server or back-end to other processors, and to that end offers Ethernet, Unibus and SCSI ports as well as RS232. The first machine is set to go to AT&T under a subcontract; the company, which has only about 20 employees, has raised $3m in venture capital so far, and is currently seeking to raise further funds.

SPHINX USES ICUS AND X OPEN TO SPREAD THE WORD OF UNIX

In a bid to further raise the level of awareness for Unix, and its own name, Sphinx Ltd has signed agreements and contracts with a number of organisations including: X/Open, ICL, and the National Computer Centre. Sphinx has also launched an international Unix distribution network called the International Consortium for Unix Software (ICUS). Besides Sphinx, ICUS is currently made up of eight other European companies which will market and distribute Unix/Xenix applications. Each member pays a monthly subscription of £1,000 and in return gets access to software, support from Sphinx and publicity material. The eight members currently include: Aeni Informatique, Paris; Inforama SA, Paris; Hightech, Brussels; Gaul Computers, Antwerp; Memory Computer, Dublin; Transmediar, Utrecht, Holland; Infotech, Nijmegen, Holland; and B.L&R Consultores, Madrid. Sphinx is also finalising ICUS contracts with companies in West Germany, Scandinavia, Switzerland, Italy, Turkey and the Middle East. Sphinx also hopes to expand into Australasia towards the end of this year. ICUS hopes to expand its list of software authors this week, particularly in the US, by launching ICUS at Uniforum.

Sphinx expects that the formation of ICUS and its contract with X/Open to design and plan its new portability centre "will assist significantly in ensuring the wide availabilty of qualified Unix/Xenix application software throughout Europe". Sphinx with X/Open's centre director, Basil Cousins, will be developing a full specification for the centre to be released around March. X/Open says that the brief given to Sphinx is to define the methods, equipment and services necessary to establish a centre suitable for software authors. The centre will provide consultancy, assistance and training for porting problems. Although not included in the agreement it is expected that Sphinx will be retained to manage the centre. The centre, to be located near Heathrow Airport, is expected to be open mid-1987.

The reasons given by X/Open for choosing Sphinx are echoed by ICL; technical, management and distribution skills. To convince the world that the Clan is indeed a Unix machine ICL has contracted Sphinx to supply Unix software to ICL subsidiaries, Trader Point distributors and end users. Sphinx will provide around 30 applications to run on the complete Clan range, including word processing applications, accounting, 4GL development tools, communications, graphics, office automation, database management, languages, spreadsheets, project planning and utilities. Support for ICL Clan users will be given by either Sphinx itself or by the new ICUS members. ICUS' plans to move into the Australasian market will be a mjor boon to ICL because most of its user base is down there.

Sphinx intends to capture a large slice of the European Unix marketplace and will be using its ICUS group to this end. The Maidenhead, Reading based Unix vendor says that it will be signing similar contracts with manufacturers to the one with ICL during this quarter.

SCO GETS INTO THE STANDARDS MAKING BUSINESS WITH JSB

The Santa Cruz Operation has teamed up with Cheshire-based JSB Computer Systems Ltd to make the Multiview windowing package from JSB a defacto standard. SCO believe that if it takes the package being the world Xenix supplier for the AT class of machines an overnight defacto standard will be created. SCO Multiview will be available from SCO in the second quarter of 1987.

NEWS FROM THE GROWING JAPAN UNIX COMMUNIY

Tokyo University has ordered Japan's first TCP/IP protocol local area network system from Toshiba Corp to link the university's Hitachi and Fujitsu mainframes and DEC minis to NEC and Fujitsu termin- als and Unix workstations. The US Defense Advanced Research Projects Agency TCP/IP protocol is being used in the Sigma national software productivity project, but the Tokyo Uni order is seen as giving it the green light for commercial use. Toshiba's Total-LAN, was previously based only on Ethernet. Japan Board Computer has developed a 10Mb memory board - using 90 1Mbit dynamic RAMs - for use with the IBM Personal AT in both real and protected mode: in real mode, it switches memory banks in 128Kb pages, while in protected mode, up to 10Mb can be addressed directly under Unix, Concurrent DOS 286, and the (not very) forthcoming MS-DOS 5.1 - or up to 16Mb with the maximum two boards; our Japanese correspondent tells us IBM has been test- ing the $3,700 board in the US for use in the AT. Tateisi Electrics, part of the Omron Tateisi group has come up with Duet-80, a software emulation program designed to enable 8-bit CP/M applications to run under Unix; the $3,000 program also enables the Unix file manager to handle CP/M files.

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Company Results

Digital Equipment Corp has reported that second quarter net profits soared 98.4% at $270.0m on turnover up 22.0% at $2,270m; mid-term net profits rose 117.2% to $452.6m on turnover that rose 23.5% to $4,310m. Net earnings per share rose 87% to $2.02 in the quarter, 102% to $3.39 in the half.

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Intel Corp has reported a fourth quarter net loss of $16.4m, up from a loss last time of $14.9m, on turnover up 11.8% at $355.6m; net loss for the year to December 29 was $173.2m after a $16m charge for closing Barbados and Puerto Rico plants and abandonment of bubble memories, and a $10.1m gain from repayment of debt, on turnover off 7.3% at $1,265m.

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Pyramid Technology Inc has turned in a first quarter net loss of $353,000, against a profit last time of $1.4m, which was struck after a tax credit of $639,000, on turnover that rose 4.8% to $12.0m.

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Microsoft Corp has reported second quarter net profits up 80% at $19.7m on turnover up 62% at $81.0m; mid-term net rose 108% to $35.5m on turnover up 74% at $147.8m. Net per share rose 54% to $0.71 in the quarter, 78% to $1.28 in the half.

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NCR Corp has reported fourth quarter net profits up just 0.6% at $134.1m on turnover that rose 12.1% at $1,575m; net profit for the year to December 31 was up 6.7% at $536.5m on turnover that rose 13.1% to $4,882m. Net earnings per share rose 4% to $1.39 in the quarter, 8% to $3.42 in the year.

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Tandem Computers Inc/fP has reported first quarter net up 133% at $27.1m on turnover up 40% to $238.0m. Net earnings per share rose 107% to $0.58.

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Seven year old **Unify Corporation** of Lake Oswego, Oregon, has secured around $2m in its first round of venture capital funding from Accel Partners, Inman and Bowman, Orinda, Dougery, Jones & Wilder, Mountain View, and Olympic Venture Partners for "rapid growth".

Minigrams

IBM is widely tipped to come out with a top-end processor delivering some 4 MIPS, for the RT Personal Computer Unix workstation - some observers are expecting it to appear before the end of the month.

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Convergent Technologies has announced that the new S/640, running the 25Mhz version of the Motorola 68020, is now available in the UK.

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Shortlands Computing Services of Maidenhead, Berks will be launching a new suite of accounting software for the construction and building industries at the Which Computer? Show to run under PC- DOS/MS-DOS and "many" Unix- based machines from NCR, Altos and Zilog: the eight packages in the suite include cost ledger; general ledger; purcahase ledger; material costing; retention sales ledger; sub-contractors' ledger; fixed assets; and payroll.

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The sudden rush by artificial intelligence software companies like **Carnegie Group** to rewrite all their development tools in C so that they can run on the generality of supermicros dealt a body blow to the specialist artificial intelligence computer manufacturers like Symbolics Inc: the Cambridge, Massachusetts company is laying off 160 people, 17% of its workforce, and those going include Bruce Rusch, vice-president for engineering, and Lawrence Coppenrath, sales and marketing vice-president; Symbolics indicates that its fiscal second quarter loss will be under $5m, against a profit of $3.1m for the same period last time, on sales of something over $23m; it lost $18.1m in its first quarter after charges.

Trading in the shares of **Norsk Data A/S** was suspended on the Oslo stock exchange on Friday because foreign ownership has apparently exceeded the permitted 45% and is now around 47%: reason is of course that the shares are traded in London, New York and on several other exchanges and the company is an attractive play; it is likely that Norsk Data will have to issue new shares in Norway to bring the ratio back below 45%, and more stringent controls to prevent Norwegian-held shares passing into foreign hands.

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Unisys Corp , which has already said that a charge of $250m to $275m will lead to a loss for the fourth quarter, now says that it expects to report a loss for all of 1986 as well - but that the outlook for 1987 and 1988 is brighter than the picture previously painted; it also says that its growth for 1986 is expected to have come out in "the low double digits".

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Another company with a new multi-user system is **Micro Business Systems' MBS Microtex** which is launching the Microtex 2+4 and 2+4 plus entry-level range; the 80286-based, 50Mb hard disk, 1Mb - expandable to 2Mb - RAM, two to six user machines, supplied under an OEM agreement by Altos, run Xenix 3.0 and have a standard 5.25" floppy with optional tape streamer; the Altos Office Manager accounts software package is included as standard on the 2+4 which starts at £5,295.

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The Burroughs Paoli Research Centre, which developed artificial intelligence applications to be used internally, will now be the centre for the **Unisyss** Knowledge Systems organisation: development will be carried out using Lisp, Prolog, Unix development tools and mainframe interconnect facilities for defence and commercial marketplaces at bases in Reston, Virginia; Minneapolis, Minnesota; and Madrid.

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Kalamazoo's recently formed unit 4-Front Computer Services (UX No 107) has announced its first six months of training programmes on Unix, C, Pick, Data/Basic and 4GLs: details from course administrator on 021-477-4111.

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NEWCASTLE UNIVERSITY's MARI UNVEILS TYNEWARE SUPERMICRO

MARI Advanced Microelectronics Ltd, subsidiary of the Microelectronics Applications Research Institute spin-out from Newcastle University, has come up with its own 68020-based Unix supermicro. The Tyneware System 20 is a VMEbus machine with 25MHz or 16MHz 68020 main processor supported by separate 68000- based Very Intelligent Disk Controller and Very Intelligent Communications Processor. The disk controller has SCSI bus and 512Kb or 2Mb of cache with on-board disk caching algorithms. The communications process-or has 16 asynchronoous and two synchronous ports and 57 bits of parallel input-output, 128Kb of buffer RAM and firmware for character processing. The machine takes up to 1.5Gb of internal disk, supports 30 or more users, and is rated at up to 8 MIPS. Main memory can go to 64Mb. Operating system is Uniplus+ System V.2, and OS-9 is also supported; a full range of disk and tape peripherals are offered; no prices were given. MARI was formed eight years ago by Newcastle University, Newcastle Polytechnic, Tyne & Wear County Council and CAP Group Plc. It is classified a research institute limited by guarantee. It inaugurated its MARI Advanced Systems Ltd manufacturing subsidary at Newburn last April.

UNIVERSAL COMPUTERS BUYS NEXEL FOR £1.3m

The last vestige of the UK National Enterprise Board's ill-conceived and ill-fated Nexos attempt to create an office automation giant from nothing has disappeared with the acquisition of Nexel Ltd by Pick-popper Universal Computers Ltd of Rotherhithe, London. UCL is paying £1.3m for the Thame, Oxfordshire office systems third party maintenance company, about 5% of the consideration in UCL shares, the balance in cash. Nexel more than doubles UCL's size, creating a group with almost £12m turnover and 247 employees, against the £6.25m and 115 staff that make up UCL's business with Ultimate, Tandem, Altos and IBM Personals under Pick - and diversifies it into Unix support. Nexel supports Logica's office automation products and is a recommendedservice company for Fortune Systems (UX No 86). Neither company was available for comment.

UNIX IN A REAL-TIME ENVIRONMENT: MODCOMP INTEGRATES SYSTEM V.2 WITH MAX 32

ModComp, Modular Computer Systems Inc, Fort Lauderdale subsidiary of AEG AG of West Germany, has held out against the irresistable tide flowing for Unix just about the longest of any of the traditional minimakers but the company has now succumbed, bringing out an implementation of Unix System V.2 for its Classic line of minicomputers, and marrying it intimately with its proprietary Max 32 real-time operating system. The company calls the result Realix, and claims that it is "the first true breakthrough of Unix operating systems in the real-time world" - the claim seemingly tagged to the power of its real-time environment rather than scepticism of others' claims for real- time extensions to Unix. ModComp is pushing Realix as a means for users to gain the traditional benefits of Unix as a development environment in their implementation of real-time applications. Realix includes the Bourne shell command interpreter and utilities, and an integrated C compiler that generates Modcomp 32-bit assembly language from C source code. Max 32 within Realix offers a real-time, event-driven executive, fast task loading and switching, dynamic allocation of resources, intertask communication and addresses up to 1Gb, and multiprogramming in Fortran, Pascal and Cobol; Unix processes can execute concurrently with Max real-time tasks. Realix needs a Classic 32/85 with 8Mb memory, console, two disks, tape, line printer and one async channel on a communications subsystem. It will be available in the second quarter; price will depend on configuration.

PYRAMID TO DELIVER V.3 OSx AND PREDICTS RECOVERY

Pyramid Technology Corporation under the direction of its new chiarman and president Richard Lussier (UX No 105) has announced version 4.0 of its OSx operating system which it claims is a dual-Port implementation of of AT&T's Unix System V and UC Berkelely's 4BSD. Pyramid says that this is a System V Release 3 implementation of OSx but RFS, streams, shared libraries and COFF (common object file format) are not included in the release. The company, headquartered in Mountain View, California, say that it is currently working on some of the additional V.3 features and utilities for the next release of OSx. No plans have been made for the inclusion of RFS, the company is "waiting to see how it develops". The new version of OSx includes a facility called Virtual Disk which allows users to create logical disk volumes that span multiple physical disks. Disks are not limited to the physical size of one disk; related information too large for one disk can appear to the user as if it were located on a single disk; this is known as disk striping. Pyramid say that this facility paves the way for a future implementation of mirror disks. OSx Release 4 has been tested using Issue 2 of the SVID, SVID 3 contains relates to RFS. This release also includes Release 2 of the System V Documenter's Workbench Software which contains improvements to the standard text formatting and phototypesetting utilities. OSx version 4 will be available in February on the Workcentre, 98xe, 98x and Series 9000 systems. Pyramid cites as proof that its fortunes are recovering the doubling of its share price over the last two weeks. The Wall Street Journal shows that on Dec 31st the Nasdaq quoted share price was 5.125c and this week it is 7.25c.

HARRIS CORP CLAIMS 8 MIPS FROM ITS HCX-9 UNIX SUPERMINI

After a slow start, Harris Corp is pulling out all the stops in the Unix market, and has followed up 18-month-old its HCX-7 with a top-end HCX-9, claimed to deliver 8 MIPS in single precision arithmetic, and 7.5M-Whet- stones running Fortran. Harris developed the HCX-7 with the help of, and using technology from, Computer Consoles Inc; it claims that the new machine is all its own work, but that claim is clouded by the fact that the University of California at Berkeley has switched to Computer Consoles machines from DEC VAXes for development work on the BSD 4.X imple-mentations of Unix - and now Harris says that the first HCX-9 is going to Berkeley to be used in development of BSD 4.4. Harris says that the new machine is built around "a 32-bit TTL chip"; Computer Consoles has been developing a Reduced Instruction Set CPU in Irvine, California for its next top-end machine, but it is unclear whether there is any connec-tion. The HCX-9 is built around dual VMEbuses for an aggregate input-output data rate of 40Mbytes- per-second nearly four times that of the HCX-7.

The machine features a Dual Universal Switch so that it can be switched between Unix System V.2 and BSD 4.2 without taking it down and bringing it up again. An HCX-9 with 8-slot VMEbus, 4Mb CPU, input-output controller, eight asynchronous serial ports, 32-user Unix licence and C costs $195,000 and deliveries begin in March. Options include floating point processor, two disk drives and a tape streamer. A second cabinet can be added to expand the system to 42 VMEbus slots and increase support to 256 users; up to 32 disk drives for a total of 17Gb, can be supported, and main memory expands to 128Mb.

PRIME SETS 64-BIT CYDROME PARALLEL CPU FOR SECOND QUARTER, MIPS RISC TO FOLLOW

Prime Computer Inc's strategy for building only the core of its supermini product line itself, and buying in more specialised extensions at both ends, will see the company bringing out major products from two start up firms later this year. In the second quarter, Prime plans to introduce a 64-bit vector and parallel processor from Cydrome Inc of Milpitas, California - the company previously called Axiom Computer Inc: the machine is expected to be front- ended by a Motorola 68020 running Unix, with Ethernet interface and strong Fortran support. The Cydrome machine is expected to deliver between 12 and 14 Mflops. Prime says that it is still planning to incorporate the RISC boards from MIPS Computer Inc, combined with technology acquired from Silicon Graphics, in new workstation. Prime has also extended the commercial and office-oriented strand of its minicomputer line with the top-end 2755, which supports up to 128 users, and offers about 35% better performance than the 2655 at about 4% higher price. The 2755 has 64Kb cache against 16Kb on the 2655, up to 16Mb main memory against 8Mb, and is rated at about 1.6 MIPS against 1.3 MIPS. Base US CPU price is $95,050, with a typical configuration costing $102,000.

HEWLETT-PACKARD LOOKING FOR OEMS - EXPECTS GREAT THINGS FOR UNIX-BASED HP 840

In line with chairman John Young's strategy, announced early in 1986, of concentrating on producing the best computer possible but leaving applications software to others, Hewlett-Packard is looking to double, to sixty, its number of UK OEMs by the end of October. According to HP's UK third party marketing manager Graham Valentine, the new OEMs will fill the gaps in the range of software currently offered on the HP machines. He says he is looking not only for value added resellers who wish to increase the number of machines they can offer products on, but, more importantly, for "cottage industries" that can blossom. "We are in the game of playing spot the winner, so we are prepared to support OEMs as they go through the learning curve". To this end, all new signings will be given a two year contract with a flat rate of discount. HP has traditionally done well in manufacturing and distribution and Valentine is confident that those strengths will continue while other areas are opened up. In particular, he is looking for great things from Unix-based applications on the HP 840 which is due for delivery next week. He describes the box's price-performance as "quite staggering" and is confident of finding the OEMs to help the product sell. Valentine says that the delay to the RISC-based top-end HP 9300 will have no impact on HP's third party sales.

BORLAND HAS $100 TURBO C LANGUAGE FOR PERSONALS IN THE US

Borland Intenational Inc, Scotts Valley, California has added the C language to its range of Turbo high-speed compilers for the IBM Personal Computer family. Turbo C is a one-pass optimising C compiler claimed to compile at a rate of 7,000 lines of code per minute, and also supports linkage to Pascal code. Borland is offering Turbo C at $100 in the US.

NEWS FROM LAST WEEKS UNIFORUM IN WASHINGTON

MERGED XENIX/UNIX PRODUCT FOR 1987 BY INTERACTIVE, SCO AND MICROSOFT

By the end of the year, a merged Xenix/Unix V.3 product is promised which will be binary compatible with Xenix/286, Xenix/386 and Unix V.3 applications, and also run DOS software. The product will be a result of an agreement, announced last week, under which Interactive Systems has joined Microsoft and Santa Cruz Operation to sell develop Xenix on the Intel 80386 and other processors. The first version of Xenix/386, to fully exploit the 386 architecture but not V.3 compatible, will be avaialable from the Santa Cruz Operation and Microsoft in March. This version will have hooks into the VP/ix product which allows DOS to run under Unix, developed by Interactive Systems and Phoenix Technologies; SCO has licenced VP/ix and will be packaging the combined product for OEMs. Meanwhile the version of Unix V.3 for the 386 developed by Interactive, commisioned by Intel for AT&T, is out on beta test sites and is currently being cetified by AT&T for SVID compatibility.

COMPAQ TO STOP SELLING XENIX: RECOMMENDING XENIX V/286 FROM SCO

Compaq will stop distributing its Microsoft- developed Xenix on its 286 product line, instead recommending to customers that they take a new version, Xenix V/286 Release 2.2, from Santa Cruz Operation, and offering to switch existing Xenix customers to the new version free of charge. It will also recommend SCO Xenix, to be available in the first half of 1987, for its 80386 products. Compaq, which refused to give figures for 286-based shipments with Xenix so far, said that it switched after it found itself selling a product directly which was incompatible with SCO Xenix, the product that has dominated the 286 Xenix market through dealer channels. The incompatibilities between SCO and Microsoft Xenix, which are mainly in the device drivers, will be largely cleared by the time of the new release.

X WINDOWS GATHERS ENDORSEMENTS FROM MORE VENDORS, DEC INCLUDED

Following the mass endorsement by 11 vendors for the X Windows interface (UX No 112), Uniforum saw the standard springing up everywhere, headed by a statement from DEC that X would be the standard windowing system for its complete desktop line. The DECWindows programme will see a uniform interface based on X implemented on VAXstations under VMS and Ultrix, and VAXmates under DOS; DEC already uses it on the VAXstation running Ultrix, but the product will also replace DEC's own VMS based window system, which will still be supported. VMS VAXstation users wil be offered "transition aids". X defines a graphics programming interface and protocol for communications between a "client" application and window "server" either on the same or different machines; in addition DEC will use X to develop a standard user interface. Among other versions of X Windows on show at Uniforum were a Xenix/386 implementation on the Microsoft stand developed by Graphics Software Systems of Beaverton, Oregon; Locus Computing Corp, was also showing a version called LX-Windows.

PYRAMID TO MARKET SUN WORKSTATIONS WITH ITS RISCs

Sun Microsystems and Pyramid Technology Inc, both of Mountain View, California, have signed an OEM agreement worth $15m over 18 months, under which Pyramid will be able to offer comprehensive intergrated systems tying together Sun workstations and servers in networks of large Pyramid database and networks servers from the company's new 9000 series of top-end Reduced Instruction Set Unix minis.

ANNOUNCEMENTS SEE DEC COMING OUT STRONGLY FOR UNIX AND C

DEC extended Ultrix-32 support up the VAX line to the 8800, introduced a faster C compiler, improved DECnet support and moved towards System V compatibility with Release 2.0 of the Berkeley-based operating system announced last week. The new version also included the expected support for Sun's Network File System. Ultrix is now available for the big BI-bus only VAXes - but not the 8900 multiprocessors or clustered systems - and for the new DEC storage subsystems. Replacing the existing C compiler is an optimising VAX/C Ultrix, developed by DEC's VAX compiler group, which will be bundled with the operating system; compiled programs are claimed to execute almost twice as fast as those compiled with the standard Unix Portable C. DECnet support for Ultrix still lags behind that available for VMS in that Ultrix systems can only act as DECnet end nodes, but now enables Ultrix machines to act as gateways between DECnet networks and TCP/IP networks. DEC has also made the first of long-announced moves towards SVID and IEEE P1003 compatibility; however full compatibility with SVID Release 1 will not happen until the next, minor release of Ultrix-32. Due to ship within "a few weeks", Ultrix-32 Release 2.0 costs between $4,000 for an eight user MicroVAX and $70,000 on the 8800.

UNISOFT JOINS INSTRUCTION SET: OFFERS INTERNATIONAL LANGUAGE SUPPORT

Hewlett-Packard's scheme for supporting international character sets under Unix has already been adopted by the X/Open group, and at Uniforum in Washington last week two prominent software houses announced that they would be offering the HP software to OEMs under licence. London-based The Instruction Set will be selling it as NLS, Native Language System; it will be offering source, doing ports and selling binaries (UX No 112). And Unisoft is offering International Language Support from the third quarter 1987. The HP software copes with 8-bit characters for supporting European languages, and future versions will support 16-bit characters to cope with Japanese Kanji and other Eastern languages.

NOW 3COM PICKS CENTRAM AS ITS ACQUISITION PARTNER...

Having seen its agreement to be acquired by Convergent Technologies fall apart, local network builder 3Com Corp, Santa Clara, California has found a much more modest partner in the shape of Centram Systems, Berkeley. 3Com has signed a letter of intent to acquire Centram, which developed the Tops networking program for Apple's Macintosh. Introduced five months ago, Centram's Tops is claimed to be the first true file server for Macintosh. It enables each computer on the network to share files, disks and peripherals with any other, and can translate between Mac-DOS, PC-DOS and Unix so that dissimilar computers can share files transparently and in real time. Privately-held Centram has 40 employees; the Tops installed base is put at over 15,000 workstations. The share-exchange agreement is expected to be completed before month-end.

AND MT XINU TO SUPPORT CENTRAM TOPS NET FOR BERKELEY UNIX USERS ON VAX

Centram Inc, the Berkeley, California company that developed the Tops local area network and related interconnection products, has an OEM arrangement with Unix software publisher Mt Xinu, under which Mt Xinu will market and support installations of Tops in the Unix environment. According to Centram, Berkeley Unix, despite its advantages, has often been limited to the academic community: it hopes that the ability of Mt Xinu, with its Xinet package, to offer all DEC VAX users, whether academic or business - the full functionality of Berkeley Unix, will expand Tops and Berkeley Unix use in commercial applications. Mt Xinu's major product is an enhanced form of 4.3 BSD Unix, available in both source and binary form. Tops fits in with Mt Xinu's Xinet package, which integrates Centram's file server software and hardware with Kinet- ic's K-Talk/Apple Talk protocols, multi-window terminal emulator and FastPath or Q-Bus. The four year old Mt Xinu has until this year solely specialised in support of Berkeley Unix for DEC VAX computers. The company says that during 1987 this will change and it will extend its services to encompass most of the big Unix names. Mt Xinu, also of Bekeley, California, was started by staff from UCL Berkeley who decided that there was a market for a company that supported the 4.X BSD because Berkeley itself does not provide support. The company says that it has no intention of introducing Unix System V Release 3 into its activities because its customers require more recent technology: it claims to be the first company to support Sun's Network File System a year and a half ago. Mt Xinu plans, however, to develop a superset of Unix 4.3 BSD that will conform to standards as defined by X/Open and the IEEE in Posix later this year. The company is in the process of finalising contracts with two distributors in Japan and is also looking for small software houses to represent them in Europe.

QONTEL CLIAMS SUPERIORITY TO S-TELEX WITH QONTELEX AND LAUNCHES QT-2000

The company spawned from Motorola's staff cut-backs last Jaunary (UX No 60), Qontel, has changed direction. Qontel started life a year ago as a training and consultancy outfit but is now delivering Unix-based communications products. Qontelex, the first of the products available last year (UX No 106), has been followed in the last few weeks by QT-2000; a message switching system aimed at the small end market. Brian Mills, sales and marketing director of Qontel, says that Qontelex is integrated into Quadraton's Q- Office, Redwood's Uniplex and Fortune's Fortune Word. The Maidenhead, Berks company also says that the system has now been ported to machines from Convergent Technology, Fortune, Integrated Micro Products and Systems Reliability and IBM's 6150. The product is aimed primarily at OEMs and the company claims that five OEMs are currently evaluating the product. Qontel says that Qontelex is superior to the current market leader in this field, S-Telex from Systems and Telecoms of Reading in Berks, because of its recent development. Qontel also claims better presentation, easier adaptability and a cheaper price for its product over S-Telex. Systems and Telecoms say that it is currently unconcerned by the Qontel threat despite the fact that S-Telex was developed five years ago. Systems and Telecoms says that S-Telex is regularly upgraded, the next upgrade is due in six weeks time, and it has never yet come across a software package that works correctly first time, S-Telex has the advatages of being tried and tested and a large user base. Systems and Telecoms claims that S-Telex has been approved by every Unix manufacturer except Indata AS of Norway. The retail price for Qontelex hardware and software is £2,950. The second communications product from Qontel is for the end-user market intended for use as a small business data processing system so that PC applications can be shared between all PCs on the server. This message switching system, QT-2000, is based on a Convergent Miniframe running the Qontelex software. The system may act as an IBM PC server or a telex and electronic mail system. QT-2000 has communications facilities for Ethernet, British Telecom Gold and IBM. The entry- level price for the QT-2000 is £10,000.

BRITTON-LEE LAUNCHES IDM INTERFACE FOR SUN, AT&T, PYRAMID AND OTHERS

Britton-Lee is attempting to attract new customers for its dedicated relational database machine with the launch of an interface package for most Unix-based machines. The Los Gatos, California-based company is pushing the package predominantly for workstations from Sun Microsystems to interface with the Intelligent Database Machines, the IDM 500 series. One Sun workstation is attached to the IDM via GPIB channel and will have a process called the "server" on it. All other machines; Sun workstations and others including offering from: AT&T, Pyramid, Prime, DEC, Norsk Data and IBM; will be attached to the server machine by Ethernet. Each attached machine will have a copy of the software that is based on Britton Lee's host software which allows the workstations to create application programs; run interactive query lanaguages such as SQL and IDL; and run IDM utilites. Jan Nordhagen, European Marketing Director, says that the key benefit of the interface package will be the "availablity of shared data between heterogenious computers". The package is immediately available from Briiton Lee in the US and from its European headquarters in Windsor, Berks. The cost is $24,000 for a package per Sun worksation and slightly more or less for the others depending on the size of the system.

ICL SETS UP MANUFACTURING DEVELOPMENT UNIT IN GERMANY

ICL has gone international with its push into manufacturing systems, opening a Technical Applications Centre in Dusseldorf, West Germany. The new centre will have responsibility for development of computer-aided design and engineering products for marketing in all countries where ICL sells manufacturing systems. The initial three projects at the centre are development of a comprehensive engineering database for Series 39 mainframes; an integrated set of CAD/CAM products for the Sun/3 workstation now marketed by ICL; and completion of the German and French versions of the OMAC 39 manufacturing control system.

MICROPORT SIGNS WITH SST DATA FOR UNIX TO IBM SOFTWARE

Microport of Scotts Valley, California has signed a joint marketing agreement with SST Data of Milwaukee, Wisconsin to bundle SST's Handshake communication software with Microport's System V/AT operating system. This agreement, valued at $250,000, is intended to cash in on the great demand for communications products between Unix and IBM environments. As soon as Microport has completed ports for Intel's 286 and 386 microprocessors distribution will take place. The SST software links Unix-based micros to IBM mainframes and Systems 34/36/38.

ENMASSE CEASES OPERATIONS, SEEKS TO SELL TECHNOLOGY

The venture capital investors who put up $18m in three rounds of venture funding for EnMasse Computer Corp, Acton, Massachusetts, have pulled the plug on the company, and it ceased operations last weeks, laying off 44 of its 50 employees. EnMasse is eeking to sell its transaction intensive Unix multi-procesor technology, with Toltec Computer Corp, Scottsdale, Arizona, top of the list of potential buyers - Toltec announced at the end of last year that it was putting the Pick operating system onto the EnMasse E/CS-1 to run concurrently with Unix. Olivetti SpA holds a 30% stake in Toltec.

EMULEX, GENERAL ROBOTICS JOIN FORCES

Having lead the investment group that bought an issue of shares made by the company last year, Emulex Corp, Costa Mesa, California has now agreed to broadbrush collaboration with supermicro manufacturer General Robotics Corp, Hartford, Wisconsin. Under the agreement, Emulex will provide General Robotics ics with its full line of DEC-compatible peripheral and communications controllers for use with the company's Python 32 NS32000- based Q-bus Unix machines. Emulex chairman Fred Cox has also been elected to the board of General Robotics, which started out in the early 1970s as a DEC systems integrator.

HEWLETT-PACKARD PREPARES 30MHz RISC MICROPROCESSOR; CUTS 9000/930 PRICES

Hewlett-Packard has announced that it has cut the price of its HP9000/840 Unix RISC machine, deliveries of which started only in November, by 28% to $81,000, pitching it about 10% below a comparable DEC VAX. The company says the price cut is made possible by cheaper parts and by manufacturing efficiencies. Separately Hewlett-Packard is already seeing first silicon on two challenging new Reduced Instruction Set microprocessors for use in its 32-bit Precision Architecture machines, the hotter being an NMOS part clocked at 30MHz that will replace two TTL boards in the HP3000 950. It has a three-stage pipeline, and is rated at 15 MIPS, and will have a pair of cache co-processors a la Fairchild Clipper, with a 120Mbyte per second transfer rate between CPU and cache. The part will be described at next month's International Solid State Electronic Circuits Conference according to Electronic News, which notes that the company will also describe a CMOS 32-bit RISC microprocessor for workstations, with 8MHz clock and 256 byte on-chip cache.

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Minigrams

The Santa Cruz Operation announced a variety of packages available for its version of Xenix, aiming them to put paid to any rumours that Xenix has unfriendly and limited solutions: they include Xenix System V Version 2.2; Multiview, a windowing system from **JSB Computer Systems** in Cheshire; FoxBASE, the Santa Cruz version of dBase 111 Plus; Micro Focus VS Cobol, including Animator and Forms-2; Softquad publishing software; and GSS*CGI, a device independent bit-map and vector graphics development tool from Graphic Software Systems.

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Unisoft Corp , of Berkeley, California has announced Uniplus+ System V Release 3 will be available during the first half of this year: it will include the most recent features of Unix System V.3 and 4.3BSD.

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Fortune Systems Corp , of Belmont, California, has signed up three US VARs: **Datamax Office Systems Inc, St Louis; Jones Business Automation Centre, Charlotte in North Carolina; and Computer Partners Inc in Boise, Idaho** Belmont, California-based company say that these three have agreed to buy £6.4m of the Fortune 32:16 and Formula over the next three years.

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Integrated Micro Products , the Consett-based VME bus board manufacturer, has announced that it has doubled its turnover in 1986, turnover was £1.27m and profits were £182,000 before tax: the company says that orders received over the last month have already exceeded £2m.

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New board level products are expected from Integrated Micro Products in April.

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Access Technology , with its European base in Marlow, Bucks, has appointed **Mentec** of Dublin to distribute the widely used spreadsheet 20/20.

BenchMark Technologies of Kingston, Surrey has announced that the CGen Basic to C conversion product from MS Associates is available on its benchMark 32 products.

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Datavision , of Blackpool, Lancs, has appointed **Praeda Management Systems** of London, Ontario to distribute its Basic compiler, Universe Basic, throughout Canada.

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Motorola Computer Systems has appointed **Hi-Tek Distribution Ltd** , Cambridge, as distributor for the Series 8000, with Hi-Tek taking £500,000 of the Unix boxes over the next ten months; Hi-Tek is part of the Newey & Eyre electrical group, itself owned by BTR Plc.

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Norsk Data A/S has launched a line of top-end machines, the ND-5000 which delivers 26 MIPS, double the present maximum: the standard operating system will be Sintran III but Norsk Data's implementation of Unix, NDIX, will be offered as a task under Sintran.

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Arete Systems Corporation of Palo Alto, California has announced a new version of its implementation of Unix System V Release 2, Arix, Arix Version 4.0 is claimed to increase throughput of Arete systems: the company is currently developing a V.3 version of Arix.

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Logic Replacement Technology Ltd of Reading, Berks has launched a wide area network systems link for Ethernet called IntraCOMM 5 which allows disparate local area networks to be linked into a single logical network.

Tolerant Systems Inc , San Jose, California, has signed the first phase of a $7m three-year agreement with E-Systems Inc's ECI Division in St Petersburg, Florida, to supply its Eternity fault tolerant supermicrosfro the new US Air Force Survivable Communications Integration System: E-Systems will develop and implement the systems under a $26.9m contract awarded in August 1986 after a competitive procurement; options are valued at an additional $40.7m and the system will be part of the National Attack Warning and Attack Assessment System, interconnecting ballistic missile sensor sitesand command centers using survivable controllers, with the Eternity machines supporting these links and controllers using the machine's fault-tolerant message handling capability.

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Innovative Software Inc has announced an agreement with **NCR Corp** of Dayton, Ohio, under which NCR will market a co- labelled Unix version of the Smart Software System on the NCR Tower: the Smart Software, developed by Innovative consists of a word processor module with a spellchecker, a database manager and a spreadsheet that supports graphics.

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/usr/group , the association of Unix system vendors based in the US introduced the 1987 Unix products directory at Uniforum last week, the directory contains 3,164 products and services from 826 Unix vendors - to order the directory phone or write to /usr/group at 4655 Old Ironsides Drive, Suite 200, Santa Clara, California, 95054 - Telephone 408 986 8840: to general members of /usr/group the directory is available on a complimentary basis, to associated members a fee of $25 is charged and the general public can get for $50.

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WOLLONGONG, SPIDER, LACHMAN TO OFFER V.3 TCP/IP SUPPORT

The arguments over AT&T's licencing restrictions aside, one of the reasons many manufacturers have not yet felt the need to move over to System V.3 is that there has so far been little support developed that enables the Streams architecture introduced with V.3 to work with widely used networks protocols. That support has started to arrive, with both AT&T-contracted and independently developed versions of TCP/IP networking on offer. At the Uniforum exhibition in Washington, both the Wollongong Group, contracetd by AT&T to develop Streams- based networking software, and Naperville, Illinois developer Lachman Associates announced V.3 based versions of TCP/IP. Wollongong was also showing Berkeley networking features working over an OSI- conformant transport layer and Ethernet. Lachman has signed up Convergent Technologies as an OEM, and claimed that its implementation is also compatible with the Berkeley sockets mechanism. Meanwhile Edinburgh software house and Ethernet specialist Spider Systems also has a version of TCP/IP that can be accessed both via AT&T's V.3 TLI interface and via the Berkeley sockets library; it will be targetting European manufacturers with the product and already has one large OEM in Europe.

UNISYS SETS REORGANISATION OF ITS UNIX PRODUCTS

Unisys Corp is attempting to make sense of its Unix interests, and, not too surprisingly given the commitment made by each of the constituents, Sperry's Unix base in Salt Lake City, Utah, where the company also manufactures its terminals, comes out on top. The old Burroughs engineering and devlopment operation set up in Downington, Pennsylvania to handle the XE500 version of Convergent Technologies' Megaframe and its successor products will be transferred to Salt Lake City, over the next six to nine months and some employees will be offered transfers - if they can face a dry life in the desert. The XE500 will be integrated into Sperry's array of [illegible] but XE500 [illegible] in Liege, Belgium, will be unaffected.

UNISOFT FOCUSES ON BSD FEATURES IN V.3 UNIPLUS+

Porting specialist UniSoft Corp accompanied its move up to System V.3 for the Motorola 68020 version of its Uniplus+ Unix , due to ship in the first half of the year, with an increased focus on Berkeley enhancements including a series of features from BSD 4.3 and claimed compatibility for BSD 4.3 programs. Although the new release is said to include Streams and the TLI/TPI (Transport Level Interface/Transport Provider Interface) communications interfaces from V.3, Unisoft, itself based in Berkeley, California and majority owned by Root over here, said that it expects to major on NFS - also included in the new Uniplus+ release - and that RFS will only be produced later "in response to market demand". Also due in the thrid quarter is streams-based support for TCP/IP. Additional features include the Korn shell, a BSD 4.3 execution environment claimed to allow 4.3 programs to run under Uniplus+, fast file and large block file systems, and a smart board executive to ease the offloading of tasks to additional slave processors. Unisoft also said it will be distributing the Green Hills range of compilers.

THOMSON TO MAKE MG-1s FOR FRENCH MARKET

In a bid to improve the neglible sales that Whitechapel Workstations has to date achieved in France the East London-based company has signed an agreement with Thomson-CSF (CEL) for the manufacture of MG-1 workstations in France. The agreement, which started at the beginning of January, is for an initial period of two years and Thomson is expected to make around £2.5m or 250 systems in the first year. Whitechapel hopes that the agreement will lead to a 5% share of the French workstation market. Thomson will be manufacturing the machines in Laval, west France, and recent Whitechapel distributor, Multistation SA of Paris, will handle the marketing (UX No 105). Whitechapel say that manufacturing for all other European countries will continue from its UK base in East London and has no plans for other similar arrangements or more distributors. Whitechapel is also to have an injection of capital from Benevent Management of Brussels and Guiness Mahon's Venture Founders in return for a 20% equity stake each. each of the two venture capitalists will donate £275,000 immediately with another £275,000 available from each when necessary. Whitechapel say that part of the capital will be used for new product development.

Inside this issue:-

COROLLARY OFFERS MULTI-CPU XENIX POWER FOR AT-COMPATIBLES.

After a slow start, sales of Xenix on AT- compatibles have grown healthily over the last year, largely via dealer channels, as a low cost route to a small multi-user system. The problem is, what do you do when your AT- compatible runs out of steam? A few companies are marketing boards that boost multi-user performance by offloading terminal I/O to extra processors; US startup Corollary Inc has taken a different approach and is offering a complete package for adding more CPU power and conveniently handling the additional terminals. Corollary has an interesting background: born out of the group that was developing products at Western Digital for the MIT-originated Nubus, it was formed when Western Digital pulled out to concentrate on its core business in disk controller manufacture and sold the operation to Texas Instruments, which has since used the Nubus for both its Unix and AI range of machines. Irvine, California based Corollary has so far ignored the Nubus altogether for its products, choosing instead to use its experience with the multi-processor architectures for which the Nubus was designed to squeeze up to four extra CPUs and a claimed 32 users onto an architecture that was plainly not designed to handle it. The Corollary add-ons come in three parts, according to Corollary president George White. Up to four 80286 boards, each with 1Mb local memory, can be slotted into the AT bus. To avoid a 32-wire tangle of RS232 lines hanging off the back of the AT, extra terminals are handled by terminal concentrators, communicating with the CPU by an SDLC-type protocol, with a single line from each 80286 board leading to a concentrator that supports 8 terminals.

The third part of the system is a kernel modification to enable the add-on processors to handle user processes, while the original CPU runs the Xenix kernel. All traffic still goes through the kernel, according to White, but bus overloading is countered by the local memory approach used for each processor. The software is intelligent enough tio be able to dynamically allocate processes to available CPUs, and even migrate waiting jobs to less heavily loaded processors with a an algorithm to ensure the system doesn't spend all its time shifting processes from one processor to another. Corollary also provides tools to "optimise load balancing" for different applications - for instance a database server could be locked to a particular processor. White said that approach used for Corollary's initial products was adequate for a small number of processors; Corollary is also designing a larger system that will supplement the AT bus with a second, faster bus. Corollary is targetting OEMs that build AT- compatibles and are looking to boost Xenix performance, and VARs that want to carry just one hardware system but still be able to provide 4-32 user performance. The initial version is for OEMs whose Xenix is based on the Microsoft OEM kit; Corollary says it will also be shipping a version for the more widely used Santa Cruz Xenix when SCO comes up with Release 2.2, the release that is intended to clear lingering incompatibilities with the Microsoft version. Product shipments are due to start in March; pricing is $1950 per processor, $795 for the terminal concentrator and $250 for the Xenix kernel modifications. Corollary currently has seed venture capital arranged by Hobbs and Associates from a fund managed by Brentwood Associates.

TELEVIDEO PLUNGES INTO UNIX WITH TELENIX WORKSTATION

Televideo Systems Inc has adopted Microport's roster of Unix implementations for its first major entry into the Unix market, the 80386- based Telenix-386 and the 80286-based Telenix 286-1 and -2. The machines provide three operating options, System V/AT, MS-DOS; or Merge 286 and Merge 386, which run Unix and MS-DOS tasks concurrently and support up to eight users. The 80386 machine uses the 16MHz version of the part, and supports up to 16 users. It comes with 2Mb to 16Mb of RAM, 40Mb or 71Mb disk and 60Mb streaming tape, and eight slots, costing $8,000 to $15,000 according to configuration and set for the second quarter. The other two - eight-user - machines use an 8MHz 80286 and the Model 1 comes with 1Mb CPU, 40Mb disk and five slots for $6,000 for $5,995; the Model 2 with 2Mb CPU, 71Mb disk and eight slots for $8,995; both also include a 1.2Mb floppy; first US ships this quarter. Televideo paid just under $10m last year for a minority stake in Microport Systems.

ELXSI ADDS REAL-TIME SUPPORT UNDER BOTH SYSTEM V AND 4.2

Elxsi Corp, Sunnyvale, has incorporated real-time capabilities into both the Unix implementations on its 64-bit System 6400 mini-supercomputer. The company claims that the new extensions provide true real-time, parallel multiprocessing computing at between 1 MIPS and 100 MIPS according to configuration. Elxsi is the new name of Trilogy.

SYSTIME ADDS TO PRODUCT LIST AND HOPES FOR A RETURN TO PROFITABILITY

Systime Computers intends a long-awaited return to profitability with a string of software and hardware products to be released later this year. The former £60m-a-year company will be adding an 80386-based version to its Xenix-based S-series within the next month and it is also negotiating with "a foreign computer company" for a top-end Unix-based machine to cater for over 100 users. In the software line the Leeds-based company will be launching an update of its Basic + RSTS to Unix conversion package, Basic + 2, and a "fourth generation environment package" which will incorporate a 4GL from an unnamed vendor and tools developed by Systime itself. Systime is also taking on board Austec's AceCobol intending to do for Data General users what it currently does for DEC users with Trans-Basic. Systime also intends to port Unix System V.3 to its S-series over the next few months. During the company's heyday, back in the 70s, the company claimed to be the second biggest UK manufacturer of computers as a DEC OEM but the company was taken over by Control Data and then lost its lucrative D-series customer service business to DEC in settlement of a £5m law suit for alleged illegal copying of DEC's printed circuit boards (UX No 63). When Systime lost its DEC business it decided to major on Unix and signed an agreement with Parallel Computers to sell its fault-tolerant machines but although this agreement is still in place, despite the acquisition of Parallel by General Automation, the company has sold few of the machines saying that this is a too specialised market for them and will be concentrating on general business automation Unix machines.

GOULD UK ADDS MILITARISED VERSION OF PN6000

Gould Computer Systems, Sutton, Surrey has announced a ruggedised, military version of its 32-bit PowerNode PN6000 Unix box which the company will pitch against DEC machines for Ministry of Defence contracts. The PN6000R "passed its physical" with the UK Royal Navy last November as part of a contract that will be announced this Summer. The machine runs under Gould's implementation of AT&T's System V.3, UTX/32, which meets the Berkeley BSD 4.3 Unix standard adopted by UK Government bodies. The rugged version measures 17 inches by 24 in. by 33 in., weighs 150 lbs and "even floats" when it's in a container. Gould in the UK had a turnover of £40 million last year, around 25% of that in Ministry of Defence contracts, and is presently bidding for six more MOD contracts for flight simulators and testing equipment at RAF and Royal Navy establishments. The PN6000R, which meets the MOD's Commercial off-the-shelf (COTS) and Non-development Item (NDI) requirements, costs around £60,000.

REDWOOD ADDS DOS UNIPLEX, GRAPHICS, COMMUNICATIONS

Redwood International has supplemented its Uniplex office software with a DOS word processing module, enhancements to cope with bit-map graphics, laser printers and the first of s series of communications options. Initial release of the DOS version, which should ease the sale of Uniplex into mixed Unix/DOS installations but is not expected to be a massive seller in its own right, is a standalone word processor only; subsequent releases will add terminal emulation and closer integration with Unix hosts. Redwood is backing the Postscript page description language seeing it as the most likely candidate for a standard, and a new bit map graphics module is supplemented with laser printea support for Postcript-compatible and other printers. Communications "filters" allow document interchange with IBM DISOSS systems using DCA and systems using the US military standard Navy DIF standard, as well as a facility for importing Lotus 1-2-3 spreadsheet data. Prices for a small multi- user system are £195 for the printer module, £395 for bitmap graphics, £395 for the DOS version, £195 for Lotus import facility and £395 each for DCA and Navy DIF filters.

DEC SETS MICROVAX, VAXSTATION 2000 AT HALF MICROVAX II PRICE

Heralding another major round of price cuts on 68020-based workstations and further exposing IBM with the RT Personal, DEC next week is expected to unveil the first implementation of its long-awaited microprocessor version of the VAX processor as the MicroVAX 2000 and the VAXstation 2000. Details are sketchy, but the machine is tipped to come in at about half the price of the MicroVAX II, but to deliver about 90% of the performance of the venerable VAX-11/780. The machines are the ones that were codenamed the Teammate and the VAXStar last year. They will support the Ethernet speed Local Area VAXcluster. Main memory on the single board MicroVAX is now expected to go to 6Mb, with a standard configuration having 4Mb CPU and a 42Mb disk.

SEMADS SIGNS TO BECOME MOTOROLA 8000 VAR AND ANNOUNCES FIRST CONTRACT

The Computer Systems arm of Motorola has signed up Semads as a VAR for its Series 8000 family. This £500,000 agreement follows the recent agreement with Hi-Tek Distribution Ltd (UX No 113). Semads say that its decision to become a Motorola VAR was prompted by the availabilty of Unix System V.3 from Motorola (UX No 112). The London-based company is unconcerned that V/68. comes as standard without RFS or streams as most of its customers will only be interested in the new release for the performance enhancements. Semads has already signed a contract, valued at £62,000, with the Institute of Civil Engineers to supply a Motorola 8400 with V/68 release 3.

NORSK TO CONTINUE SLOWER GROWTH WITH ADHERENCE TO STANDARDS

Rolf Skar, President of Norsk Data A/S, introduced the company's preliminary results for year ended 31 December 1986 with an 'I told you so' message. Sales were up 37% at £240m and pre-tax profits were up 29% at £44m. Over the last fourteen years, since Norsk's inception, the company has enjoyed a growth rate of between 35% and 40% but the rate during 1986 was between 25% and 40%, Skar predicted this at the announcement of Norsk's interim figures in September. This is reflected in that Norsk recruited 800 employees during 1986, some 200 fewer than in previous years, the company now employs 3,600 staff worldwide. Revenue growth was split evenly between Norway and the rest of the world. A negative growth was repoted for the company's US interests but Skar expects the new marketing agreement with Mycro-Tek Inc to improve this situation; revenues in excess of $30m are expected for Norsk Data over an initial three-year period. Norsk's growth in Sweden, France and Germany was between 30% and 50%. In Germany sales were less than anticipated because the company failed to get in contracts expected in December. Sales in France, traditionally a strong technical and scientific market for Norsk, declined over the last three months of the year due to a leak of information concerning the launch of the top-of-the-range ND-5000 family (UX No 113); companies were waiting for the new machines rather than order the existing range. The UK base boasts the most successful year since its launch in 1981 with a 50% growth rate: it also claims a a company history record in being the only base outside Norway to develop any Norsk Data product; the Butterfly desk-top mini. The figures for 1986 also included two Scandinavian acquisitions: Norwegian software house Infologic, now 100% owned by Norsk Data; and Danish company Datainform, controlled by Norsk Data through a shareholders' agreement. The consolidation of these two companies added £10.14m to the 1986 revenues. Norsk anticipates that 1987 will be a transition year while customers accept new hardware and contracts and acquisitions with other companies come to fruition. The company will be investing about 15% of revenues into development of the company and is still looking for more maintain complete software control over its products, seeing itself as a solutions provider, and so will continue its loyalty to its own proprietary operating system, Sintran, but will cover its options in offering Unix and any other product deemed a standard.

PRIME ADDS TO ITS RANGE TO COMPETE WITH THE LIKES OF DEC, IBM AND DG

Prime Computers has replaced its 2655 offering for the office environment with the 2755 which it claims will be a strong competitor to the DEC 8300, IBM 9370 Model 60, and the Data General 15000 Model 8. The new product will fill the gap between the Prime 2350/2450 and the top-end 9755 and 9955-II and according to the company offers 35% faster processing time; double the main memory and terminals compared to the 2655 with a 5% price increase. The 2755 will support up to 16Mb memory, 128 terminals and 64Kb cache. The new machine supports the proprietary Primos operating system that runs the Prime implementation of Unix, Primix, as a task. Prime has also added two new disc drives; a 773Mb disc subsystem for high-end machines and 258Mb disc system for the bottom of the range. The latest announcement from Prime also included notice that Common Lisp from California-based Lucid runs on Prime hardware. The 2755 has an entry level price of £76,000 and the top-of-the-range version comes in at £106,000: a typical configuration including 4Mb memory, intelligent disk controller, 4976 media disk subsystem costs £82,200. Prices for Prime Common Lisp range between £6,720 and £9,600.

INTELLICORP MARRIES SQL QUERY LANGUAGE TO ITS KEE

Relational databases using IBM's Structured Query Language are now so commonplace that it makes sense to integrate SQL with the generality of specialised software, and IntelliCorp Inc, Mountain View, California, has come up with the bright idea of creating a marriage between its KEE Knowledge Engineering Environment and SQL databases. It has just introduced two products, KEEconnection, providing a bridge for passing information between databases and knowledge systems built in the KEE system. It enables information in SQL relational databases to be mapped into KEE applications "easily and quickly". And IntelliScope provides an integrated environment for querying, browsing and analysing databases. Described as an intelligent database assistant built on the KEE system and using the KEEconnection, IntelliScope is designed to enable novice database users to conduct complex data searches and to analyse information of interest interactively. The KEEconnection is to be released in August, and IntelliScope will follow in October. They will initially support links to Oracle and Ingres databases on DEC VAX computers and Britton Lee database machines (UX No 113), and links to IBM DB2 mainframe databases will be on a custom service basis until the standard version is set.

TETRA TO USE CHAMELEON AND CBASEIV TO ENTER EUROPEAN MARKET

Tetra Business Systems is planning to extend its activities outside the UK with its latest product Chameleon. The new product is a 17 module top-end version of the Tetraplan accountancy software. Chameleon, so called because of its boasted adaptability, is designed for 32-bit Unix-based machines and will be launched at the Which Computer? show. The High Wycombe, Bucks company is confident that this will be an ideal product to sell throughout Europe because it has multi- currency and multi-lingual capabilities, although the text has only been translated into French to date; but the company explains that this is only a translation process as there is no re-compilation process. Chameleon allows conversion of foriegn currencies at varying exchange rates and the Cash Book module will hold an "unlimited number" of bank accounts in any currency. The suite also includes a report writer and a systems management module including a queuing priority system for printing spooled data and a backup facility for automatic backup of applications software. The 17 modules include: Nominal Ledger; Sales Ledger; Purcahase Ledger; Order Entry; Invoicing and Sales Analysis; Stock Control; Purcahse Order Processing; Job Costing; Payroll and SSP; BACS; Fixed Assets; Cashbook; Bill of Materials; Systems Manager; and Nominal Ledger Consolidation. Simultaneously the company announced CBaseIV, a fourth generation language tool, that allows users to develop their own database programs to interface with Chameleon or Tetraplan. The company says that if CBaseIV is used with the Chameleon report writer reports can be created which extract information from a new database and from Chameleon files. Chameleon will initially be available on Convergent Technology's Mightyframe, the Compaq 386 and the IBM 6150. The company says that the decision to launch Chameleon on the 6150 reflects its confidence in it as a powerful business machine despite the poor marketing and support provided by IBM. The one rather daunting fact about this new accounting package is it price; £1,450 per module.

UNIX SYSTEMS INTEGRATOR SETS THE SCENE FOR AI MOVE

Opus Systems Inc of Cupertino, California looks likely to break into the artificial intelligence market, reports Computer Systems News. The company will port an implementation of Kyoto Common Lisp to its IBM PC AT-based Personal Mainframe workstations. Opus claims that this Unix-based workstation, rated at 5 MIPS, with 16Mb of RAM will be sufficiently powerful for the AI community.

PIXAR IMAGE COMPUTER PRICE CUT

Steve Jobs' Next Inc in San Rafael, California has unbundled the software of the Pixar Image Computer, and cut the effective price of both the hardware and the software. The machine, formerly $122,000 with the software, is now $79,000, and the unbundled development and support software and training cost another $10,000. The Unix-based Pixar Development System is reduced 17% to $150,000 including the Sun Microsystems Sun-3 workstation on which it runs. Next is now working on a scholars workstation with the functionality of the Pixar Image Computer for September at something around $5,000, says Jobs.

LACK OF SOFTWARE STALLS AT&T's MONSTER NSA CONTRACT

The one jewel in AT&T Co's thread-bare computer crown, the 10-year $960m contract for 3B Unix supermicros from the shadowy US National Security Agency is grinding to a halt because, reports Electronic News, AT&T is finding it much harder than it expected to convert the NSA's DEC PDP-11 applications to run under Unix. The NSA says that the contract won't be cancelled, but it will not take delivery of any of the 3B machines until there is usable software for them. However AT&T is likely to see its share of the business scaled down, because the NSA is considering going out to tender again for alternative machines for specific "missions" that are becoming urgent. DEC reportedly has been saying that to convert the PDP-11 applications to run under Ultrix on the VAX would be a breeze, and is keen to rebid on any business that comes up. Also thought to be keen are IBM and Gould - but all are likely in practice to hit the same snags as AT&T in converting the code for Unix.

GOOD NEWS FOR UNIX IN SCIENTIFIC AND ENGINEERING MARKETS: DATQUEST AND NOVON

According to the US market research firm Dataquest Inc the total Unix-based software revenue will grow to more than $7 billion by 1990. This represents a 150% increase from the current level. The company also predicted that the worldwide market share for Unix software will level off by 1990 at around 21% of all software revenue, largely attributable to the multi-user micro market and the scientific and engineering areas. Separately Novon Research Corp says that Unix-based hardware revenue will climb to $8.6 billion in 1988 from $3.8 billion in 1985. Again the scientific and engineering market will account for the majority of this growth, predicts Novon. Novon also added that its research showed that Unix in office automation will be a flat market and the percentage of Unix systems sold into the business market will fall marginally by 1988.

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To nobody's particular surprise, **AT&T** has not renewed its OEM con- tract to **Convergent Technologiesi** for the Unix PC and the 3B1 - but Convergent has every reason to feel aggrieved: the machines were in no way off-the-shelf OEM products from the Convergent line, they were specially developed to AT&T's spec- ifications under the code-names Safari and Sailboat or Something.

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And **AT&T Co** has lost the vice-president of product management who was overseeing the comp- any's flagging 3B computer line: **John Walsh** resigned to join **Compression Labs** , market leader in video conferencing systems, as executive vice- president, sales and marketing.

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Fairchild Semiconductor is due to announce a foundry agreement with "a computer and semicond uctor maker" for fabrication of masks for the Clipper high- performance 32-bit chip set.

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Apollc Computer Inc has reported fourth quarter net up 623% at $5.3m on turnover up 71.0% at $120.9m; net profit for the year to January 3 was $9.3m against a loss last time of $1.5m on turnover that rose 37.5% to $391.7m. Net per share rose 650% to $0.15 in the quarter, and was $0.27 in the year.

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Convergent Technologies Inc has reported a fourth quarter net loss of $4.5m after charges of $400,000 on closure of the Japanese subsidiary, $2.9m to college donations and $1.6m to consolidation of facilities, against a profit last time of $6.3m on turnover down 34.8% at $77.4m; net loss for the year to December 31 was $32.8m against a profit last time of $13.2m, on turnover down 33.4% at $305.8n.. The figures include those of DisplayData Corp, acquired in August as a pooling-of-interests.

Minigrams

Siemens AG has reported consolidated pre-tax profit for the year to September 30 down 3.5% at the equivalent of $820m on turnover down 14% at $26,270m.

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Informix Corp has reported fourth quarter net profits up 54% at $931,000 on turnover that rose 65% to $6.6m; net profit for the year to December 31 was up 110% at $2.5m on turnover that rose 99.5% to $21.1m. Net earnings per share rose 20% to $0.12 in the quarter, 89% to $0.36 in the year.

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Redwood International has appointed Madrid-based **Digital Systems Development S/A** to distribute Uniplex II Plus throughout Spain: Digital Systems expects to launch the Spanish version during the Spring.

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A disk-caching manager for the OS-9 operating system, a Unix real-time lookalike from Microware, is available from **The Soft Centre of Luton which, it is claimed, will improve read/write access time by as much as 100%.**

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Not too surprisingly, the 80386 is generating just as much excitement in Japan as it is in the US, and **Intel Japan** reports that about 50 companies are working with the part, with the first machines likely to come to market this quarter, primarily targeted at office applications although engineering workstations and factory automation systems are also likely to appear as well: **Mitsubishi Electric** - which supplies Unisys with Personalikes - demonstrated a 386 machine as long ago as October, but is so far the only company to announce in Japan, although **Multitech** of Taiwan will begin selling the 80386- based MPF-1100 in Japan this spring, aiming it pri-marily at the Computer-Aided Design market.

Century Research Center , one of Japan's largest software houses, has come up with Compact House, a computer-aided design program for creating prefabricated homes and cars: it runs under Unix on the U- Station workstation sold by Century and comes bundled with the hardware for $180,000; the company looks to get 100 of the things away in three years.

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Software Development Systems has added a 68020+68881 C Cross compiler to its family of 68000/10/20: the Illinois-based company say that it has tried to please programmers by allowing access to 68881 capablilities, all C language floating point operations are encoded as in-line 68881 instructions and the compiler can use all eight 68881 registers.

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TIS of Bourne End, Bucks says that its Applications division is about to launch a Unix-based accounting and financial management suite.

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Plexus Computers has adopted Uniplex II Plus as the standard office automation package for all operations outside the US and the package is expected to be adopted shortly in the US.

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The Polytechnic of Central London has bought four copies of the Verdix Ada Development Software from GEC **Software** of London to run on Sun-3 workstations.

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QA Training of Cirencester, Gloucester are offering a technical support course for Xenix networks intended for corporate users who, following the reduction in support from dealers as a result of the fall in PC prices, need to do their own maintenance work: the course lasts three days and costs £380 plus VAT.

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3COM BOWS OUT AS SUN AGREES ACQUISITION TERMS FOR CENTRAM

The proposed acquisition of Tops developer Centram Systems West by 3Com Inc (UX No 113) has fallen through, but, quick as a falsh, Sun Microsystems Inc has stepped in with an agreed counter-offer for the privately-held Berkeley, California firm. The Mountain View workstation manufacturer has agreed to pay 685,000 Sun shares for Centram, valuing the company at just over $20m. Centram terminated its merger talks with 3Com Corp because the parties were unable to reach agreement on final terms - 3Com noted that it wasn't willing to get into an auction with Sun either, because Sun is an important customer. The acquisition is subject to completion of a definitive contract, regulatory approvals and approval of Centram shareholders. Centram's key product is its Tops local area network software that enables IBM Personals and Personalikes, Apple Macintoshes and Unix machines, to share data files in real time without the need for dedicated servers, translating between the respective operating systems. Centram began shipping Tops in July and installed over 15,000 nodes in the first five months. Tops is also claimed to be the only distributed file server available for Mac. Sun sees it as complementary to its Network File System.

DEC WAGES WAR ON PCs AND WORKSTATIONS WITH Q-BUSLESS MICROVAX

This week DEC duly announced its new low-cost MicroVAX and VAXstation offerings (UX No 114) which are intended to rock the PC and workstation worlds respectively. The MicroVAX 2000 uses the same cpu and floating point unit as the MicroVAX II but has been "value engineered" or 'had bits ripped' out to allow the lower price, under £10,000. The new Microvax has no Q-bus or any other bus device and has a memory limitation of 6Mb compared to the maximum memory available on the MicroVAX II of 16Mb. Two Winchester drives provide a maximum storage capacity of 142Mb and an integral 5.25" disk drive is used for software distribution and back-up. The VAXstation 2000 also uses the same processor chip and floating point unit as the MicroVAX II built onto a single-board using LSI and surface mount technology. The VAXstation 2000 has an entry-level price of around £8,000 with 6Mb memory and a 19" monochrome monitor, a colour monitor is promised before year end. On both products VMS and Ultrix are offered: DEC anticipates that the majority of orders for the MicroVAX will be VMS-based but Ultrix demand on the VAXstation will grow. DEC says that it now has one computer system as all its VAXes, including the two new low-end additions, can communicate via Ethernet. The 2000 machines can also use DEC's Local Area VAXcluster system, announced last November, which allows up to 13 VAXstations and MicroVAX systems to operate in the single-system domain of a cluster. DEC intends that the MicroVAX 2000 enters the IBM PC AT and clones marketplace saying that the wealth of VAX software available for it and its upward compatiblity will compensate for the lack of standard PC software. The MicroVAX 2000 may also act as a server on Ethernet to VAXmates and IBM PCs. The VAXstation 2000 is intended to give the established workstation manufacturers, Apollo and Sun, headaches because of its low price and integration into the rest of the VAX range. Both products will be avialable worldwide within 90 days of order.

SEQUENT LANDS $6m DUTCH CASH FOR EUROPEAN EXPANSION

Sequent Computer Systems Inc will be taking the European market seriously during 1987 and is investing around $4m to developing European bases with a view to Europe accounting for one third of its total revenues by the end of the year. The company, based in Portland, Oregon, intends to set up its European base in Amsterdam in the Netherlands over the next couple of months and has this week opened its UK sales base in Hounslow, Middlesex which will also act as the European training centre. The funds for the European development will largely come from a newly announced investment of up to $6m in Sequent from the Maatschappij voor Industriele Projecten NV Equity Fund of The Hague, Netherlands, making it Sequent's largest investor. The fund is similar to Britain's development agencies, and ties venture capital investment to commitments to create local jobs of the right kind. Sequent intends that the European base will include in "the near future" a research and development group that will satisfy the fund by providing suitable employment for a large number of the Netherlands' computer science and engineering graduates. Later in the year the parallel processor manufacturer intends to set up offices in Paris, France and Munich, West Germany. Sequent says that it has around 20 revenue- generating installations in Europe out of a total worldwide installed base of 150 machines. Additionally Sequent has an OEM contract with Siemens AG for the Balance 8000. Siemens has announced the first fruits of this 'technology exchange' agreement in West Germany with its three-model MX 500 line, based on the NS32032-driven Balance 8000; Siemens is scheduled to announce the machine here next week.

UNIX IN THE US GOVERNMENT

It's one thing to hear about the US Government wasting billions of dollars on the purchase, development and maintenance of incompatible systems and backing Unix as a way out of the problem. It's quite another to hear a description of the chaos from the horses mouth. So it was a surprise to most of the audience when Gerald Riso, assistant secretary of the US Department of the interior for Policy, Budget and Administration, stood up at Uniforum and reeled off not the expected platitudes about improving efficiency but a description of how vested interests, inadequate financial control, lack of communication and organisational problems lead to a situation where systems are not only "costly, incompatible and antiquated" but in many cases don't even work. A horror story that has lost its impact through over familiarity, you may think. But Riso was talking about a department with a 1987 hardware and software budget of $350m, and is only one of many. One example, he said, was that several years ago the department had no less than 13 different accounting systems running - and there are only 10 bureaux within the department. These systems were used to manage an overall budget of $5bn a year, and themselves took 815 people and cost $27m a year to keep up and running. "You can't run anything that way", said Riso, and the crunch came when the department called in a team of auditors who found that 11 of the 13 systems failed miserably to come up to approved accounting standards. Predictably, the problems come when you intrude and try to change the status quo. Riso noted that each Government agency and bureau has its own culture; the way they plan, set priorities and gear up to perform better are quite dissimilar. Among the factors that any advaocate of change is fighting are the professional pride of different departments in acquiring and producing their own systems. And lack of communication between younger technical heads and bureau chiefs with an average of 55 "gave a new meaning to the term generation gap". Economic considerations in purchasing systems are "not overriding", he commented - the budgeting arrangements are so convoluted that it is possible to fund systems endlessly without it being possible to ever pin down exactly what was spent and the benefits received from it. And systems are bought on the basis of "cost avoidance" promised by a vendor - give me so much today, you'll save x% in 1989 - but the budget accounting simply wasn't capable of monitoring wheteher the payoff ever came. Two kinds of action are happening at the Department to counter these problems, he said. Tighter control over spending includes a top level review of all DP acquisitions of over $1m. And there is an overall drive to reduce the number of systems in operation, one result of which has been to reduce the four payroll systems in use two years ago to one today. But these efforts are fighting entrenched attitudes, are a direct threat to the plans and interests of staff in the Department bureaux and require "substantial personal commitment"; Riso was "astonished by the number of people who react in a negative way". And the stakes are high, he pointed out; in one case, where a decision was made that instead of diving straight into development three months would be spent surveying the market for a suitable package, "Within 48 hours, we were pulled up before a congressional committee to explain what we were doing."

And in the USA system where top departmental officials are political appointments many of the "vested interests" may reckon they can hold out until the likely end of the Reagan administration in a couple of years and the people at the top may be replaced by someone more malleable. That may work against Riso pushing through with his most ambitious proposals. Faced with the need to keep costs down and deliver efficient systems, while finding it difficult to attract and keep good people at the comparitively low government salaries, Riso is looking to contract out some of the Department's computer operations altogether. But that, as he remarked, is striking right at the heart of the problem where it will hurt most; the vested interests and futures of the staff. As for the multiple, inadequate accounting systems; by 1988 Riso hopes to reduce the number in operation to one, and already after meeting six vendors Department officials were convinced that at least two would fill their needs or at least come closer than those already in use, at a fraction of the cost. A Request for Proposals is being prepared. Riso managed to get through his entire speech without mentioning Unix once, but elsewhere at Uniforum several Government speakers described how they coped with installing Unix systems. At one presentation, Tolerant Systems' Shirley Henry commented on the often-quoted figure of 70% of Government RFPs specifying Unix; she said that a "minimum estimate" was that 30% of government procurements include a "hard and fast" Unix requirement; more like 60% suggest a Unix "preference". The IRS, a body with 80,000 staff whose name has a similar effect on US taxpayers to the name Inland Revenue over here, is a long standing Unix user that started working on a definition for a Unix procurement back in 1981, when there were few vendors about. Now, according to the IRS' Gene Barbato, Unix is standard within the IRS, and users wanting anything else have to go through a waiver process. By 1983, an initial RFP resulted in a contract awarded to Zilog and there are now some 430 Zilog supermicros distributed among IRS offices throughout the USA. That contract ran out in 1985, and since then offices have been buying a handful of various Unix systems at a time, so that Altos, Fortune, AT&T and Sequent machines are also in use, with a probable total of 600 systems altogether. Given the lack of software at the time, the IRS took what now seems an extraordinary approach of "buying the hardware, throwing it out there and saying 'see what you can do with it'". Back, in due course, came a large number of applications and the IRS was faced with the problem of spreading them around as much as possible while limiting the distribution of source code to prevent losing control completely. The best solution, Barbato suggested, is an arrangement whereby applications are mandated at central office for nationwide use and then source code distribution is prohibited. The developer is then presumably faced with maintaining the thing. Barbato concluded that "Unix allows a Government entity like the IRS

to manage resources better in a multi-vendor environment" - and, as he pointed out, it has to remain a multi-vendor environment because major procurements are handled by the RFP and tender process. Therefore a major factor in the decision to go with Unix initially was that 100 major IRS offices had no DP staff at all; "We didn't know how we would support anything bigger than a PC without going for the Unix approach." Since the IRS has developed up to 400-500 ADP people. Adopting a standard operating system allowed some uniformity in systems administration and made it easier to implement security standards - but on the security side, "We had to crack down or they don't use anything". Lack of security led to penetration by hackers - local earnings and tax records make a tempting target - and in one case the IRS prosecuted and convicted the culprit. The IRS has ended up being effectively locked in to Informix and C for development - portability is reduced because most development uses old versions of Informix without a SQL standard interface - aNd other predictable problems have been fifding C programmers and finding third party software that is uniform across the variety of machines in use. Nor has it been immune from self-generated portability problems shifting software from the System III based Zilog systems to System V machines "90% of software gets ported in an afternoon. 10% takes three months." Next, the IRS is looking towards a "big and hopefully better" new contract which is based on the assumption that many of the existing systems will be replaced. One of the problems is that some of the older systems in use, while inadequate in current configurations, are not designed to be easily or cheaply upgraded and IRS officials suggested that expandability - possibly by using multiprocessor machines - would be a strong emphasis. It has also been scouting around for integrated office software that "has to be as sexy as IBM, DEC, and Wang". It will also be supplementing the current piecemeal system of adhoc communications between sites with a nationwide packet switched system. Future purchases, Barbato said, will be eased not only by the Unix experience the IRS has built up but by being able to coordinate efforts with other Government departments - "we are now speaking common systems"; he also considered the acceptance of the IEEE-defined POSIX standard "a necessary step".

CONVERGENT LANDS $20m OF RESELLER BUSINESS

There was a time when a Convergent Technologies salesman only had to arrive on the doorstepof a major computer manufacturer to come away with an OEM contract worth tens of millions of dollars, but those days are long gone, and the San Jose, California company now needs to get a lot closer to the market, and supplement sagging OEM sales with substatial contracts from value-added resellers. But, showing that it hasn't entirely lost the magic touch, the company just announced approximately $20m in new reseller contracts, with five contracts ac- counting for $11m of the total. The company's target is to add 10 additional resellers every quarter.

RACAL REDAC GETS SIEMENS AS OEM: TECHNOLOGY COLLABORATION PLANNED

Siemens has signed with Racal Redac to act as an OEM for Redac's Visula PCB dsign and router software systems porting it onto its own ann Apollo workstations. This contract is for a minimum of 280 systems, which Redac values at around £10m. Siemens will initially market the product internally and then worldwide. As well as providing Redac with its biggest order ever Siemens has also announced an intention to collaborate with the Tewkesbury, Gloucestershire company on the development of software products tying together Computer Aided Design and Computer Aided Testing. Redac say that it won the contract from the West German manufacturer as a result of its 32-bit architecture, its commitment to the Unix operating system and its use of the C language. Redac intends to complete another OEM agreement similar to that with Siemens before the end of 1987.

OLIVETTI ADDS STANDARD COMMUNICATIONS TO 3B1 AND 3B2

British Olivetti has chosen the Which Computer? Show to announce that the AT&T Olivetti 3B1 and 3B2 will now support Starlan, from AT&T, and Ethernet TCP/IP communications facilities. Previously the 3BNet was the only available facility. The company also says that the 3B1, Unix PC, will now have seven ports instead of three and the 3B2 has had a 142Mb disk added.

MITSUBISHI WANTS VP/ix FOR 80386 PERSONAL

Mitsubishi Electric Corp, preparing to launch an 80386-based Personalike, is in negotiations with Interactive Systems Corp and Softbank Research Institute of Tokyo for OEM licences to the VP/ix hypervisor that provides multitasking, multi-user support for MS-DOS applications under Unix System V to offer on the machine. As resident supplier of Personalikes to Unisys, Mitsubishi is in line for a big Unisys order for the 386 box with VP/ix.

ISI OFFERS SYSTEM V.3 AS OPTIONAL EXTRA, 4.3BSD AS STANDARD

San Jose, California-based Integrated Solutions Inc is offering Unix4.3BSD, with System V.3 as an optional extra, for its Optimum line of 68020-based workstations. The company claims thatin its implementation of the two operating system strains, ISI 4.3BSD, all the features and functions of both have been maintained. Delivering both will, the company hopes, provide a wider user base for its machines. Separately Integrated Solutions has enhanced its proprietary real-time oerating system, VxWorks, and renamed it UniWorks. VxWorks has had CDBis added to it. CDBis is an on-line source debugger based on the CDB debugger from Third Eye Software of Palo Alto, California. As a result of a new agreement with Wind River Systems, Berkeley, California, Uniworks will be marketed by Wind River and Integrated Solutions on the Unix-based Optimum series. The Optimum series uses the VMEbus and 68020 processor running at 16.7MHz, the Optimum V, and 25MHz, the Optimum 400.

McDONNELL, GENERAL AUTO, ULTIMATE, ALL JOIN THE PERTEC QUEUE

It is no secret that Pertec Computer Corp has been on the market for the best part of three years now - NCR's ADDS unit almost bought it in November 1984 - but the prospect that Point 4 Data Corp will win the company and become another serious contender in the Pick market, has galvanised the leading Pick-poppers, and a whole string of companies have reportedly made serious inquiries to Volkswagen about its last remaining computer property. Among those named are General Automation, McDonnell- Douglas Information Systems, Ultimate Corp, and a couple of rank outsiders, Scan-Optics and a company calling itself Computer Systems. Pertec makes 68000 family CPUs for Pick, Unix and a proprietary executive.

ADOBE WANTS POSTSCRIPT TO BE SCREEN DISPLAY STANDARD

Palo Alto, California-based Adobe Systems' Postscript is already the accepted standard for page description languages, used for explaining to a laser printer how you want the pages from your desk-top publishing system to be displayed. But Adobe is not satisfied with its initial success, and now wants to extend the scope of the language so as to get it accepted as the standard for screen display languages. The company, which has formed a separate division to complete the work under its director of advanced development Bill Paxton, is already part way there because its Illustrator product already rights directly to the screen with no step effects.

WANG SIGNS TO BECOME NON-EXCLUSIVE DISTRIBUTOR OF FCMC'S STAFFWARE

Wang UK has signed a non-exclusive agreement with Financial and Corporate Modelling Consultants plc, (FCMC) north London to market FCMC's Staffware financial software package as part of Wang's own Wang Office office automation product. Staffware will run on Wang VS, and is also available on MS- DOS, PC-DOS, Xenix and Unix - a VMS version is being developed by FCMC, but will not be covered by the agreement. The VM version has been joint-developed by Wang UK and FCMC, but Staffware originates from FCMC's US offices in Berkeley, California. The UK office had a £2m turnover last year, with the Trustees Savings Bank and London & Manchester Assurance among its customers. Staffware costs £795 for a PC-compatible version and £20,000 for a wide area network package.

UNIXSYS DIVERSIFIES FROM UNIX TO VM/CMS OR MULTOS

Hitherto a specialist Unix systems company, Unixsys of France has signed to become the exclusive French distributor for Canaan Computer Corp's VM/370 workstations, the DCS range. These machine, to be called the OD 32 family in France, runs Multos which is compatible with IBM's VM/CMS and contains parts of VM/CMS as part of a worldwide agreement between Canaan and IBM. Unixsys has guaranteed Canaan to take ten machines over the next three months and expects its first customer to sign up at the beginning of next month. The company expects to take 0.5% of the French IBM market: IBM has over 2,500 installations in France with about 700 of those using VM software. Unixsys has set up a subsidiary purely to market and sell the Canaan product and will spending around 1mFF in advertising the product. In the UK the distributor Databench of Marlow, Buckinghamshire has sold two machines, one of which to Geisco.

COMPUTERVISION WINS MAJOR FIVE-YEAR ROLLS-ROYCE PACT

ComputerVision Ltd has landed a new five-year contract from Rolls Royce Plc - the soon-to- be-privatised aero engine maker, not the car firm that is now owned by Vickers - for its CADDS 4X software, CADDStation (Sun) engineering workstations, and CDS 4000 systems. The initial ord-er, for equipment to be delivered in 1987, is worth more than £5m.

GRAPHICS SOFTWARE COMPANY FORMED BY ENTREPRENEURIAL AT&T EMPLOYEES

Indianapolis-based AT&T Graphics Software Labs is a new entrepreneurial group set-up by AT&T employees which will develop software applications to complement AT&T Truevision products. Graphics Software was created by some of the same group that launched AT&T's first entrepreneurial venture, the AT&T Electronic Photography and Imaging Center (EPICenter), also in Indianapolis. The EPICenter designs and markets a family of video imaging graphics products, Truevision. AT&T entrepreneurial ventures are formed by AT&T employees who enter an agreement with AT&T to develop and market products. AT&T funds a portion of the venture, with each member putting some of their salary at risk as an incentive to make the venture succeed. At the start, Graphics Software Labs will develop generic graphics software suggested by users and dealers. Software will be available from AT&T, the EPICenter, VARs and dealers. Later, Graphics Software Labs plans joint development contracts with companies to produce graphics software needed for specialised applications. The new venture will also offer a software submissions program for independent software developers to have a marketing evaluation of their products.

BULL LAUNCHES 32-BIT RISC MINIS: HOPES FOR GREATER MARKET SHARE OUTSIDE FRANCE

Bull SA has announced a new range of X/Open conformant 32-bit minis which it hopes will improve its market share outside France. Five new models have been introduced; one stand-alone system and the other four based on Bull's own proprietary architecture. The models include the SPS 7/300, 9/400, 9/600, 9/800, and 9/830. The SPS 7/300 is the entry-level model, initially launched in November 1986 but now enhanced with 5.25" Winchester and a formatted storage capacity of 150Mb. The X/Open member claims that the SPS 9/400 and 9/800 models provide the power for applications needing high processsing power, such as three-dimensional volumetric or artificial intelligence computer aided design; in a single or dual workstation configuration fro the Model 400 and up to four workstations for the Model 800. Bull based in Paris, France says that the top-end Model 830 can support up to 32 concurrent, interactive users. The systems are intended for the scientific, CAD/CAM, artificial intelligence and relational database processing markets. All the machines use the SPIX operating system, Bull's implementation of Unix System V.2 with BSD 4.2 enhancements. Software available for the machines include Fortran, C, Pascal RISC compilers and Le- Lisp, SP-Prolog, and Kool artificial intelligence tools. The machines support Ethernet, TCP/IP, ISO/DSA, X25 and SNA communications protocols. Sun Microsystems' NFS is also available to provide transparent access to resources on Ethernet. The basic configuration of the SPS 7/300 comes with 4Mb memory, 58Mb disk, 6 ports and tape streamer and costs 170,000FF. The standard configuration for the 9/400 includes 4Mb memory, 300Mb disk, 8 ports, streamer and Ethernet, costing 380,000FF. The top-of-the range 9/830 costs 780,000FF and comes as standard with 16Mb memory, 600Mb disk, 16 ports, tape streamer and Ethernet. The products are available now in each of the countries that Bull has a base. Bull does not operate in countries that Honeywell Information Systems has a base. The terms of the agreement between the two companies to- date specify that Honeywell may chose to market and sell Bull products in its territories. Honeywell has not yet taken up this option with existing or the new products. Bull hopes that the new line will increase its revenues outside France because of the products price/performance ratio. Currently revenues outside France account for 36% of Bull's total revenue.

RAM CONVERTS OMICRON POWERSYTEMS FOR UNIX

Little known accountancy software consultants, RAM Management Software Ltd, has converted Omicron's DOS-based accountancy package from MBasic to C to run under Unix or Xenix. The company has the exclusive development and marketing rights to the C version of the PowerSystems package. The C- version has been ported to the Unisys line of Unix-machine, the IBM 6150, the NCR Tower series and plans are afoot to port to Gould, DEC and ICL. RAM will be selling PowerSystems at a price of around £1,000 per module. Modules ported so far include: general ledger and finanacial reporting; purchase ledger; sales ledger; sales order processing and invoicing; payroll; job costing; and stock control. RAM is currently working on the fixed asset register, purchase order management and sales analysis. Omicron thinks that that this Unix conversion will give it a wider user base and compete on an equal footing with the likes of Tetra Business Systems.

SPECIALIX WINS HONEYWELL BULL ORDER BRINGS IN AUTOMATIC PERSONAL TAPE BACK-UP

Specialix Systems Ltd, the Covent Garden- based high tech marketing start-up founded by refugees from Rair Ltd, is clearly a company to watch. Following a $5m distribution deal with MicroWay Inc in the US for Chase Research's AT8 multi-user intelligent controller board, to which Specialix has exclusive marketing rights, Specialix has now won a £400,000 order for the Chase product from Honeywell Bull (Germany) and been awarded exclusive European and Middle Eastern rights to a range of "continuous and automatic tape back-up systems" for IBM- compatible Personal Computers developed and manufactured by Digital Storage Systems Inc of Colorado. The German order is for nearly 300 boards, to convert Honeywell Bull's AT- alike Micral 60s into five- to 10-user machines running under Xenix System V, and forms part of Honeywell Bull's major contract to computerise tax offices around Dusseldorf for the German Ministry of Finance. The Digital Storage Systems' Automatic Recovery and Control 8000 and 9000 series of tape back-up products are, according to DSS sales director George Alexander, designed to ensure that mechanical and electrical faults in the Personal, user errors or sheer forgetfulness, do not lead to the erasure or corruption of data. As the user writes each record to disk, a duplicate record with time and date stampis automatically written to the ARC tape unit. Damaged or overwritten disk files can, therefore, be recreated in which they stood at any given moment. Specialix managing director, Les Pilkington says the data security, and audit facilities provided by the date and time stamp, make the product attractive to financial institutions and major corporates. The company will be setting up a UK direct marketing operation for the several thousand sales Pilkington expects in year one but the ARC series will also be sold through dealers supplied by Northamber Plc.

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Minigrams

Eastman-Stuart has won an order from the UK Post Office to supply £200,000 worth of Unix- based accountancy software packages to Head Post Offices across the UK: prior to this move the Post Office accountansy procesures were manual, the three modules included in E-S Accounting include: Purchase Ledger, Nominal Ledger and Cheque Writer.

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Following the lead of other business software suppliers **Professional Computer Solutions Ltd** of Ilford, Essex has ported Thoroughbred Business Basic to the IBM 6150: Thoroughbred Basic from US-based **Concept Omega Corporation** is a superset of MAI/Basic Four's BB3-BB4 Business Basic Language.

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And **Mitsubishi** bandwaggon by porting its range of business software to the 6150 as well: the 10 module software package includes: Sales Ledger; Purchase Ledger; Nominal Ledger; Order Entry; Stock Control; Invoicing/Sales Analysis; Payroll; Fixed Assets; Job Costing; and Purchase Ordering.

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Fortune distributor **IBR Information Systems** , of Bracknell, Berkshire has developed a software package for tour operators, Tour Operators Bookings and Information Systems (TOBIS): this system is designed to run on Unix/Xenix 16 and 32-bit machines and it will supply management reports, print tickets and invoices.

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Logic Replacemnt Technology , of Reading, Berkshire has developed a series of inteiligent, multi-function, SCSI-serial boards which the company claims is an ideal environment for Unix users because it, IntraCOMM, supports the protocol and physical network interface requirements of Uniplus+ System V.III, also streams and access in line with the Transport Level Interface definition.

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Cray Research Inc , of Chippewa Falls, Wisconsin has won a contract to install a $7m X- MP12 scientific supercomputer at Honda Motor Co's research facility in Tochigi, northern Japan, in April.

Electronic Machines Trading is to convert the Picon expert system development support en- vironment from Lisp Machine Inc for DEC VAX, Sun Microsystems, Apollo Computer and IBM workstations, and later plans to implement versions for Fujitsu and Hitachi machines.

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Fujitsu Ltd has introduced a new generation of its FM R 16- bit personal computers: the new line comprises a lap-top and an 80286 machine, muning MS-DOS and Oasys and sporting micro-to-Fujitsu mainframe software and links into the company's AIM database manager; the R-30 has footprint the size of a magazine and uses a 640 by 400 pixel liquid crystal display and costs about $2,520; the R- 60 has high-resolution graphics, 24-dot Japanese character display, at $3,250.

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ICOT , Japan's Institute for Computers Of Tomorrow, has set as its next goal the design, by March 1989, of the world's fastest parallel processing machine, to be called PSI2, containing 64 parallel processor boards, and capable of 2 MegaLIPS, Logical Inferences Per Second: to be designed to be programmed in Prolog only, the PSI2 will be the successor to ICOT participant Mitsubishi Electric's PSI Prolog machine, which is a board-level CPU with 256Kb memory; the PSI2 will be built of custom VLSI processors with 1Mb memory taking a third the space and delivering three times the processing speed.

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The Fuji Xerox joint venture has introduced the first workstation to support the Japanese version of the Smalltalk language: the work- station runs under Unix, and costs from $16,500 with 4Mb or 8Mb CPU and 40Mb disk; Fuji Xerox also has a Smalltalk spreadsheet.

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We hear that **IEEE 1003 Posix** operating system committee chairman Jim Isaak, ex-Charles River Data Systems, is DEC- bound to head the Maynarder's Unix standards effort.

There's some gossip among **Intel** watchers that the Santa Clara chip-maker will shortly spoil Chips & Technologies' fun by introducing its own highly- integrated set of AT support chips for the 80286 (IBM would love that): without further evidence we'd put the probability at only about 30% - but there are plenty of new peripheral chips for the 80386 due out any week now.

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Intel is looking to ship a torrent of 4m 80286 microprocessors this year, up from 2m in 1986 - and if orders for the 32 bit 80386 keep growing at their present rate, it could get 1m of those away as well: the prospects for the company as a recovery play put 20% on the share price between Friday morning and Monday night - and an avalanche of 8m shares changed hands both days.

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Intel also looks for a slim profit for the first quarter, and says that it looks to do from $1,400m to $1,800m in sales this year - but doesn't think $1,800m very likely.

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Intergraph with its UK base in Swindon, Wiltshire has introduced a cost estimating software package aimed primarily at the architectural, engineering and construction industries, called IBIS-CALC: Intergraph has acquired the worldwide marketing rights from Brink Groep of Holland for VAX/VMS and Unix versions of the package.

- o -

Coren Associates of Sutton, Surrey has become a distributor of PRO-IV, a fourth generation language from PRO-LAB of Cambridge: Coren will be using PRO-IV to develop systems on the Business-Pro, the 80286 multi-user Xenix system from Texas Instruments, previosly the systems house had developed software using only Cobol.

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Encore Computer Corporation has announced a plan to provide Natural Language Inc's Datatalker product on Encore's Multimax family of parallel processors: Datatalker is a database system, claimed to be idiot proof.

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NCR PREPARES TOP-END MULTIPROCESSOR TOWER

It is a characteristic of the current phase of development of the computer industry that the most successful companies are the ones that don't wait for the market to demand better price-performance and more functionality, but constantly expand and enhance their major product lines before the market even knows that it wants the additional benefits. That is the course that DEC has been following for the past couple of years, and NCR Corp, which has a runaway winner with its Tower family of Unix supermicros, is very close behind. Next Monday, NCR is expected to bring to the generality of its Tower users the fault-tolerant multiprocessing capabilities already introduced for its point- of-sale system users last month. The new Tower 32/800 will come in above the 48-user 16MHz 68020-based 32/600, and will support between 100 and 200 users with the 25MHz version of the 68020, again using 68010s as input-output processors. The new Tower 32/800, developed under the code-name Broadway, is expected to have up to 32Mb of main memory, and to be a fierce competitor for the Arete Systems' multi-processor Unix machines, coming in at a price typically 50% lower than Arete charges.

AT&T PROMISES 100% POSIX COMPATIBITY BY YEAR END

AT&T claims that Unix System V release 3 will be 100% compatible with the IEEE Posix standard before the end of the year. The company sees standards activities in the Unix arena as nearing completion and its job with System V is done. As a result AT&T has joined the X/Open group saying that it has the same objectives as the rest of the members involved, currently applications development and standardising. As part of this effort the X/Open group will be giving a 'Demonstration of Portability' next week in Luxembourg. The intention is to demonstrate the same applications running on machines from each of the eleven members. The newest member, AT&T, will be involved as its strategy manager, Tony Barrese, will be present with no actual box from AT&T but Olivetti will be using one of the AT&T 3B family.

APOLLO UNVEILS MULTI-STANDARD NETWORK COMPUTING

Apollo Computer Inc has duly opened out its networking strategy to embrace industry standards launching the Network Computing System, which it describes as the first commercially available set of distributed products for developing and running applications across networks of dissimilar computers. The System can distribute modules, or parts, of a single application to the specialised computers best suited for each module's task - artificial intelligence engines, database machines, automatic test equipment, simulators, parallel processors, and supercomputer. It can also automatically use idle computers on the network, and distribute program modules concurrently for even higher levels of computer interactivity. Apollo accompanied the generic tools with Network Computing System source code for Unix- based systems and DEC VAX/VMS systems. The System is written in C and its fully-documented source code can be licensed, and the specifications are being made public so others can independently implement the system without a licence. The system is based on industry-standard protocols including as TCP/IP for Ethernet and DECnet, Apollo's Domain Distributed Services), IBM SNA, and MAP/TOP, and it complements distributed file systems such as NFS, RFS, and Apollo's Domain by providing the computational sharing absent from those systems. Pricing for Network Computing Systems components are: NDL Compiler, $1,000 per node or $8,500 per site; NDL Source Code, $25,000; Unix Runtime Source Code, $1,000; NCS VAX/VMS Source Code, $1,000; Network Computing Architecture Public Specification, $80; and Apollo-Specific NCS Documentation and Runtime Source Code, $250. All will be out in the third quarter 1987.

OPUS PUTS CLIPPER INTO $3,000 OEM UNIX STATION

A 5 MIPS workstation built around the racey Fairchild Clipper chip set and starting at a startling $3,000 in OEM quantities, has been introduced by Opus Systems of Cupertino, California. Called the Series 300 Personal Mainframe, the station runs under Unix System V.3 and includes an 80286 processor configured as an IBM AT-alike for concurrent running of MS-DOS applications as a front-end processor. The Personal Mainframe will initially use 25MHz and 30MHz versions of the Clipper, and first deliveries are set for the current quarter.

JAPAN PITCHES FOR SOFTWARE SUPREMACY WITH SIGMA PROJECT

Having propelled itself to world leadership in microelectronics and computer hardware, Japan Inc is under way with a five-year project, code-named Sigma, that promises to plug the last remaining gap in its capability, that of applications software development. Sigma stands for Software Industrialised Generator and Maintenance Aids, and the Ministry of International Trade and Industry and some 150 companies including all the majors, have committed about $165m of investment to the project over five years. An initial 50 prototypes of a standard Sigma development workstation are due to be delivered by six companies this month, and a comprehensive array of mainframes has been assembled at the Sigma centre to support the Sigma network on which all participants will be linked. The environment chosen for Sigma is Unix System V with BSD 4.2 extensions, and the aim of the programme is to develop a comprehensive set of national applications development and documentation generation tools.

A full report on Sigma from our Tokyo correspondent is in page two.

JAPAN INC's SIGMA PROJECT ENLISTS UNIX TO SOLVE THE APPLICATIONS BACKLOG

A comfortable assumption about Japan Inc widespread in the US and Europe is that while it leads the world in hardware design and low-cost production, when it comes to software, Japan lacks the basic skills - even the national temperament - to master the technologies. The consequent argument has been that since hardware prices are falling so fast, an ever-increasing proportion of systems costs are accounted for by software, so that it really doesn't matter if Japan dominates the world micro-electronics industry, because in the limiting case, systems cost will be represented almost entirely by software, and Japan will be left with 100% of nothing.

Alvey

The comfortable assumptions promise to be blown apart by another of those Japanese national efforts that make Britain's Alvey programme, Europe's Esprit and even America's Microelectronic and Computer Technology Corp look like bad jokes perpetrated by rank amateurs. Japan's Sigma project is as significant as the effort inspired by the Ministry of International Trade & Industry in the early 1970s to rocket Japan to the number one spot in the high-volume semiconductor market, and this time the target is the world software industry. Japanese interest in software development methodologies is heightened by the fact that users tend to demand custom applications and are averse to using standard packages - even Japanese ones, let alone imported ones. There is therefore an enormous home market incentive behind the Sigma - Software Industrialised Generator and Maintenance Aids project - once again sponsored by MITI, to develop a methodology for much cheaper production of software. As in the US and Europe, the applications backlog is growing, and the rate of growth is rising as Japanese banks and finance houses look to find international homes for the massive weight of savings by Japanese individuals. There are even local cultural pressures for a low-cost software development methodology - technical specialists are regarded well below generalists working for big companies, and higher salaries for technical people - around $26,500 for programmer - are insufficient to attract the high-flyers, leading to a forecast 600,000 shortfall in development staff by 1990. MITI has therefore committed $165m over five years to the Sigma project develop a shared software development system, and some 150 companies have invested in the project, including all the Japanese hardware manufacturers, and even some foreign manufacturers.

Tripartite Infrastructure

The project started in October 1985, with a very substantial tripartite infrastructure - the Sigma centre, the Sigma user site and the Sigma network. The Sigma centre is composed of five subsystems, each running on a mainframe provided by one of the hardware vendors: the database subsystem runs on a Hitachi M-260D mainframe, the network subsystem is supported by a Nippon Telegraph & Telephone DIPS/CIP-2, the development environment subsystem runs on a Fujitsu M-360R mainframe, an NEC Acos 630-10 is being used for the accounting and statistics subsystem, and Fujitsu has also provided a demonstration subsystem. Hardware also includes a DEC VAX-11/785 and a Data General MV/10000 SX. Thus equipped, the Sigma centre is due to begin operations next next month. A standard Sigma workstation has already been specified to run the evolving Sigma operating system, which is based on Unix System V.2 with Berkeley 4.2BSD extensions; 50 prototype workstations to the standard Sigma specification are going out from six manufacturers - Fujitsu, NEC, Sumitomo Electric, Toshiba, Omron Tateisi and Mitsubishi Electric - this month. The Sigma network is the communications link which ties all the elements together. As well as creating standard software development tools for project and resources management, automatic documentation generation and so forth, Sigma will provide a database service listing available hardware and software and reference material on Japanese and international networking, programming and operating system standards, and a full range of network service functions including file transfer, support for remote users, and electronic mail services. The Sigma operating system is currently at release 0, but already adds Japanese language processing to System V.2 and BSD4.2. Extensions still to be developed - or adopted from abroad - include multi- media windowing, a virtual printer interface, the System V.3 and 4.3BSD distributed file extensions, a Japanese language C compiler, and the seven-layer Open Systems Interconnection standard. Communications to be supported include dial-up and leased point- to-point links, X25 packet switching, IEEE 802.3 local area networking and the TCP/IP transfer protocol. The GKS Graphics Kernel System will be supported, and graphics functions will be provided for creating flow charts, logic diagrams and so forth on- screen.

Prototypes

The hardware pre-requisites for the Sigma workstation prototypes were extremely comprehensively defined. It had to have a processor with internal 32-bit registers, support for floating point arithmetic to the IEEE standard; at least 4Mb main memory and a logical address space of at least 8Mb, of which at least 6Mb had to be available to the user; a Winchester with at least 20Mb available to the user; a floppy disk drive capable of reading and writing IBM 8" floppy disk format; support for some kind of tape back-up - exchangable cartridge disk, open reel magnetic tape, or quarter or half-inch streamer; a display with at least 1,024 by 768 pixels and character capacity of 40 24 by 24 pixel characters by 24 lines, with support for windows and at least 16 colours as mandatory options; Japanese Institute of Standards keyboard with at least 10 function keys; mouse with two or more buttons; two or more serial RS-232C interfaces, at least one of them capable of supporting a modem at 300 to 9,600 bps full-duplex, and a parallel Centronics interface; a local area network interface to the IEEE 802.3 standard; a DDX-P circuit switched X21bis or X21 interface; an optional GP-IB interface of at least 10Kbps; and - a very Japanese touch - an external security device such as identity card reader to prevent unauthorised use of the software. The prototype workstations will be used for development of tools for networking and documentation support, and for internetworking verification with the stations from different vendors connected together. Sigma tools fall into two classifications - common tools, for networking, documentation support, project management, library management and a man-machine interface library, and a host of application tools - languages and so forth. Japan is thoroughly committed to the Sigma project, and very definitely believes that it will make a major contribution to solving the desperate shortage of skilled programming and systems analysis staff.

SIEMENS BRINGS ITS SEQUENT-SOURCED UNIX MONSTER TO THE UK

Siemens UK last week duly launched the MX500 top-end multiprocessor in its range of Xenix systems - Sinix in Siemens parlance - offering three models but restricting the architecture to a maximum of eight processors and 32 users. The machines, based on the Balance series from Sequent Computer Systems and so far still using Sequent NatSemi 32032 CPU boards, are aimed at the commercial systems market, and a key feature is that Siemens has added binary and floppy disk format compatibility for applications already running on its low end PC-MX2 systems with a Sinix V 2.0 mode, as well as a Unix System V-compatible Sinix V 5.0. Siemens, which has some 13,000 Sinix systems installed in Europe, claimed that 100 MX500s have already been ordered in Germany, and 20 installed. The low end 16 user Model 20 has 2-4 processors, 4-8Mb memory and 1-4 85Mb disks, and starts at about £30,000. The Model 40 handles up to 24 users with 4-6 processors, 8-16 Mb memory, and 1-2 337Mb disks; it can be field upgraded to the 32 user Model 60, which has 6-8 processors, 10-16Mb memory and 2-4 337Mb disks, with a top price of around £150,000. The company is looking to build the UK Sinix business to £10-15m over the next two years, largely through corporate sales but is also looking for small number of value added resellers. Siemens has repackaged and added proprietary technology to the Sequent architecture, and will move to building the machines entirely; it says that it restricted the system to 8 CPUs - Sequent offers up to 30 - because it reflects the size needed for large departmental systems.

NFS AND TOPS TO REMAIN SEPARATE PRODUCTS FOR TIME BEING

Sun Microsystems currently has no plans to combine its Network File System and TOPS from from the recently Sun-acquired Centram Systems because it does not want to rock the boat of a new product. Sun sees TOPS as a complemenatry product to NFS because all NFS does is remote file access, that is reading and writing bytes across a network but it does not translate file formats. NFS can operate across a wide range of computers but TOPS on the other hand only operates in a PC environment but does have a built in knowledge of file formats. As there is no NFS implementation on the Apple Macintosh the Centram product is useful because it is possible to link Macs and Suns using both NFS and TOPS.

UNISYS CANADA TO TAKE DEC MARKET WITH DATAVISION PRODUCT

Unisys Canada will be going after the DEC market with a product from a Blackpool, Lancashire-based software house, Datavision. Unisys Canada became aware of the Datavision product, Universe Basic, when trying to sell its Arete-based machine to a traditional DEC user that wished to retain its Basic-Plus applications. Universe Basic will convert DEC PDP-11 based Basic Plus applications into native code. This is produced by translating the Basic-Plus source code into C which is then compiled by the system's C compiler. The problem was further complicated for Unisys Canada as some of the applications were developed using Basic-Plus 2, an enhanced version of Basic- Plus for VAXen. Unisys struggled with the problem for around six months before calling in Datavision which then took five weeks to extend Universe Basic to cope with the Basic-Plus 2 needs. Unisys are now spending an undisclosed sum to fund Datavision's development of Universe Basic to make it fully compatible with Basic-Plus 2. Datavision is understandably very excited by the deal, to date it is worth around $150,000 (Canadian) to Datavision, and the company hopes that the product will be taken on by other Unisys bases around the world; Unisys Canada say that it has had extensive talks with Unisys in North America. Unisys Canada hopes to acquire a large proportion of the 6,000 Canadian DEC PDP-11 users, software houses writing for that market and PDP-11 VARs with the Datavision product.

ITL PICKS FAULT TOLERANT UNIX FROM SEQUOIA FOR MOMENTUM

One of the few remaining European mini manufactures, Information Technology plc has bowed to the pressure of Unix and made an agreement with Sequoia Systems Inc to adapt Sequoia's Unix fault- tolerant operating system, Topix, for future models in the Momentum range. To date, ITL has used its own proprietary operating system, Modus, on its 8000, 9000, 9000x and most recent 1000 ranges. The company says that full details of the agreement have not been worked out but initially the agreemnt will not extend to the facility that Sequoia has to run Pick under the SVID-conformant Topix. ITL has not yet decided exactly how to implement Topix, but says that facilities will be developed to allow its existing applications to run under Unix and that development work is being carried out to develop Unix-based applications. Doug Gemmell, ITL's managing director, says that his company has been looking at Unix for some time, but plumped for the Sequoia version because of "its high performance transaction processing and fault-tolerance". He is convinced that the Unix System V Interface Definition will become the de facto standard for mini manufacturers.

BORLAND CLAIMS FASTEST, SMALLEST OBJECT CODE WITH TURBO C

Borland International Inc claims that its high-speed Turbo C (UX No 113) is the only optimizing C compiler for microcomputers that provides end users with a choice of using either the integrated environment complete with built-in editor, compiler and linker; or a conventional-style command line interface. Turbo C provides a one-pass compiler, control of memory models and code optimizations. In benchmark tests, Borland claim Turbo C generates the fastest, smallest object code. The compiler has a built-in Turbo Linker, also provided as a standalone program for use in the command line mode. Turbo C is a single-pass compiler that generates intermediate data structures in memory. In contrast, most C compilers are four- or five-pass compilers that compile using temporary files on disk. It compiles to memory at fast raw compile times exceeding 7,000 lines/minute on a 6 MHz IBM PC AT and it supports six memory models: tiny, small, compact, medium, large, huge. Near pointers and far pointers are used as well as a fast linker like that implemented in Turbo Prolog. The Turbo linker is compatible with the DOS linker and links approximately two to 10 times faster than the DOS linker, while it is about one-fifth the size.

Turbo C features a built-in LINT for error checking for development and debugging, with support of ANSI prototypes. Optional Pascal calling conventions have been included for added efficiency and optimization power. A range of compiler options are provided, including inline assembler, multiple levels of optimization, generation of 80186/80286/8087 instructions, warning suppression and multiple memory models. Compiler optimizations include automatic register assignment and common sub-expression elimination. Turbo C implements the forthcoming ANSI C standard and delivers full support of Kernighan and Ritchie C. Special extensions for the PC environment include six memory models; and extensions for mixed-language, mixed-model programming. The run operation within the integrated environment will recompile all necessary files, generate the executable code and run the program, then return back to the user interface. The editor window and the message window can be invoked within the editor; and the user can toggle between these windows. In the editor window, a full screen editor is provided with insert/overwrite, auto-indent, and block copy, move, read, write and delete along with other functions. In the message window, warnings and compiler error messages can be turned off selectively at different levels. Turbo C steps through multiple errors, and the interactive editor automatically positions the cursor in the source code at the point of error.

Benchmarks

	Turbo C	Microsoft C
Sieve benchmark		
(25 iterations)		
Compile time	3.89	16.37
Compile and link time	9.94	29.06
Execution time	5.77	9.51
Object code size	274	297
Dhrystone benchmark		
Compile time	5.93	30.70
Compile and link time	10.60	44.22
Execution speed		
(dhrystones/second)	1219	1041
Object code size	1149	1211

Benchmarks run on a 6 mhz IBM PC AT using Turbo C version 1.0 and the Turbo linker version 1.0; Microsoft C version 4.0 and the MS Overlay Linker version 3.51.

RESEARCH MACHINES JOINS THE 80386 FRAY

Research Machines Ltd, Oxford, has announced its Nimbus X Series of IBM-compatible minicomputers based on Intel's 80286 or 80386 processors. The 12MHz Nimbus AX-286 running MS-DOS 3.2 has 1Mb RAM with five expansion slots and is upgradable to the Nimbus VX- 386, with a 16MHz processor, with 2Mb RAM and Intel's 80387 floating point maths co-processor. Both models offer a Research Machine version of Microsoft's Windows, with Xenix as an option. Support for Enhanced Graphics Adaptor and IBM's CGA graphics packages are standard, with a 19" screen in colour or mono. Ethernet and Token Ring are supported. The price for the AX-286 with a 20Mb Winchester and EGA is £2,695; a VX-386 40Mb Winchester is £4,995 and a top-end VX-386 with the 19" monitor is £11,995. Preproduction models are out in April, with full production starting June. Managing Director Mike Fischer hopes that the company he co-founded in 1977 will go on to the London Unlisted Securities Market in 1990, by which time its business will be more evenly split between its traditional educational base, and the business and commercial sector which the 80386-based machine is aimed at. The Nimbus X Series and the enhanced 8-bit Nimbus PC, which now has an emulation package for the BBC's Acorn educational box, are part of a plan to take "the leading share in schools." Science and education accounted for 70% of Research's £16.3m turnover last year, representing a 25% market share. This year the company is looking to add another 20 to 40 local education authorities to the 28 it already has using the Nimbus range. Fischer hopes the 80386 and 80286-based machines will pick up business in the commercial and Government sector - the UK Army's Land Forces and the Royal Navy already have net- worked Nimbus PCs and Research Machines has announ- ced an unnamed "multimillion pound" OEM venture with a multinational company to produce a customis- ed version of the X Series. Government contracts, Fischer forecasts, will materialise in 1988 and 1989 and the UK Government's Central Computer and Telecommunications Agency has shown interest in the new range. Research Machines has ambitions abroad, too: a Scandinavian contract is in the pipeline worth "several million pounds". From now until the year-end Research Machines is looking to appoint 35 value- added resellers and systems houses to work on application development in graphics and networking, adding to the 15 it has already appointed.

CRAY HAS SINGLE-PROCESSOR X-MP, MP CRAY-2

Cray Research Inc yesterday added four new supercomputer configurations, including the expected first single-processor models of the X-MP, which give it its cheapest entry-level machine yet, at $2.5m for a 4Mword system; with 16M-words, the single processor X-MP is $8.5m, and either can be upgraded to the existing dual-procesor X-MP. The company has also come up with two and four processor configurations of its top-end Cray-2, each coming with 128Mwords of memory, and priced at $12m and $14m respectively.

CONVEX C-1 CAN BE LOW-COST DEVELOPMENT BOX FOR CRAY SUPERCOMPUTERS - ZEROONE

ZeroOne Systems Inc of Santa Clara, California has introduced an enhancement package for the Convex C-1 mini-supercomputer designed to turn it into a powerful front-end system to Cray-1 and Cray X-MP supercomputers. The idea of the enhancements to the Richardson, Texas manufacturer's 64-bit C-1 is that users are able to develop code and perform a variety of other operations on the Convex system, which is cheaper than a Cray supercomputer, and then process it on the Cray; in the mean-time the Cray can be fully used running more valuable production work. Enhancements to the Convex include Cray station software and Cray Fortran software development tools, both developed by ZeroOne. The enhanced Convex uses a vectorising compiler combined with a ZeroOne Cray Fortran preprocessor, which enable software developers to write and debug code in Fortran on the C-1 before running it on the Cray. The enhanced C-1 can also be used as a powerful stand-alone code development system that can be networked to Unix-based minicomputers and workstations. Prices for ZeroOne's enhanced version of the C-1 start at $495,000.

AT&T ANNOUNCES ASIC DESIGN CENTRE IN LONDON FOR THE UK MARKET

AT&T has set up a third application specific integrated circuit, ASIC, development centre, this time in London, as part of its strategy to catch a 15% to 20% market share of its related European semiconductor markets by 1990. The company has also set up sales offices in Stockholm and London with the announcement that the following standard components not previously available to the external market in Europe are available now: Integrated Services Digital Network, ISDN, chips, 32-bit digital signal processors operating at 25MHz, with a 16-bit fixed point digital signal processor to be introduced in March; dual port memories; the company's WE32000 family of 32-bit Unix microprocessors, which will be introduced into Europe over the course of 1987; and fibre optic and associated products, including astrotech lasers operating at speeds of up to 2Gbps. AT&T Microelectronics Ltd is the name of the London design centre and it will open in the second quarter of 1987, adding to the company's two other ASIC design centres in Munich and Madrid. It will target OEM customers with CMOS standard cell designs for the UK, to be manufactured at the company's factory in Madrid when it starts operating in 1988. The UK design centre will start with three people, rising to around 30 by 1999. AT&T has a joint venture with Compania Telefonica National de Espagna SA in Madrid, where its semiconductor wafer factory is due to open in 1988.

INSIGNIA HAS ALL-SOFTWARE MS-DOS FOR UNIX STATIONS

The trouble with software emulation is that it is slow, but if users are prepared to put up with degraded performance from their MS-DOS applications on their Unix workstations, Insignia Solutions of San Francisco has come up with a C program called Soft PC, which is rather optimistically claimed to run on any 32- bit processor under any operating system. Aimed primarily at the Unix workstation market, it has attracted interest from both Sun Microsystems and Apple Computer, and Insignia has been demonstrating it on a 68020-based Sun-3 workstation. In the demonstrations, Soft PC has been shown running concurrently with Unix in different windows and performance is claimed to be about one-eighth the speed of applications running native under Unix - which with a 25MHz CPU may turn out to be quite fast enough to satisfy the 1-2-3 addict. The company is offering Soft PC only as an OEM product for manufacturers, and declines to give any idea of price.

COUNTERPOINT OFFERS V.3 WITH RFS AND STREAMS

Counterpoint Computers has joined the fray and announced that its implementation of Unix System V.3, C-XIX, is available for its System 19 range and unlike Motorola or Pyramid it is offering it as standard with RFS and streams. The company says that it has shipped 680 units of its System 19 range.

INTEL READY WITH 20MHz 80386; 80387 MATHS CO-PROCESSOR

Intel Corp will next week announce a 20MHz version of the 32-bit 80386 microprocessor, and with it the anticipated 80387 mathematics co-processor, its first cache controller in the iAPX- 86 family, and a VLSI complex of peripheral parts that replaces between 20 and 30 chips in most personal computer implementations. The new 20MHz 80386, as might be expected, delivers 25% more performance than the 16MHz version, and Intel reckons that it benchmarks above both the DEC VAX 8600 and the IBM 4381 CPUs in internal CPU performance, suggesting that it runs at between 3 and 5 MIPS. It is available for immediate delivery at $600 for 100-up. The 80387 is object-code compatible with the 80287 and 8087, is supported by all the existing 80386 compilers, and is sampling now with volume set for April, at $500 for 100-up. The 82385 32-bit cache control unit features a sneaky trick called "posted write-through" to main memory, which means that transfers with memory are handled when nothing else is going on, to eliminate memory wait states. It supports a 32K-byte cache, and no new software or software adaptation is needed to use it. Set for the second half, it is not yet priced. A little worrying for companies like Chips & Technologies that offer VLSI support chips that make it much cheaper and quicker to design and build IBM Personalikes, Intel also plans to offer the 82830, which integrates between 20 and 30 support chips on a single integrated circuit. The new part will include direct memory access controller, a 20 level programmable interrupt timer upwards- compatible with the 92C59, four 16-bit programmable interval timers upwards-compatible with the 82C54, as well as programmable wait-state generators and dynamic RAM refresh controller and system reset control logic. Samples now, volume in the second quarter, it is $150 for use with 16MHz 80386s, $300 for the 20MHz version.

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Minigrams

IBM have signed an agreement with **Ryan-McFarland** to market RM/Cobol on the IBM RT machines worldwide, the announcement enhances expectations of a pending top-end 6150 launch to open up IBM's standing in the Unix community.

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And **Ryan-McFarland** has announced that its RM/Cobol and RM/Fortran products are now available under Xenix 5: RM/Cobol under Xenix costs £975 and £587 for RM/Fortran under Xenix.

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Convex (UK) Ltd , of Guildford, Surrey, has a £1m- plus contract for one of its C1 minisupercomputers from seismic analysis specialist **Spectrum Energy & Information Technology Ltd** , of Woking, Surrey: the company says that this is the fourth processor installed by the UK operation since November.

- o -

Pyramid Technology say that its addition of the new virtual disk file system (UX No 113) "will be espescially useful to users who are building large databases, but who would not (ordinarily) consider a machine with a Unix operating system because standard Unix file systems are not large enough".

- o -

The Austrian state holding company is to reduce its stake in $1,100m a year **Siemens AG Osterreich** to 26% from 43.6%, and will initially offer the shares to a Siemens holding company in Zurich, Switzerland; it looks for between $120m and $160m from the sale of the investment.

- o -

New 32-bit RISC microprocessors are expected to capture the spotlight at this year's **International Solid State Circuits Conference** , to be held in New York City on February 25 to 27: the parts to be described are clocked at between 20MHz and 30MHz, are fabricated in 1.2 micron geometries or smaller and rated at 5 to 15 MIPS - Hewlett-Packard will be describing two, and there will be one each from Stanford University and AT&T Bell Laboratories.

Spectragraphics Corp , of San Diego, California with its UK base in Wilmslow, Cheshire has shipped to **Apollo Computer Inc** a DSCC communication controller for use with the Domain 5080 Emulator: the Domain 5080 emulator from Spectragraphics is an IBM 5080 graphics terminal emulation package that supports simultaneous execution of both mainframe and workstation applications software running on one workstation.

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Redwood International has signed an agreement with **United States Data Corporation (US Data)** of Richardson, Texas by which US Data has the exclusive rights to distribute the Uniplex-II Plus office automation product throughout North, Central and South America.

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Star Computer Group Plc , that distributes machines from **Convergent Technology** , has given notification that it now holds a 6.1% stake in Rolfe & Nolan Plc.

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As well as having Unix System V.3 **Convergent Technology** claims to have the 25MHz processor from Motorola for its S series.

- o -

The CCTA has announced the contract that it awarded to **British Olivetti Ltd** last October (UX No 99) for its Main Information Technology System (MITSY) is on schedule despite bad weather in Norwich during implementation and the late arrival of Unix System V.3; Olivetti put forward an provided functionality at the central server level but now V.3 has arrived the plan will revert to the original configuration.

- o -

Victor Technologies is showing off its AT-compatible Xenix-based system at this weeks Which Computer? show and we hear that it is looking at launching a top-end 68020 machine which it may source in the UK.

British Olivetti Ltd announced prices for its new networking products on the 3B range (UX No 115) and price cuts for the 3B range itself at this weeks Which Computer? show: Starlan consists of a network access unit, to attach the machine to a Starlan network; and a network extension unit, which allows Starlan networks to join together; - the network access unit costs £695 for the 3B1; £1,325 for the 3B2; and £595 for the PC - the network extension unit costs £950.

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And the 3B1 has dropped in price by 25%, entry-level price is now £4,095; the 3B2/310 is down by 20% to a price of £10,995; and a 2Mb memory add-on is now £3,500, a price decrease of 36%.

- o -

Oracle Corporation's , of Belmont, California SQL*Star distributed database (UX No 98) will be months late the company says because of architectural changes designed to increase the power of the PC component of the system: RTI maintains that its product Ingres/Star will be shipped in March.

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Hewlett-Packard's HP3000 Series 930 Precision Architecture machine will be due for beta test site delivery in April.

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Apologies to **Mari Advanced Microelectronics Ltd** the headline of Ux No 113 was misleading the company is not owned by **Newcastle University**: Mari is an independent research institute with members not owners, one of which is Newcastle University.

- o -

Philon UK Ltd has moved its operation to the New York corporate headquarters: the company says that this is part of reorganisation plan intended to strengthen its presence in Europe, it found that the limited staff it had in the Mayfair, UK office was not sufficient to support and develop its range of compilers; the company adds that it will be announcing a number of joint marketing agreements throughout Europe over the next couple of months.

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Number 117

IBM SOUPS UP RT, TOP SERIES 1, LOW 36; ADDS OFFICE PACKS

IBM last week delighted its RT Personal distributors with an announcement promising to improve the price performance ratio of the machine. The main features of the announcement was a top-end processor for the RT and its implementation of X Windows for the RT's AIX. Three new processor models for the RT - the 115, 125 and B25 - feature an Advanced Processor Card with higher performance CMOS processor and memory-management chip and a 20MHz floating-point unit, and all come with 1.2Mb floppy and 70Mb internal Winchester, and can support up to 5.6Gb of external disk. The 125 and B25 take up to two additional 70Mb drives, have larger power supply and more slots than the 115 to create multiuser configurations; all three also feature an Extended ESDI disk interface running at up to 1.08Mbytes per second, supporting up to two gfloppies and three internal 70Mb Winchesters. New fast memory units of 4Mb and 8Mb can be used in combination with the 4Mb on the CPU board for a maximum 16Mb. The 115 and 125 include a keyboard, the B25 has a link for the IBM 5080 Graphic Display System and uses the 5080's keyboard. There is a built in floating-point but an optional advanced one is also available to speed performance further. The IBM 5083 tablet, the 4202 Proprinter XL, the 3852 Colour Jetprinter, the 6184 Colour Plotter, 5842 Modem and the IBM 5082 Projection System are all supported. IBM RT Distributed Services is a new program enabling a network-connected RT user to access files, databases and programs on remote RTs, transparent to the user or application. A single file may reside on multiple RTs and be accessed as if on one. IBM RT X-Windows, based on the Massachusetts Institute of Technology standard, can support a stand-alone RT or several RT displays; IBM RT VS Fortran is an optimising compiler compatible with 370 VS Fortran, VAX Fortran and RT Fortran 77, and IBM is offering Ryan-McFarland's RM/Cobol Compiler and Runtime System. Set for May in the US, the new RTs cost $10,600 for the 115, $16,100 for the 125 and $17,670 for the B25. Discounts of 27% are offered on 20 or more. Upgrade kits for existing RTs cost $2,495; 4Mb memory is $3,800; the 70Mb disk is $2,395; X-Windows, at $650, will not be available until September.

BETTER LATE - PHILIPS ENTERS THE UK UNIX MARKET

Last week Philips launched its first Unix-based machines in the UK despite a claim from a, now out of business, distributor, Unit-C, to having a remarkably similar product from Philips last year and having 500m Dutch Guilders of orders for the machines already. The P9000 product comes in two forms the P9070 and P9X00. The P9070 is a 68020-based VME bus product from Motorola running the V/68 implementation of Unix. The P9X00 uses a proprietary Philips bus, PGP-Bus, and is based on the Motorola 68000 series. For the P9300 and P9200 the Motorola 68010 and 68020 are available but the P9100 can only use the 68010. The P9300 has either one 8" or two 5.25" hard disks; up to two 5.25" floppy drives; one 45Mb streamer tape; and a PGP-bus with 20 slots. The P9200 has up to two 5.25" hard disks; 45Mb tape streamer; and a PGP-Bus with 10 slots. The P9100 is supplied as a diskless or disk-based unit and has four PGP-Bus slots. The P9X00 uses Philips own implementation of Unix, MPX, which the Dutch-based company claims is superior to System V although conformant to the SVID and the X/Open portability guide. MPX provides a set of proprietary tools and transaction processing enhancements intended for the service industries. The P9070 is intended: as an upgrade to existing Philips P7000 users; VARS and corporate accounts. The P9X00 is the next step up for P6000 users and is also aimed at three specific markets as well as corporate accounts. The three markets include Philips traditional user-base, the financial sector, as well as insurance and travel/transport. Philips intends to capture 3.5% of the European departmental computer Unix-based market and 1.5bn Guilders worth of the financial market.

BUY-OUT OFFER FOR FORTUNE SYSTEMS AS IT RETURNS TO SLENDER PROFITS

Executive vice-president Robert Davis, and international president Brooke Pete Taylor, of Fortune Systems Corp have proposed a buy-out of Fortune's computer operations to the board of loss-making Belmont, California-based Unix micro manufacturer. If the bid proves successful the company will concentrate on selling multi-user Unix systems to VARS: using the Fortune range and Unix machines from other manufacturers. Taking the computer operations would leave Fortune with its recently formed and limited software arm controlled by Fortune chairman, president and chief executive James Campbell. Campbell says that the company is seriously looking at the acquisition offer but is also looking at alternatives. The proposal will be put to the company's shareholders at the annual meeting in May. Fortune has been loosing money since it went public but last week turned in fourth quarter figures showing modest profits of $631,000 against a loss last time of $15.6m, on turnover that fell 20.0% at $11.9m. Net loss for the year to December 31 was $1.7m, after a gain of $471,000 from the sale of a subsidiary, down from a loss last time of $23.6m, on turnover that crashed 19.3% to $38.3m. Net earnings per share were $0.03 in the quarter.

HIGH-LEVEL HARDWARE ADOPTS SUN's NETWORK FILE SYSTEM

Feisty little High Level Hardware, the Oxford developer and manufacturer of the Orion Unix bit-slice minicomputer, is now offering the Sun Microsystems Network File System on the Orion. The facility, which will enable users of networked Orions to access data from a central filing system, will operate over the Ethernet local area network system supported by the Orion.

X/OPEN A HIT WITH LARGE MANUFACTURERS...

Over the years a long line of knights in shining armour have come galloping up on white chargers to rescue Unix. Dragging her kicking and screaming from her Ivory Tower, each had a different plan to make her a dazzling superstarin the real world outside (and, incidentally, make themselves very rich in the process). Some wanted to make her so easy to use a mentally retarded six-year-old would find her dumb and boring; some wanted to tart her up to make her slick and commercial and attractive to jaded businessmen; some tried to give her a bit of spit and polish to make her conform to the military's paranoid security demands; and some made her bells and whistles sing and dance in real time. She was hitched to every bandwaggon and wooed by the designers of every exotic architecture. For 15 years she has been used and abused by everyone from the industry's superstars to mumbling, bumbling, backstage geniuses; but she has been able to cahnge to satisfy their every demand whim or fancy. And this has lead to all the trouble. By trying to be all things to all people, Unix has gone from being a single, simple, universal system running on a range of different machines to a whole range of different systems, often only loosly based on the original concept. Into this distressing situation stepped the much maligned ICL - the ailing flagship of the British computer industry before it was taken over by the upstart STC two years agoand at first sight a most unlikely knight in shining armour. But by cajoling and coercing Europe's leading computer companies to form X/Open, it has quietly started a revolution in the industry which will eventually bring untold benefits to the poor, confused, bemused and bamboozled user. To appreciate what X/Open is doing, one needs to realise just how crazy, chaotic, senseless and wasteful the traditional industry is. Even after the nasty experiences they have had with personal computers, most people still believe that real computers are designed by sane, rational engineers for the benefit of the user who, after all, pays for the machines and has to try and use them. Nothing of course could be further from the truth. Each manuafacturer has designed its machines and software as if the competition did not exist. Or, rather, each has deliberately made its machines incompatible with those of its rivals, so programs written for one machine will not work on any other, making it very expensive for a customer to move to a rival and causing untold senseless inconvenience, chaos and waste. But the arrival of the microcomputer with MS-DOS as an effective standard opened the eyes of customers to the benefits of a standard operating system and portable software. Rumblings of discontent were heard and more and more users and new companies turned to Unix with its promises of vendor independence and applications portability. But as each implementor succumbed to the temptation to hack at the kernel to "improve" the system, the promises were turning out to be just promises. AT&T tried to throw its weight around and impose a standard from Above - the System V Interface Definition (SVID). But unless you have dictatorial powers, standards have to be agreed from Below not imposed from Above, and AT&T just did not have enough clout with the industry.. So back in 1984 ICL persuaded five of Europe's major computer companies - ICL, Nixdorf, Siemens, Bull and Olivetti - to form X/Open to agree standards to make programs portable: the Common Applications Environment. In 1985 Philips and Ericsson, the only other major European companies joined and X/Open published standards for the Unix operating system and the C, Fortran and Cobol languages. Last year the US companies DEC, Hewlett-Packard and Unisys joined, as did Unix-developer AT&T this year. Anyone can now write software to the published standard and know it will run on any X/Open system from any supplier - an earthshaking advance for the traditional computer industry. And as the Common Applications Environment contains the hardware specifications, it is an open system which allows users to mix and match systems from different suppliers and still move applications between machines. The X/Open Common Applications Environment (CAE) is based on AT&T's SVID (AT&T has bowed to the inevitable and gracefully handed on its standardisation efforts to X/Open) and both the SVID and CAE will be compatible with the US IEEE Posix standard for a portable operating system. Microsoft's Xenix and Sun Microsystems' version of Unix are also set to conform to the joint standard later this year. This leaves only the Berkeley BSD version and its many derivatives (notably Dec's Ultrix) out in the cold, and teams of experts are said to be labouring far into the night to bring BSD into the fold as soon as possible. (In deference to Berkeley, we will pretend that networking has not been invented yet.) Meanwhile, X/Open has gone on to adopt Hewlett-Packard's 8-bit Natural Language System to allow it to cope with the different European languages, and eventually be extended to a 16-bit rerpresentation of Chinese and Japanese. X/Open has also adopted X/Open SQL to interface to relational databases and is working on transaction processing, networking, communications, graphics and a uniform user interface. But the revolution has not just been in technical areas: all these deadly rivals who are normally at each others throats are being nice to each other - and espescially nice to ICL. Derided over here as the dinosaur of the UK computer industry, it is hailed in public as the "driving force" behind these improvements. And companies that have never said anything printable about ICL thank it publicly for working to make X/Open possible. Nothing has been seen like it since Bob Geldorf metamorphosed from sub-human to saint...

EDGE EYES MERGER WITH PICK-UNDER-UNIX DEVELOPER TOLTEC

The refusal of its backers to bank-roll EnMasse Computer Corp further has thrown into confusion Olivetti's plans to enter the European market with a high- transaction-capacity Pick-under-Unix. Toltec Computer Corp, Phoenix, Arizona, where Olivetti is a major investor, had adopted the EnMasse multiprocessor transaction-intensive Unix implementation as the platform for its Pick implementation, but had been looking around for a higher-performance engine than the EnMasse multi-processor 68000 family machine. According to Omri Serlin, whose Itom International publishes the Fault- Tolerant Systems newsletter out of Los Altos, California, Toltec had lighted on the high- performance 32-bit CMOS processor developed by Edge Computer Corp, headquartered in Minnetonka, Minnesota but manufacturing in Phoenix. According to Serlin, the Edge processor, announced 11 months ago as equivalent to a VAX 8600 is effectively a 6 MIPS "pre-implementation" of the 68020, making it an ideal engine on which to run power-hungry system software developed to run on the 68000 family. Toltec has been considering a merger with Edge - but the failure of EnMasse has put a question mark over the agreement, because EnMasse was a significant contributor to the $17m venture capital raised by Edge. And the backers of the failed Acton, Massachusetts company are seeking as much from the wreck of EnMasse as possible, and before Edge can merge with anybody, it will have to repay the money advanced by EnMasse and find another investor to replace it. The solution seems to lie in the door of Olivetti Ventures.

SEQUENT, ENCORE RUSH FOR CARNEGIE MELLON's MACH UNIX

The first version of Carnegie Mellon University's Mach multiprocessor kernel based on the Berkeley BSD 4.3 kernel, has just gone into the public domain, and has been snapped up by multi-processor Unix proponents Sequent Computer Systems Inc, Portland, Oregon, and Encore Computer Corp, Marlboro, Massachusetts. Mach was commissioned by the US Department of Defense to meet its need for a kernel that could be changed quickly to meet the needs of rapidly evolving high-speed networks and multiprocessor machines. It is designed to support large- scale multiprocessors, networks of small- scale multiprocessors, and individual workstations. Carnegie Mellon has been running Mach distributed over multiprocessor VAX 8000s supporting over 100 Sun Microsystems stations.

NEWS FROM THAT HOTBED OF UNIX AND C EXPERTISE; JAPAN

They even speak C in China these days, and Qing Ka University has taken delivery of a C language processor and a statistics and mathematics library from **Fujitsu** for its M-series mainframe computer: Fujitsu has been working with the university since 1982 to modifying its workstations for the Chinese language, and developing a Chinese language input system; even the Japanese are getting lazy about foreign languages, and so few Fujitsu people speak Chinese that Qing Ka personnal have had to be brought to Fujitsu's software laboratory in Numazu to work on the company's Chinese-Japanese machine translation project.

Unisys may not yet offer Unix on its System 80 small mainframe line, but **Mitsubishi Electric**, which manufactures most of the System 80 models in Japan for Unisys to sell world- wide, has launched a top-end 32-bit version of the 16-bit machine as the Melcom System 80G - with Unix file management and the C language incorporated into the DPS10 operating system: the new model has twice the performance of its predecessor, up to 32Mb memory, up to 6.4Gb of disk, and a degree of fault-tolerance in the pipelined CPU; it will be sold OEM to **Nippon Univac Information Systems**, and Mitsubishi looks to sell 600 of the machines, which lease for $5,300 a month over five years, during the next three years.

Casio Computer Corp has announced two new models, the SX1050 and SX1010, in its SX1000 line of 32-bit Unix business computers for data processing and Japanese language word processing: the 68010-based SX1010 ranges from $8,300 to $20,300, and the 68020-based SX1050 is $25,800 to $32,350; they are also offered with the Informix/SQL relational database and ISO local and wide area networking; **Ricoh** is already in the market with a similar Unix machine, and the new NEC Astra Unix boxes, already announced in the US, are set to be launched in Japan very shortly.

Ricoh Co is set to launch **AT&T**'s Starlan local area network - initially the US version - for the IBM 5550, its own SW16, and AT&T's 3B2; a Japanese version is in development.

Nippon Systemix, a $3m-a-year software house majoring on Unix, has come up with an interactive expert system called Mind-Expert as a Unix systems development aid: it consists of five modules, each going for $330, which are offered on Toshiba's UX series of Unix workstations; the system was developed jointly with $118m-a-year **Nippon Business Automation**, and is targeted at banks and manufacturers.

386s FORM A CROWD AT THE WHICH COMPUTER? SHOW

At last week's Which Computer? show 386s abounded; on show were the ALR machine distributed in the UK by London-based EuroMicro Ltd, single user machines from Compaq and Apricot Computers, new multi-user machines from Comart Computers Ltd and LSI, and recently announced multi-user machines from Apricot Computers, Jarogate and LSI's expected new parent Technology For Business Plc's Rair Ltd. The EuroMicro 386 has 512K 32-bit RAM, 1.2Mb floppy drive, 40Mb hard disk, eight slots - two 32-bit, four 16-bit and two 8-bit - and costs #4,945. The Comart CP3042T and CP3082T run under Digital Research's Concurrent DOS-XM. The 3042 comes with 40Mb hard disk, 2Mb RAM, tape streamer, eight serial and two parallel ports while the 3082T has 80Mb hard disk, 12 serial and three parallel ports. The LSI Octopus 386 has a 80287 floating point co-processor, up to 8Mb RAM, 170Mb hard disk, tape streamer, floppy drive and 24 serial ports. It runs Concurrent DOS, BOS and Unix System V.

NEC BIDS FOR MICROPROCESSOR LEADERSHIP WITH 10 MIPS V80

Yet another US computer industry bastian, that of the high-performance merchant microprocessor, looks doomed to capitulate to Japan Inc. Up to now, no original Japanese microprocessor has made a dent in the hegemony of Intel with its iAPX-86 family and Motorola with the 68000 series, but NEC Corp is determined to establish a bridgehead with its V-series of parts that are upwards- compatible with Intel's 8088. According to Electronics magazine, NEC Corp, which is only now sampling its first true 32-bit part, the V70, is already planning to introduce a 10 MIPS V80 at the top of its line next year. The design of the V70 has been simplified to eliminate the on-chip cache memory, and the part is now expected to deliver 6 MIPS, and to integrate 385,000 transistors, only modestly more than the 375,000 of the 16/32- bit V60. But the V80, to be fabricated in leading edge 1 micron CMOS, will integrate 700,000 transistors, and threatens tough competition for Motorola's 68030, already previewed, and for Intel's unannounced 80486.

NOW ISO's US TEAM SEEKS TO PUT IBM LU 6.2 IN OSI

An outraged European Computer Manufacturers' Association last year threw out proposals that IBM's Logical Unit 6.2 SNA protocol, and the Advanced Processor to Processor Communications system that uses it should be incorporated into the definitions of the Open Systems Interconnection reference model - but they only scotched the snake, and this week it reared its head again. This time, representatives of the International Standards Organisation have written the IBM LU 6.2 and APPC into a draft proposal for the problematic high layer protocols. IBM's competitors fear that IBM will be given an enormous advantage over them if LU 6.2 is selected.

WHITECHAPEL TO LAUNCH NS32332-BASED MG AT CADCAM '87

Whitechapel Workstations will be launching its top-end MG workstation at the CADCAM '87 exhibition in March. The MG-200, originally scheduled for an Autumn '86 delivery (UX No 80), is based on the National Semiconductor 32332 processor. The East London based workstation manufacturer intends to sell the MG-200 into its existing user base as a top-end alternative to the NS32016-based MG- 1. The new workstation series will be genarally available in April and will run the 4.2BSD version of Unix. Prices will be released at the CADCAM show.

NORSK DATA TAKES ON UNIX MACHINES TO GAIN FOOTHOLD IN SWEDISH GOVERNMENT

Norwegian mini-maker, Norsk Data A/S, has signed to become a Data Industrier AB OEM to enter the potentially lucrative and prestigious Swedish Government market (UX No 99). Norsk Data will be offering the Motorola 68010-based DS90-10 and the 68020 DS90-20 to the Swedish government. For the first year, at least, Norsk Data says that it has no plans to sell the products into any other market. The DS90 series runs Data Industrier's own real-time Unix System V compatible operating system, D-Nix. No value has been released for the contract.

UNIFY BIDS FOR TOP SPOT IN UK DBMS MARKET

Unify Corporation has officially opened its UK office in Saville Row, London with the intention of taking a larger share of the UK market from its closeset competitor Informix Corp. The reason for Informix being the UK's number one in database management systems, Unify says, is because Informix has been in the UK through distributor, Sphinx, longer than Unify has been selling into the country but also reckons that a physical presence will change this. London-based Root Computers will continue to act as UK general dealer and Unify says that its new office will help Root sales rather than take them away because of the greater level of support it will be able to give. Since the London office opened for business in November 1986 the company claims around £170,000 sales and expects around £750,000 of UK sales by the end of 1987. Unify opened its European headquarters in Enschede, Neteherland in September 1986 which has now eight sales and support staff; the company expects to have four staff in the London office by the end of next month. According to a report from market research firm Novon Research, in 1985 Unify held 45.1% of the worldwide database management systems market; RDS, as Informix Corp was then called, had 21.3%; both were trailed by RTI having 10.5% and Oracle, 6.5%. Unify expects this to be reflected in the UK over the next couple of years.

APOLLO AIMS TO CHANGE FACE OF DISTRIBUTED PROCESSING WITH NETWORK COMPUTING SYSTEM

The Network Computing System announced by Apollo Computer Inc last week (UX No 116), could turn out to be one of the most significant networking announcements in recent years, and be the trigger that turns local area networking into something much more than it for the most part represents today - a re-implementation of the concept of the multi-user system of the 1970s with a little more local intelligence added at the workstations. And it is exactly what IBM should have come up with three or four years ago to clean up the morass in the more scientific and technically-oriented side of its mid range. Whether the Network Computing System - which has been put into the public domain by the Chelmsford, Massachusetts company - will do Apollo any more good than Ethernet has done Xerox, Unix has done AT&T, is another matter. If it really works as Apollo claims, the company will deserve all the success that comes to it - but the market is notoriously cruel to genuine innovators. Apollo describes the Network Computing System as the first commercially available set of distributed computing products for developing and running application programs across networks of incompatible computers from multiple vendors. Apollo believes that it is the first system that can distribute modules, or parts, of a single application program to the specialised computers on the network that are best suited to execute it efficiently - artificial intelligence engines, database machines, automatic test equipment, simulators, parallel processors, and supercomputers. It is also conceived to find idle computers and keep them busy when other parts of the network are becoming overloaded - just as a good mainframe operating system does when running a mix of batch and interactive applications - but even a mainframe with integrated vector processor only scratches the surface of the capabilities of specialist machines such as a Symbolics 3600 artificial intelligence computer, a Teradata parallel database machine, a Convex C-1 mini- supercomputer, a Floating Point Systems T-100 Transputer supercomputer, a handful of Apollo node processors and a string of AT-alike terminals. The Network Computing System is designed to lay a firm foundation for the development of dynamic, integrated technical applications whose tasks can be run productively on remote systems right from the workstation, without compromising interactivity. The company gives as an example a Network Computing System-based mechanical and electronic design applications can enable an engineer to capture and display graphically a design on the workstation while a background supercomputer concurrently analyses the design. The workstation could then display the results graphically in real -time. In addition to unveiling generic tools for developing applications between dissimilar computers, Apollo introduced Network Computing System source code to run under Unix and DEC's VAX/VMS.

Network Computing System, needless to say written in C for maximum portability - C is also highly regarded as a system software programming language - is described as open and portable system. The source code can be licensed, is fully documented, and Apollo has published the specifications so that others can implement the system without having to pay Apollo for the privilege. The system is based on industry-standard networking protocols, including TCP/IP for Ethernet and DECnet, Apollo's DDS Domain Distributed Services, IBM's SNA, and MAP/TOP, and Apollo sees it complementing distributed file systems such as Sun's Network File System, AT&T's Remote File Sharing, and its own Domain, by providing the computational sharing that is absent from those systems.

Three components

The system consists of three components that the company reckons solve the problems that previously prevented the development of true inter-vendor network computing - a Remote Procedure Call Run-time Environment - transparent to application programs - that handles packing, transmission, reception of data, and error correction between the client and the parts of the application on the users's workstation and on the computers providing remote services; Network Interface Definition Compiler, which compiles Apollo's new high-level Network Interface Definition Language, NDL (shouldn't that be NIDL, especially as Unisys-Burroughs already has an NDL?), into portable C source code that runs on both sides of the connection; and a Location Broker, which enables applications determine during program execution which remote computers on the network can provide the required services to the user's computer.

The NDL Compiler costs $1,000 per workstation or $8,500 per site; the NDL Source Code, supplied on tape, is $25,000; the Network Computing System Unix Run-time Source Code and the VAX/VMS Source Code are $1,000 each; for those who want to do their own thing, the Network Computing Architecture Public Specification is just $80; and the Apollo- Specific Network Computing System Documentation and Runtime Source Code is $250. All are set for third quarter delivery.

DEC LANDS $10.4m VAX ORDER FROM CHINESE UNIVERSITIES

Digital Equipment China Ltd is celebrating a $10.4m contract with the China National Technical Import Corporation that keeps the minimaker's feet firmly under the table in the educational and research market in the People's Republic. The contract is to provide 13 VAX 8300 minicomputers and 129 MicroVAX II supermicros with associated software for use at 57 key provincial and local universities, as well as installation service and training. It is estimated that over 200,000 undergraduates from science, engineering, management, and social science fields will get to use the new machines, and university lecturers and graduate students will also have access to them. DEC says that it won the business in competition with 19 other contenders on the basis of operating system continuity from the bottom to the top of the DEC VAX line. DEC notes that there is a large number of PDPs already installed in Chinese universities, and reckons that after two previous deals that involved over 20 VAX-11/750 and over 50 MicroPDP-11s, it is now the number one supplier to the Chinese educational market when measured by the number of computer systems installed.

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Minigrams

At the X/Open demonstration of portability event, to be held later this week, the software package used on machines from each of the eleven members will be 20/20 spreadsheet package from Access Technology.

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AT&T and Microsoft will formally announce later this week that, Unix System V.3 and Xenix 386 for the 80386 chip are to be merged - but in the intervening month, the completion date for the effort has already slipped from the end of the year to early in 1987.

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Microsoft Corp is building a new product research and development centre in the Seattle, Washington area, and says that it is investing heavily in new products: it also says that it is "carefully considering" potential acquisitions.

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And Microsoft Corp reckons that there are 7m copies of MS-DOS churning away on Personals and Personalikes around the world - against just 200,000 copies of its Xenix low-end Unixalike.

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Root Computers Ltd of London EC is to supply all the Xenix office automation software to be marketed with Apricot Computers' VX multi-user 80386 box: applications included are the Rootmap Runtime user interface; the Rootmap Diary, the Rootmap Mail/Telex, Rootspool; Rootfile; Writeword; and the Manufacturing Control System and Financial Control System developed by Hoskyns and made available under Unix by Root.

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And the **Technical Systems arm of Root** has launched a file system optimiser aimed at users with a high disk activity which will run under any standard Unix System V: FSOP can organise files so that recent or most frequently used files are placed nearest to the i-node pointers.

Hewlett-Packard with its UK base in Bracknell, Berkshire has announced that it is evaluating AT&T's RFS as a possible offering on its technical workstations and adds that regardless of its decision it will continue to offer Sun Microsystems' NFS.

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North London-based **Instruction Set** was presented with the 1987 RITA - Recognition of Information Technology Award - for the 'Newcomer of the Year' at last week's Which Computer? Show: the Newcomer of the Year category was open to companies that had been in business less than three years at the close of nominations, runners up to the title included Expertech and PC Communications.

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Also at the Which Computer? show **Tudor Business Systems** of Alcester, Warwickshire launched a recently converted to C package for the estate agency business: Tudor markets the Total Property Plan on the Convergent Technology Unix- based machines.

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Systems Union of North London has ported its SunSystems accountancy software to the recently launched Altos 3068: the new version runs under Unix System V and the company adds that its Unix versions of the accountansy software accounts for about 50% of its total sales, Sun Systems are also available running under DOS, Concurrent DOS, CPM and VMS.

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The Motorola 8400 series of 32-bit Unix-based machines are available from **Hi-Tek Solutions** of Cambridge.

Redwood International Ltd has announced a print processing module for all Uniplex-II Plus versions which allows Uniplex- II Plus customers to use laser printers and make use of multiple fonts, graphics, proportional spacing and multi- columns.

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West London-based **Brook Street Computers** is looking for distributors for its recently launched Unity C programming tool (UX No 112) "espescially amongst concerns looking to build their own Unix/Xenix software".

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Swedish motor manufacturer **Volvo** has chosen the Today fourth generation language from Australian bbJ to convert files produced in Fortan to Informix-SQL format: Scandinavian distributors of Today, Arcad Technology AB, won the contract valued at SEK1.5m which also includes a Gould Powernode.

- o -

General Robotics of Hartford, Wisconsin has introduced the Python/32T based on the National Semiconductor 32032 processor using the DEC Q-bus: the company claims that it performs compute bound tasks around 50% faster than its predecessor the Python/32B, a Python/32T with 4Mb memory and a 1-2 user Unix System V.3 license costs $7,500 in quantities of 50 per year.

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The Software Product Consortium, a collaboration of 14 aerospace and electronics companies including; Ford Aerospace, Boeing, Harris, Lockheed, Martin Marietta, McDonnel-Douglas, Northrup, Allied Signal, Grumann, TRW, SAI and United Technologies; has chosen the Apollo Computer's Domain system for its development centre to produce software tools and techniques: the installation in Virginia will comprise 134 Apollo workstations.

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NCR LAUNCHES TOP-END UNIX TOWERS: SUPPORT FOR UP TO 128 USERS

NCR yesterday launched worldwide the top-end of its Tower range, the 32/800 which extends support to 128 users from the existing 48 user system, the 32/600. The Tower 32/800 uses multiple processors in a loosely coupled architecture based on the Multibus II. Up to four applications processors can be used in the system for non input/output functions each with a maximum of 16Mb memory. The applications processors use the Motorola 68020 running at 16.7MHz with the 68881 floating point co-processor. Input/output functions are handled by four types of processor: terminal processor, handling up to eight asynchronous RS-232 ports; file processor, managing two SCSI ports; communications processor which will handle two lines for communications between the system and wide area networks; and the local area network processor manages an Ethernet channel and support NCR Towernet system software. Each of the input/output processors use the Motorola 68010 processor and have 1Mb memory except the LAN processor, having 1.25Mb, and in one system up to 16 terminal processors can be used, four file processors and four communications processors. The operating system used is a demand page, virtual memory implementation of Unix System V. NCR is also launching two proprietary software tools with the 32/800; Visual Administrator and Activity Analyzer. Shipments of systems with two applcations processors will begin in April and the four application processor version will be available in October. One appliaction processor in a 32/800 is equivalent to the existing 32/600 and will cost around £64,000. A two applications processor, each with 4Mb meory, for a 64-user configuration will cost £116,000. Three applications processors with 16Mb memory has a suggested list price of £204,000. NCR says that it began controlled circulation of the new Tower in September last year and now has 50 of these sites. The company is aiming the 32/800 at three specific markets; retail, financial and the Government including defence.

APPLE ANNOUNCES UNIX SUPPORT: BUT NO MAC WINDOWING

Apple this week announced the expected System V implementation for its new 68020 based Macintosh - but it will not offer the full windowing facilities of the Mac's own operating system and is not due till late 1987. Together with the A/UX System V will be an optional paged memory management unit, using the Motorola 68851, and an Ethernet interface. Apple said that it has seen demand from its technical and educational users for Unix, and that with the native Mac operating system limited to single tasking for the forseeable future, Unix would fill a need for multitasking applications such as network file servers. Although A/UX itself will not support the Mac graphics interface, it will provide access to the Mac toolbox, allowing applications to be developed that can manipulate Mac windows and the user interface. The Macintosh II has 16MHz 68020 with 1Mb to a theoretical 1.5Gb of main memory, is built around the NuBus developed at Massachusetts Institute of Technology, 12" black- on-white or 13" col-our 640 by 480 monitor, 800Kb floppy and 80Mb hard disk option, six slots and costs $4,800 with the floppy, $10,000 with colour, Winchester, forthcoming A/UX implementation of Unix System V and Ethernet interface and IBM AT co-processor. Base UK prices are £4,500 with floppy, £5,500 with 40Mb SCSI Winchester, deliveries starting here in July. Some 50 hardware and software companies have announced products for the new product, including: AST Research, Irvine with an AT- alike board for the II, Lotus Development Corp with a radically rescored ver-sion of Jazz and renamed Galaxy, Radius Inc, Sunnyvale and Supermac Technology with graphics accelerators and larger screens.

X/OPEN TO BECOME LIMITED COMPANY IN SUMMER

Plans are afoot to make the X/Open group a non-profit making limited company, in order to rationalise the group's activities for contracting work and employment. The terms have not yet been finalised but the strategy managers of each of the eleven member countries are expected to become directors. Currently all administrative details and enquiries are dealt with by ICL placing a not inconsiderable burden on its shoulders. This status change is several months away from completion but a move is expected during the summer.

ICL TEAMS WITH ALPER ON DIGITAL MAPPING UNDER UNIX

Local authorities and utilities are major users of local maps - they need to know where the cables and pipes are laid - and as a major supplier of computers to both, ICL has an interest in being able to provide electronic aids to facilitate retrieval and manipulation of maps. It has teamed up with Alper Systems Ltd of Cambridge, which has developed two Unix applications, Records and Scan, and is offering the systems on the Sun Microsystems workstations it now markets. Records is a system that enables an organisation to capture and maintain records of geographically dispersed assets in map form, and Scan is a map digitising program, created to fill the breach while the Ordnance Survey completes its 10-year programme to digitise the local maps of the entire UK. First customer announced for the new system is the South Wales Electricity Board, taking 17 Sun workstations on six Open Systems Local Area Networks in a contract worth £1m.

CONVERGENT GOES FOR BARON

Convergent Technologies is offering $31.5m to buy the 60% of San Leandro legal automation and health care systems house Baron Data Systems that it does not already own.

IBM LAUNCHES ANOTHER WORKSTATION ATTACK WITH NEW 6150 MODELS

For a product that is only a little over a year old, the IBM 6150 - the RT PC in the US - has already had a complex and chequered history. Many were writing it off virtually from day one, when the poor price-performance made the machine a no-hoper against the MicroVAX II and the likes of Apollo and Sun in the workstation market. But over here, resellers are only just getting to grips with the machine as a multi-user business system, and the jury is definitely still out on its future in that market.

There were already hints of an optimistic, rather pugnacious approach from IBM when it announced the new models of the 6150 two weeks ago (UX No 117). Last week IBM went further with a briefing on the machines that made the product look not so much like an oddball in the IBM range as one that it is relying on to take it into markets where it has struggled or not addressed, with the new models countering the poor price-performance of the original machines and IBM declaring that the AIX operating system is the model for its future Unix offerings.

Second crack at the workstation market

The new machines are intended to give IBM a second crack at the workstation market. And after the interest over here in the 6150 as a multi-user business system - not yet reflected by much in the way of shipments - IBM confirmed that "the corporation as a whole has recognised that the 6150 can play a major role as both a single user and multi user system" and is repositioning the machine "to recognise what has happened in the market".

Art Goldberg, market development manager over from Milford, Connecticut, claimed that IBM expects half the 6150 sales to come from commercial applications. Over here, IBM has signed up some 68 6150 dealers and expects to double the number this year, continuing the approaches it has made to specialists in the multiuser and Unix systems markets. Alan Milne, 6150 dealer sales manager, said that the machines represent IBM's lowest cost solution for small to medium sized businesses and expects them to "double IBM's share in this business sector in 1987". Over 300 applications are ported and running, he added.

IBM certainly needs something if it is to grab a healthy slice of an extremely competitive market. Its other mid-range offerings clearly are not going to do it: the 9370s are targetted at mainframe customers, while the System/36 has never been as successful a product over here as in the US, and last year the machine's UK sales were little short of abysmal. Furthermore, the majority of System/36s are sold into large accounts, not the small to medium business that IBM hopes will, through the reseller channel, adopt the 6150.

The new desktop model 115 and floor standing 125 and B25 are said to offer system throughput of up to four times the original desktop models 10 and 15, and floor standing models 20, 25, and A25. They include the new Risc Advanced Processor cycling at 100ns and rated at up to 4.5 MIPS against the 1.6-2.1 MIPs of the original Base Processor. This, said Goldberg, is the first IBM processor to use one micron CMOS technology, and is the second product after the 3090 mainframe to use IBM's 1Mbit memory chips. And he said that IBM's Burilington labs have the processor running at 80NS, offering a potential 20-25% extra performance from the same hardware.

The new machines include a standard Motorola 68881 floating point coprocessor and IBM has also beefed up the optional extra floating point processor to boost maximum computational performance to eight times that of the original machines. By also enabling IBM graphics terminals to be directly attached and introducing a mainframe- and VAX-compatible VS Fortran , the company has addressed many of the machine's deficiencies as a workstation.

Main memory is up to a maximum of 16Mb using the new, faster chips, and a new ESDI disk adaptor is claimed to increase data i/o rates by up to four times, and supports three internal 70Mb disks directly. While the new hardware makes the machine look a healthier contender against the mass of Unix boxes on the market - and the MicroVAX II - new software not only enabled IBM to claim that the 6150 is now "IBM's most connectable machine" but also provided the clearest glimpse yet of its future Unix strategy.

The AIX operating system - one of the areas where the 6150 has generally been praised rather than criticised - is the model for IBM's future Unix products from PC to mainframe, the company confirmed. And if staff numbers have anything to do with commitment, it's worth noting that IBM's Unix development effort dwarfs just about anything else outside AT&T, with a claimed 1000 people in the Austin, Texas based unit responsible for Unix and the 6150 hardware.

In addition to the Interactive Systems user interface and email enhancements included in other IBM Unix products, IBM announced some significant extensions of its own.

RFS? No thanks, we're IBM

Distributed Services is IBM's counterpart to AT&T's Remote File Sharing and Sun's Network File System, offering transparent access from any AIX system to files located elsewhere on a network and supporting AIX file and record locking. But IBM has used the proprietary SNA LU6.2 for Distributed Services over Ethernet or SDLC links; Distributed Services is one facility that is planned to move to other IBM Unix implementations, presenting a future of a proprietary network of various AIX systems,

IBM also wheeled out a version of X-Windows - supporting character- based applications only, like most of the versions from other vendors - that works over TCP/IP or with Distributed Services, and indicated that X was another product that would be moved to other AIX systems.

The more bizarre communications announcements included TCP/IP over Token ring networks - 6150s can't talk to anything else over Token Ring except other 6150s or network management systems. But the 6150 is now "aligned with the future direction of Token Ring".

And in what amounted to an extraordinary indictment of IBM's dedicated cluster controllers, 6150 dealer account manager Kit Trew said that the 6150, which can be adapted to support up to 32 host 3270 sessions over SNA or BSC protocols, could be configured as a controller for a similar price to a dedicated 3274 controller, and is therefore a "powerful offering for IBM mainframe users".

Geoff Henderson, applications manager at IBM's Warwick centre, went further by describing the 6150 as the prime connectivity machine, allowing the sales force to sell to "non-IBM customers". And he said that 90 software houses have been through the Warwick applications conversion centre.

BURROUGHS' COMPUTER BUSINESS CENTERS GOES INDEPENDENT OF UNISYS

A new company, Computer Business Centres Ltd, has been formed from the, originally Burroughs-owned, Computer Business Centres. The independent company will be headed by Graham Margetson, previously Divisional General Manager of the Unisys Indirect Sales Division in the UK and part of Burroughs for 25 years, and staffed with around 50 of the existing sales and support personnel from the existing centres. This Unisys VAR will be selling a range of micro and Unix-based products from both divisions of the company. The headquarters for the new company are at Cobham, Surrey and has sites in London, Birmingham, Bristol, Manchester and Leeds. Details of the agreement were not released.

MULTI-USER TRIPLE X AND X WINDOWS AVAILABLE FROM TORCH COMPUTERS

In a bid to make the Triple X the answer to more people's problems Torch Computers has introduced a multi-user version of the Unix- based workstation and announced support for the increasingly popular X-Windows window management system. The Triple X multi-user system can support up to 16 terminals plus the console and three extra serial ports for printers or additional terminals. The multi- user Triple X uses the standard Torch man- machine interface OpenTop, which the company claims will run all Unix V programs without change. The system is based on the Motorola 68010 processor using the Triple X VME bus expansion and modular housing. An eight user installation is available for £10,500 with terminals and a fully-configured 16-user system costs around £13,000. The Cambridge-based company says that the multi- user pricing puts the product around 25% cheaper than similar products from NCR or Altos. Torch has also joined the likes of Apollo, Data General, DEC, Hewlett-Packard, Masscomp and Sony in support of the Massachussetts Institute of Technology developed X-Windows. Torch's Triple X- Windows implementation runs under OpenTop rather than accessing the graphics hardware directly which Torch claims will allow unmodified Unix applications, such as Informix and Uniplex, to run alongside specially written X-Windows graphics software on the same screen. The Triple X will also now support NFS from Sun Microsystems.

RACAL SETS NEW COMPANY TO SELL SUN -BASED OPTICAL DISK STORAGE SYSTEM

Only 1% of paper going into organisations is digitally coded, 5% is put on microfilm and the remaining 94% remains in paper format. And use of paper is increasing by 25% each year. Racal Electronics Plc has set up a new unit within its data communications division, called Racal Imaging Systems Ltd, which hopes to gain a share of the £10 billion market that the company anticipates optical disk-based document storage, transmission and retrieval systems will be worth by 1991. The company has its first order, worth £100,000, from the UK government's Central Computer and Telecommunications Agency. Racal is selling a multi-user Unix-based product, built around Sun Microsystems' 32-bit 68028-based Series III system, running its NFS, Network File System, which uses optical disks to store thousands of sheets of information in digital form, which are instantly accessible. Because the system, called Reos, is based on high-capacity optical disks it is good at handling unstructured information such as images, which devour a minimum of around 50Kb each to encode and store information; one 12" optical disk holds around 60,000 A4 pages and costs about £200. Optical disks supported are Optimem's, Optical Storage's and Hitachi's and for mass storage, companies can buy a 'juke box' cabinet to house multiple disks, either from Sygnet or Hitachi. Racal Imaging Systems, based in Fleet, Hampshire, yesterday showed a basic entry system, using a Cannon scanner as an input device, which sends files to a magnetic disk buffer, which are then brought up on screen and indexed. The system had Ethernet built within it and SNA support for IBM mainframe access. In this case the Sun engine will act as a cluster controller enabling up to 24 sessions to take place with the host. Such a system with scanner, printer, basic Sun workstation, 150Mb Winchester disk, 2Gb optical disk and one Sun high-resolution workstation costs £89,000. Racal has spent two years developing software and adding to the Sun hardware in conjunction with research consultancy Cimtech. Racal has developed the scanner board, printer board in each terminal and an image conversion board. The optical drives are driven by Sun's SCSI board. Sun's Network File System, NFS, is the backbone of the distributed computer system, along with Berkeley's underlying primitives. It enables machines to transfer and access files transparently to and from other machines on a network. Racal will market the system direct in Europe and it is looking to team up with partners already strongly rooted in the field, such as 3M and Kodak, to sell the system into the US and Japan. Racal data communications group contributes about 21% of Racal Electronics' Plc's overall revenues. Racal Imaging Systems is made up of 33 people, all of whom were working on the Reos project in Racal's research and development arm, called Racal Information Technology Development. The company gets full financial backing from its parent and it claims its only multi-user competition comes from Filenet, a Californian company which Racal believes has sold its first system in the UK in two years through Olivetti to Britannia Building Society. So why should Racal think it can do better? "Our system is almost 75% cheaper than theirs," says sales and marketing manager, Terry Plume.

CONCURRENT PACT WITH APOLLO

Concurrent Computer Corp, formerly Perkin- Elmer, has signed with Apollo Computer Inc for joint integration and marketing of Concurrent's Series 3200 minicomputers with Apollo's workstations. Concurrent also signed a one-year agreement to buy Apollo workstations that could run to millions of dollars.

MASSCOMP ENHANCES ITS 68020 SUPERMICROS AND TO IMPLEMENT NFS ON MC5000 FAMILY

Masscomp, Massachusetts Computer of Westford, has souped up its scientific supermicro line with three new models, increased the number of CPUs in its top-end box to six, and says its Fortran compiler will now globally optimise. The new MC5350, MC5450, and MC5550 each offers 20% to 30% better performance than its predecessor at the same price; the 5350 has 16.7 MHz 68020 and 68881 at 2.5 MIPS; the MC5450 uses a 20MHz 68020 and 68881 and is rated at 3 MIPs, as is the MC5550. Existing machines can be field-upgraded to the new performance. The MC5700 multiprocessor now takes up to six 68020 CPUs, up from four for a 50% performance gain. The fifth and sixth CPUs come standard with an MC68881 floating point co-processor and may each be configured with Masscomp's 4 million Whetstones per second Lightning Floating Point Accelerator option. Performance Enhancement Packages (PEPs) for the MC5300, MC5400, MC5500 PEP, and MC5520 were also announced, enabling Masscomp users to achieve these higher performance levels with field upgrades to installed systems. The Global Optimisations for release 1.2 of the Fortran compiler improve performance an average 20% to 25% in floating point work. The optimizations, available for all MC68020- based Masscomp systems, will enhance system performance, especially for applications that require a floating point accelerator. Program execution times are significantly reduced, by an average of 20 to 25 percent. Single precision Whetstone performance on a single CPU MC5000 family system with Masscomp's Floating Point Accelerator option improves by 30 percent, from greater than 3 million Whetstones per second to 4 million. The company says that it will be implementing Sun Microsystems' Network File System on the MC5000 family. Masscomp also unbundled its X25 communications software, enabling users to take advantage of HASP, SNA 3270, and SNA 3770 from Morning Star Technologies. A new V.35 interface can be used with its X.25 Serial Communications Processor, expanding Masscomp users' choice of interface options to three: RS-232C, RS-449, or V.35. A Graphics Compatibility Library of primitives, that will, according to Masscomp, allow customers and third-party software vendors to support their applications on Masscomp graphics more easily, has also been announced. The software from Lachman Associates Inc Westmont, Illinois will also decrease porting time from first generation to second generation graphics products, says Masscomp.

REDWOOD OFFERS VERSION OF UNIPLEX FOR MS-DOS

Redwood International Ltd, the St Albans software house hitherto regarded as a specialist Unix player, yesterday announced Uniplex Word Processing from its Uniplex-II Plus office automation suite to run under MS-DOS on IBM Personals and Personalikes. Redwood says it wrote the new version after becoming aware of the massive investment made by users in MS-DOS boxes and their keeness to run the same software in both environments. The - unpriced - software also enables Personals to be used as Uniplex-II terminals.

ASA EXTENDS AUTOCAD AVAILABILITY FOR AUTO-G TO SUN, DEC, ATARI

Advanced Systems Architectures has announced that its CAD tool for real-time systems builders, Auto-G, is now available on a wider range of machines. Previously the tool could only be used on the company's own Sofchip Processor or the MG-1 from Whitechapel Workstations (UX No 79), but now the design tool can be used on Sun Microsystems' workstations, the DEC VAXStation II/GPX and the Atari 1040ST personal computer. Auto-G provides a graphical means of capturing user requirements, analysing them, and creating consistent formal designs and specifications, G- Diagrams. The tool is written in C and can be used as a standalone Auto-G workstation or acessed as part of a network. A single user workstation licence for Auto-G costs £15,000. The Camberley, Surrey-based company says that it will implement Auto- G on other systems as users demand. ASA is pinning its hopes on Auto-G to double its annual turnover: about £1m worth of Auto- G sales are expected during 1987, in 1986 about 12.5% of ASA's £850,000 turnover came from Auto-G. The company also expects staffing levels to double to 50 by the end of the year. US sales of Auto-G are expected to be significant and the company says it is in negotiations with a number of system contractors in the US.

ABS BECOMES UK MASTER VAR FOR ZILOG -NO DISSENT FROM OTHER VARS

ABS and Zilog have now formally announced that ABS is the master UK VAR for Zilog (UX No 107). The companies say that the announcement was delayed in order not to upset any of the other UK Zilog VARS: so that they could hear the news from the horses mouth not from the press. The comapnies added that none of the other ten active VARs have been lost. Reasons for the move include; Zilog attempts to streamline itself as much as possible, the fact that the rest of Europe have one master VAR per country, and ABS has more sales and support staff available to meet the demands of VARS than Zilog. ABS cites as proof that the move is a success the recent £1m order placed by ABS on Zilog for delivery by the end of April.

MICROSOFT PACT "GIVES AT&T BACK CONTROL OF THE INTEL-BASED UNIX MARKET"

By Charles Hickey, President, Microport Systems

Microport Systems president Charles Hickey is so concerned at the negative reaction in the US press to last week's agreement between AT&T and Microsoft on Unix System V for 80386-based machines that he has written an open letter contending that the concessions have all come from Microsoft, Xenix will disappear as a separate product, and that the agreement is good for all: here are his arguments. "Last week's announcement by Microsoft and AT&T regarding Unix for the 386 sets the stage for unprecedented growth in the Unix market centered around 80386 based personal computers. Both Microsoft and AT&T must be applauded for this decision. What I find surprising about the announcement, however, is that it is almost exactly the opposite of what has been appearing in the press since Uniforum. The truth is that no one's business will be hurt because of last week's Microsoft-AT&T Unix announcement.

Dropping Xenix

In fact, the announcement has broadened the Unix market for Microport, and for all other vendors as well. At Uniforum, Microsoft, Interactive Systems Corp and Santa Cruz Operation announced a joint marketing agreement for Xenix System V for the 80386. In Microsoft's discussions with the press it was believed by some that AT&T would be adopting Xenix as the standard for the 386. It was also assumed by many that AT&T would grant Microsoft exclusive marketing rights to Unix on the 386. Actually, quite the opposite was announced. It not only sets the stage for widespread acceptance of the Unix oeprating system on the coming generation of 386 based Personals, it dramatically changes Microsoft's position in the marketplace. The truth is that Microsoft's acceptance of the AT&T standard can only be good for all of us. Microsoft's news release last week indicates that it is dropping Xenix and picking up the AT&T/Intel 386 Unix implementation. This is the same version of Unix that Microport and over 80 other companies have been using for months. The announcement goes on to say that in January 1988 a version of the AT&T/Intel Unix 386 will be available which will run Xenix 286 applications in object code form. This feature will be available to all AT&T licencees in that time frame; not just from Microsoft, Interactive and Santa Cruz, but from Microport as well. Finally, AT&T will allow Microsoft and other companies to call this product Unix. This is a significant breakthrough, as in the past AT&T never allowed independent companies to use the Unix trademark to name a product; however, this significance touches all of us, not just Microsoft. During the period between Uniforum in January and last week's announcement, numerous front page stories were written naming Xenix as the new standard, and granting Microsoft exclusive control of that market. Actually, Microsoft hasn't received exclusive marketing on any provision of the agreement. AT&T is not picking up Xenix at all; instead, Microsoft is adopting the generic Unix from AT&T and Intel. This represents a major change in Microsoft's position in the operating system marketplace. Not only did Microsoft fail to get an exclusive agreement, but they are surrendering a significant proprietary edge in controlling an installed customer base. In the past, vendors wanting to run Xenix applications had to buy from Microsoft or Santa Cruz, and at a hefty price. Now Xenix compatibility will be available directly from AT&T, or through third parties such as Microport. In the future, customers can choose to buy from Microsoft, or get an identical product from AT&T or Microport at a competitive price. Why would a company that had significant control of the Unix marketplace do this? In May 1983 at the National Computer Conference, AT&T announced a program with the four major microprocessor manufacturers, Intel, National, Motorola and Zilog, for joint development of AT&T- certified standard versions of Unix for each of these manufacturer's microprocessors. This program was loosely referred to by AT&T as the "Micro Port" program. In this program, each manufacturer would perform the conversion of Unix to its processor under AT&T supervision. Upon completion and certification by AT&T, the resulting product would be sold by AT&T in source code form to any interested party. The AT&T "Micro Port" program set the stage for several major developments in the low-end Unix market. First, quality would go up, since no one knew as much about Unix as AT&T Bell Labs. Secondly, costs would come down, because AT&T would be subsidising the development. Thirdly, a true standard version of Unix would be available across all microprocessors, since AT&T would be going to painstaking steps to assure that each microprocessor version of Unix would be virtually identical to Unix on the others. On all but Intel microprocessors, these AT&T standard Unix implementations have gradually won out over proprietary Unix implementations, such as Xenix. Last Thursday's announcement is the result of a four-year effort by AT&T to regain control of the Unix marketplace. To do this, it is willing to spend millions of dollars to produce a better product at a lower cost.

Back in 1983

It is ironic that back in 1983, Intel first worked with Microsoft to develop Unix for the 80286. In November 1983, Intel reassigned the contract to Digital Research. I joined Digital Research to run that project. While I am not privy to why Microsoft did not proceed with the AT&T-Intel work it may have been because it could not obtain a proprietary advantage in the market. In the emerging 386 market Microsoft has had to react to the fact that the AT&T-Intel 386 Unix development has been far ahead of its own Xenix 386 development. While Xenix 386 has been available for several months, it pales in comparison to the AT&T-Intel Unix System V.3 386 implementation upon which our system is based. Unix System V.3/386 supports demand paged virtual memory, distributed file systems, and numerous other state-of-the-art features. Virtually all major OEM customers have beta-tested it. It is my suspicion that Microsoft is so far behind that it has no choice but to drop its own development and pick up the standard release. Frankly we applaud its "if you can't fight 'em, join 'em" attitude. It stands to reason that Unix for 386 systems will be a commodity product. This new 386 system will be able to run 32-bit 386 applications, 286 Unix and Xenix applications, and MS-DOS applications in a multi-user-multi-tasking environment. It could easily be the 386 operating system everyone has been looking for".

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AT&T has serious grounds for complaint over this one: **Bunker Ramo Corp** in Shelton, Connecticut is now owned by Olivetti, and should therefore have been an easy sell for AT&T's 3B Unix supermicros - but instead the company has given **Altos Computer Systems** one of its biggest ever OEM contracts for the 68020-based 3068 Unix box, which will become the processor for top end versions of Bunker Ramo's Aladdin bank branch automation system.

- o -

We hear that **NCR** having been approached by **X/Open** is likely to make a decision concerning membership over the next week or so: the company says that it is enthusiastic about the efforts of X/Open and is now making a corporate decsion; assessing the effects of membership.

- o -

IBM has confirmed that its AIX extensions to Unix - the fun- packed user interface and so forth - at present available only on the RT, will be the model for future IBM Unix offerings - and we hear fairly well-informed gossip that Unix - and therefore AIX - will loom a lot larger in the IBM legend than most people imagine when the company comes out with its 80386 Personal.

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DEC is reportedly ready with an integrated desk-top publishing system based on the new bottom- end VAXstation 2000 system.

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InterQuadram Ltd of Slough, Berkshire has announced that its QuadPort AT expansion slot is now supported by Santa Cruz Xenix and recommeneded by Compaq for its Xenix-based machines: QuadPort AT is a half card I/O board that has one serial and one parallel port as standard with an upgrade option for four serial ports, the one serial port option costs £153 and the five - £382.

Minigrams

Mari Advanced Microelectronics Ltd of Newcastle-upon-Tyne has won government support for two job creation schemes in the North East; Infant - Innovatory Factory for New Technology - the unemployed are able to train to become electronics technicians; and Chant - Centre for High Technology Action in North Tyneside - the unemployed will be encouraged to start up their own high tech business: Mari will receive part of a £1m government grant to further its projects.

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The **Informix** relational database running on an IMP- Mentor from **Integrated Micro Products Consett** of Durham is being installed at the London Zoo's Animal Hospital as a preventative medicine database: this is part of a £20,000 project funded by the Zoological Society of London and to date the IMP-Mentor supports five terminals.

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Systems Designers with head offices in Fleet, Hampshire has announced an Artificial Intelligence Business Centre which is intended to deliver business packages based on AI techniques.

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Aston Technology of Birmingham has announced that its recently launched Excel computer range running both Pick and Unix operating systems have brought in half a million pounds worth of orders over the last four weeks and adds that orders have been split evenly between the two operating systems.

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Redwood International's indirect sales operation in the US, **Uniplex Integration Systems Inc,** has announced that it has "successfully concluded negotiations with **Ford Aerospace** for the use and secondary marketing of Uniplex- II Plus".

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And **Redwood** has also announced a version of Uniplex-II Plus for the recent announced PC-MX2 and MX-500 from Siemens, both machines use Siemens' implementation of Xenix, Sinix.

Convergent Technologies has announced a fourth generation language, for the recently renamed machines, the S/Series: Accell/E uses the Unify DBMS and all Unify's tools, including SQL and RPT, are included in the package.

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And New York investor **George Soros** has notified that he now controls 5.2% of **Convergent Technologies'** shares through two funds: he says he is holding the shares as an investment, but they all say that...

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Toshiba Corp will start marketing Motorola chips in Japan in April.

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AT&T Co has seen the ratings on $8,000m of its senior debt and preference shares lowered to single-A-1 from Double-A-3 by Moody's Investors Service Inc: Moody's says that although the $3,200m write-off taken by the company in the fourth quarter was a positive step, it believes that the improved efficiencies from lay-offs and closures will take some time to feed through in the current weal telecommunications climate.

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Compaq Computer Corp got its $135m issue of 5.25% convertible debentures due 2012 away at par through lead underwriter Morgan Stanley & Co; the debentures are convertible at $39.65 face value per Compaq common share against a current price of $32.125.

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Star Computer Group plc has entered the electronic publishing marketplace with the launch of the Star Office Publishing System using the NGEN Series 286i from Convergent Technologies as a base running CTOS, MS-DOS, CPM, BOS and Unix.

- o -

Unigram.X will be launching an annual report titled **Unix in the UK** in mid May. The report consists of information gathered from interviews with Unix users, and VAR's. The report is available to anyone for the cost of £500. If you would like to order copies of the report contact Bill Carey-Evans on 01 439 1632.

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Number 119

AT&T PREVIEWS 32-BIT C LANGUAGE RISC CHIP

AT&T Information Systems and Bell Laboratories are working on a 32-bit Reduced Instruction Set micro-processor that they call Crisp, for C language Reduced Instruction Set Processor. The part, which has been designed in 1.75 micron CMOS with three levels of interconnect, integrates 172,163 transistors - but 100,000 of them are for the 13K of cache memory. The part has no registers as such, but sets up 32 internal stack cache registers. It has a mere 35 basic instructions and the arithmetic logic unit is made up of two elements, each of which executes a three-stage pipe-line. They are the pre-fetch decode unit and the execution unit. The Crisp also includes seven static memory arrays and two programmable logic arrays, one for macros, the other for the multi-cycle functions such as multiply. The part was described at the International Solid State Circuits Conference, and will no doubt turn up in future AT&T Information Systems products.

APPLE PICKS ROOT PACKS FOR MACINTOSH II UNDER UNIX

Root Computers Ltd, London, EC has reason to celebrate launch of the 68020-based Apple Macintosh II, because it turns out that its Unisoft subsidiary in Berkeley, California was largely responsible for the A/ UX implementation of Unix System V with BSD 4.2 extensions. A/UX, which conforms to the System V Interface Definition, also includes the Unisoft B-Net implementation of the TCP/IP protocol for communication over Ethernetworks, and Sun Microsystems' Network File System. The implementation includes Apple-Talk support, and some 50 BSD utilities. Unisoft is also offering three optimising compilers for the Mac II under Unix, all of them from Green Hills Software. Fortran 77, C and Pascal each costs $700 in single quantities, and Unisoft and Root will be selling them to end- users in the US and Europe, as well as to OEM customers and resellers.

FORCE UNVEILS 68020 REAL-TIME DEVELOPMENT SYSTEM

Anyone looking for a Rolls Royce Unix software development and engineering system should check out the first supermicro offered by Force Computers Inc of Los Gatos, California. The Focus 32, like almost all such machines these days, is built around the Motorola 68020 and the 32-bit VMEbus, and runs Force's P-DOS real-time multitasking kernel, with Unix System V and Uniflex real-time Unix on the way. Rated at between 2 and 5 MIPS, the machine comes in two versions, the 21A, with a 20MHz 68020, and the 21B with 25MHz chip. The 68881 maths co- processor is included and main memory uses static RAMs for speed with 1Mb standard and another 4Mb available. The machine occupies six VME boards and the cabinet has slots for six more. The Motorola 68010 with 128Kb memory is used on the eight-channel serial input-output board and on the SCSI host hard and floppy disk controller. Base prices are $29,900 for the 21A, $34,900 for the 21B, including a 170Mb Winchester and a floppy. Options include a 120Mb streaming tape drive, and a 1,600 by 1,280 pixel high-resolution graphics board, the Force AGC-1, which needs two the the six free slots.

NOW FUJITSU CHASES DEC WITH UNIX, RECOMPILED VAX CODE

Having proved itself a worthy antagonist for IBM in the mainframe market, Fujitsu has now set its sights on DEC in the mini-computer market, and has chosen as its weapons the Unix operating system and third party VAX applications recompiled to run on a new line of low-end machines. The move, which follows the reorganisation of its low-end computer joint ventures as a prelude to producing an integrated minicomputer line, will culminate next month in the launch of the first models in the new line. The family will bring together the S3000, the U-1000 and the A-30 series into one new range of seven models, with a top processing performance of 5 MIPS. All models will run Unix with real time and communications extensions, and the top three models, successors to the S- series, will also continue to run their own Ovis operating system. Below the S successors will be three models to succeed the U-series that will be built around the Motorola 68020; low-range models will follow in May. Although the machines will initially be sold only in Japan, they are likely to be manufactured for Europe at the majority-owned Fujitsu Espana SA in due course.

ADDS COBOL CODE GENERATOR

Also in the works at Fujitsu is an Cobol code generator called "High-Productivity Language", for launch on its K-series office computers this autumn, and, shortly thereafter, under Unix on its AWS workstation. Claimed to raise efficiency of Cobol code production threefold, the new development environment will be made available to Fujitsu's M-series mainframe base via the AWS Unix workstation.

AT LONG LAST MONEY FLOWS INTO COMPUTER ARCHITECTURE RESEARCH

Supercomputer designers must be the most successful - and lucky - engineers of the twentieth century: they have effortlessly the performance of their machines year after year, so that now their current machines are literally a million times faster than the original ENIAC was in 1946. But this remarkable achievement seems to have been more the result of accident than design. Every time they started banging their heads against a brick wall, having squeezed the last drop of performance from the current technology, someone obligingly developed a brand new technology and handed it to them on a plate. The original electromechanical relays were replaced first by vacuum tubes, then transistors, then intergrated circuits, then VLSI... In parallel with these developments came the go-faster acronyms: ECL, CMOS, FET, FPV, ROM, RAM, EPROM, gaAs, CPU, ALV, DSP... all leading to MIPS, KLIPS, and MEGAFLOPS.The engineers have been remarkably successful in shrinking the early machines- some of which were the size of small factories and used as much electrical power as a small town - down to a box the size of a kitchen freezer.And that has been part of the problem: the designers have come up with remarkable engineering solutions to the engineering problems of the early machines, but they are still building the same machine. A designer from 30 or 40 years ago might have difficulty believing that it all fitted in such a tiny box, but he would have no difficulty in understanding how a modern commercial computer worked - it works in exactly the same way that his did. It has a central processor; stored instructions; binary logic; instruction counter; clock; a large, slow back-up memory that is transferred into a fast working memory as needed; -all the parts that filled his room are still there inside the modern machine. Supercomputer designers have been slightly more adventurous, but only slightly. Apart from a few honourable exceptions, even computer science departments and big company research labs have behaved as if the standard "von Neumann" architecture had been carried down the mountain carved in tablets of stone. Only now, when the computer designers have seem to have run out of rabbits to pull out of their hats, are they starting to look seriously at thebasic architecture of the computer and trying to rethinkhow it tackles computational problems. (There seems to have been a general feeling that John von Neumann, Alan Turing and others said everything there was to say on the subject in the 1930s, 1940s and early 1950s). At long last money is starting to flow into basic research in different architectures thruogh initiatives such as the Alvey project, but, as usual in the UK, it is too little and too late. And in the case of the most promising project, the Imperial College based "Flagship", the money looks like running outas it successfully enters the final phase. The most fundamental problem the supercomputer designers are banging their heads against is the speed of light.In one nanosecond, an electric signal will travel only about 11 inches along a copper wire. And supercomputers such as the Cray 2 have clock periods of around four nanoseconds, so all the components must be within about 44 inches of the clock if they are to keep in step with the rest of the system. The first generation of supercomputer processors (from Cray Research, the Control Data Cyber 205, the Fujitsu VP-200, the Hitachi S-810 and the NEC SX systems) boosted their performance by pipelining arithmetic functions, using a single instruction to act on each element of a vector and employing processing units: an array of simple arithmetic processors all performing the same calculation on the different elements of a vector in parallel. But these have been pushed to their limts: if the length of a pipeline is increased beyond six or eight segments (each segment of a pipeline executes a 1-cycle instruction on the result fed to it from the previous segment - if the pipeline is kept full and fresh data is fed to its each cycle, an eight-segment pipeline will appear to execute eight 1-cycle instructions each cycle) it becomes difficult, if not impossible, to keep the pipeline full. But these have been pushed to their limits: if the length of a pipeline is increased beyond six or eight segments (each segment of a pipeline executes a 1-cycle instruction onthe result fed to it from the previuos segment - if the pipeline is kept full and fresh data is fed to it each cycle, an eight-segment pipeline will appear to execute eight 1-cycle instructions each cycle) it becomes difficult, if not impossible, to keep the pipeline full. This produces a "bubble" in the pipeline, one or more cycles when the elements have nothing to do, and nothing comes out of the end. And a pipeline only earns its keep, in terms of its complex hardware and the software needed to control it, if it delivers a result every cycle. A smart compiler can help by shuffling the instructions so that operations that take several cycles to complete, such as LOAD or STORE, are separated from the instructions, to keep the pipeline full. But when the compiler choses the "wrong" thread of a conditional branch, as it inevitably must sometimes, the pipeline must be flushed and reloaded with instructions from the "right" branch, causing a delay equal to the length of the pipeline. Despite these quibbles, these machines can achieve a peak performance around the 1 gigaflop (10 to the power of 9 flops) mark, but unfortunately the delivered performance in actual applications is usually only about 10 per cent of the peak performance. Even with faster chips and a more efficient architecture, most observers believe that the days of the uniprocessor are over in supercomputers - the only way forward is to use large numbers of processing working in parallel. But there are many problems with parallel processing: how do you decompose programs to spread them across the available processors; how are the processors to be connected; how are they to communicate when they are working on different parts of the same problem - if you are not careful the machines actually slow down when more processors are added, they spent all their time chattering to one another rather than working on the programs. There are some doubters of course: Gene Amdahl, who started out designing IBM's 360 series and then went on to bigger things, recently told an audience at the Institute of Electrical Engineers that he thought that the maximum number of processors that could usefully be used in parallel was 20 - 25 - more than that and the increase in performance would be minimal. He also demonstrated to his own satisfaction that theoretically vector processors could only achieve double or treble the performance of a standard scalar uniprocessor - a mathematical proof that should provoke a string of broken hearts and bankrupt a fair number of hi-tech companies. But exotic designs are pouring out of the universities and research labs as if a dam has broken: some using large numbers of standard chips connected together and to memory in unusual ways, some use propriety chips and some use semi-standard superchips such as the Inmos Transputer. Most of them use highly customised versions of Unix, but the only other thing they have in common is the difficulties they have decomposing programs to run efficiently on dozens, hundreds or thousands of processors. For the first time researchers into advanced parallel processing have test beds for their theories. But if they cannot quickly turn their theories into practical programs and methodologies they may find that the exotic architectures have blossomed and died, starved of life-giving software.

NBI EXPANDS ITS DESK-TOP PUBLISHING OFFERINGS, CUTS TAGS

Office systems specialist NBI Inc, Boulder, Colorado has expanded its offerings in the desk-top publishing market with a new workstation and scanner, topped off its line of Unix systems with a 68020 machine and cut prices on existing products. The 5000 Pro- Publisher Plus is described as a high- performance publishing workstation that connects to NBI's departmental computing system and costs $6,500 with 17" screen and software, and the company also has a stand- alone 5000S IWS system at $9,995 with 14" monitor, 44Mb disk and software, the stand- alone Pro-Publisher at $11,695, 17" monitor, 44Mb of disk and software, and complete system, with a Pro-Publisher Plus terminal, a 520 supermicro, publishing software and laser printer for $28,995. The new Pro-Publisher Plus station uses VMEbus and Unix 4.2 so that it can also be used as a standard Unix workstation, and the full-page display has resolution of 1,024 by 1440, equivalent to 120 dots per inch. NBI electronic publishing software includes document composition, chart graphics, spreadsheet, design graphics, spelling, communications and equations. Documents are printed via a laser printer or typsetter using the PostScript page description language. The NBI 520 supermicro is built around the 68020 and supports up to 16 users. NBI rates it at 2 MIPS and says that at $18,900 it is 32% cheaper than a comparable DEC MicroVAX II. Available next month, it can also be used as an IBM DisOSS server. The $10,000 Pro-Scan includes flatbed scanner, 640Kb NBI 4110 personal computer with 20Mb disk, NBI Net interface board and image editing software. Price cuts see the 5000S Integrated WorkStation off 31% at $9,995, the 5000S Pro Publisher reduced 24% to $11,695.

PANSOPHIC TAPS RELATIONAL TECHNOLOGY FOR RELATIONAL TECHNOLOGY

IBM's DB2 relational database is sweeping all before it at a faster rate than many industry veterans forecast, and the traditional IBM mainframe software product houses are having to rush to add relational features to their database products. Latest to make the move is Pansophic Systems Inc, which has signed a collaboration agreement with Relational Technology Inc to make the latter's new MVS version of its Ingres relational database the basis of new Pansophic products. Relational Technology's MVS/XA version of Ingres runs under IBM's TSO and CICS, and the agreement gives Pansophic the right to integrate Ingres for MVS and all other operating systems Relational supports, into its products. Pansophic has introduced the PAN/RD dictionary development system using the SQL query language, and will offer a simplified version of Ingres with PAN/RD.

MAJORGREEN WINS 4GL GRAND PRIX WITH PICK SYSTEM BUILDER

The winners of the first programming tools development competition in the UK, racily dubbed the 4GL Grand Prix, was Majorgreen with its Pick- based System Builder product - and ICL had the misfortune to hobble in last with its Quickbuild under VME, but immediately claimed extenuating circumstances, saying that British Telecom's Telecom Gold network was down for two crucial hours. The 11 competititors underwent seven tests in two 12-hour sessions. The problem set by Computing Futures Ltd, a software consultancy house, was to develop and carry out tests on an airline reservation system. The seven categories in which the companies were tested included productivity, change of file specification, batch work, enquiries, portability, documentation and flair. The winner of the productivity test was Majorgreen; Sanderson Computers Ltd, with its Sanderson Development System - also a Pick product - won the file change section; Progress, a Unix product distributed by Slinn Computer Group in the UK came out top in batch work; Majorgreen was again awarded the first prize for the enquiries section; Pro Lab with its Pro-IV Unix sys- tem won the portability section, porting to seven different machines; ICL with Quickbuild came first in the documentation section; and Major green scored its hat trick by taking the flair section. At the outset of the test, most of the competitors were predictably confident and thought the problem a relatively straightforward test but only three of the 11 managed to complete in all seven categories. ICL, with a lowly 195 points, muttered darkly about the British Telecom lines, and after complaints from other contestants, the organisers are thinking of using Mercury links for next year's run.

The full list, with marks out of 900 were as follows:

Majorgreen	System Bldr	Pick	776
Pro Lab	Pro IV	Unix	695
Slinn Comp	Progress	Unix	638
Sanderson	Sanderson	Pick	537
Philips	Memphis	prop	468
Simdell	Libra	Unix	456
Star Cmtrs	Informix	Unix	376
McCor & Dg	Millenium	MVS	369
Data Ntwks	Omen Plus	unkn	282
ICL	Quickbuild	VME	195
Cmptr Asst	CA Universe	MVS	-

The winner is a product from Atech Systems of Zurich, Switzerland; Memphis is an unannounced Philips product, entered by the company "to see how much more work we need to do on it"; Computer Associates failed to complete the course; no details were available on Data Networks or its product at the prize-giving at the Kensington Roof Garden. The sponsor, Computer News, was pleased, with the number of entrants who took part despite the stiff £4,000 entrance fee; and expects it to come an annual event. The organiers will, of course, have to change the problem because as the McCormack & Dodge entrants said, we will see a number of airline reservation system development tools come to market over the next 12 months as a result of the competitive exercise.

STC RETURNS TO BOUNCING HEALTH AND VITALITY - BUT WHERE's THE ICL SYNERGY?

STC Plc's results bear solid testimony to the company's attempts since last year to control costs with sales slightly down, and pre-tax profits of £134.2m after a loss last year of £11.4m (see Company Results). Nevertheless, those looking for tangible evidence of the convergence of ICL's computer business with STC's telecommunications experise - which a year ago was hallowed as "the way ahead" - will be disappointed. STC still has much to do before it proves to the City that it is making optimum utility of ICL. Since the acquisition of the largest UK computer manufacturer in 1984, STC has been pushing the notion of the converged technologies of computery with telecoms but has yet to do much with it. Chief executive Arthur Walsh suggested that the amount of business done in the last 12 months that had drawn on both aspects of STC's technological capabilities had amounted to no more than £100m - only 5% of total sales. However, investors will be pleased to see that with sales down 3.2% at £1,993.4m, the company has still managed to take last year's loss of £11.4m and turn it into a profit of £134.2m. Finance director Roy Gardner said that the average headcount was down 20% which had taken £9m off central costs, and that centrally-funded research and development had ceased in favour of development attributed solely to the divisions concerned. This is as much an ac counting manoeuvre as anything else but highlights the group's concern for greater accountability of costs and with the reduced head-count, amounted to a £16m saving. The rationalisation process had been completed, said chairman Lord Keith of Castleacre, and no further divestitures were anticipated. The way ahead lies now, the directors acknowledge, in increasing international marketing, with special emphasis on the telecommunications market and then on the transmission aspect, and not on switching. Walsh reported that the switching market was now in decline and emphasised STC's desire to move quickly in the transmission market. The Telecommunications division in the 12 months to December had traded evenly on last year despite the drop-off in the reed relay public switching business, TXE4, apparently bouyed by a sharp growth in sales of alternative product lines. TXE4 accounted for £97m in 1985, but only £47m in 1986. ICL had another strong year with turnover up 10% at £1,189m, and operating profits rising 46% to £90.2m: this was strengthened by the fast take-up of the DRS 300 networked office system launched last year as well as by strong sales of the new Series 39 mainframe. The second half saw ICL make a further £85m contribution to gross profits making a total for the year of £134m. ICL would continue, said ICL chief Peter Bonfield, to address specialist markets as well as concentrating on the Unix standard. Progress would be made this year in the US initially through the computer company's assault on the pharmaceutical point-of-sale market in that country. There is room for worry in the defence side where business has slackened mostly through the dropping off of the Ptarmigan contract. Sales are down 11% and margins are coming under pressure and the company has not been able to come up with anything to replace the Ptarmigan work. The group order book is up 18% on last year and now stands at £1,250m, 40% of which is overseas work. This will come as some consolation for STC's management which has had to report that, in 1986, overseas sales had weakened considerably over the previous year. Foreign business was down to £570m in 1986 after £720m in 1985 - even ICL's slice shrank 8.5% to £431m.

The company has ended 1986 in a far stronger financial position than it ended 1985. Gearing is down to 7% after a year of positive cash flow but Lord Keith warned that tax and dividend liabilities, as well as outlay on larger contracts such as PTAT - the first privately owned trans-Atlantic telecomms cable - will see 1987 as a year of net cash outflow. STC has resumed the dividend payment and on earnings per share of 15.9p for the year - after a loss of 2.25p last year - is paying out 4.5p to shareholders.

ICL another strong year

Shares priced at 243p at the close of business Monday are traded on a multiple of 15.3 times per share earnings and at a 12.5% discount to the sector average. Prices, then, are likely to rise as STC managed to exceed City expecta tions - the consensus forecast lay tightly around the £125m mark, and the shares duly added 22.5p to 265.5p.

IBM PUBLISHING SYSTEMS ADOPTS ADOBE's POSTSCRIPT

Mighty IBM is the latest company to bow to the supremacy of Adobe Systems Inc's PostScript page description language and has signed with the Palo Alto, California company for licensing rights to the page description interpreter through its new IBM Publishing Systems Business Unit. IBM plans to use PostScript as one of the key foundation elem ents for its electronic publishing products. Other major computer, printer and typesetting manufacturers using PostScript include Agfa- Gevaert, Apollo Computer, Apple, Dataproducts, Diconix, DEC, ITT Qume, Linotype Co, NBI, NEC, QMS, Sun, Texas Instruments and Wang Laboratories and over 200 software publishers include Microsoft,, MicroPro, Lotus, Letraset and Aldus.

AS PHILIPS TEAMS WITH SUN ON INTERACTIVE STANDARD

Philips has found another partner in its quest to get Compact Disk Int- eractive standards established, in the shape of Sun Microsystems Inc, Mountain View, California. The two will develop a multi-media authoring system, integrating the Sun 3 Unix workstation and Compact Disk Interactive technologies. This joint effort is the first of its kind and was made to alert third-party software developers to the new combination of workstation and optical disk technologies.

The two companies have formeded the Sun-Philips New Media Group, staffed by a team of engineers from both companies, reporting to Wayne Rosing, vice president of high-end engineering at Sun Microsystems, and located at Sun headquarters in Mountain View, California. The group has begun early stage development of authoring systems based on Sun stations with an open system architecture to stimulate early development of software tools.

FORTUNE SYSTEMS REVAMPS ITS VAR NETWORK, DEMANDING ON BOTH SIDES

Fortune Systems Corp last week announced that it has signed two of its former value-added resellers and five new VARs to its new VAR network. In early October 1986, Fortune Systems of Belmont, California cancelled all of its agreements with its former VARs. The new VAR agreement, according to Orr, is much more specific and demanding, for both sides, than the earlier VAR contracts. The five new VARs for Fortune Systems are: Integrated Business Systems, of Tucson, Arizona, serving the fast food franchise industry; Knowledge Engineering Corp, of Blaine, Washington, serving the CAD/CAE/CAM industry; Software Engineering Associates, of Anderson, South Carolina, serving the manufacturing and heating/air conditioning industries; The Logic Works, of Arlington, Virginia, serving the encryption coding and business card markets; and Valley Information Systems Inc, of Fresno, California, specializing in the healthcare industry. The two former VARs for Fortune Systems who've signed new VAR contracts with the company are: ASI Computers, of New York City, serving the education market; and Unisoft Inc., of Aurora, Colorado, specializing in the brokerage accounting industry. Says Thomas J. Orr, director of national sales for Fortune Systems, "A Fortune Systems VAR is a company that's marketing nationwide a specific software package which has been ported to Fortune Systems' hardware and, together, the hardware and software are sold as a total solution. These VARs are not restricted in their sales of Fortune Systems products to a particular geographical region." Combined with the 24 master dealers announced last week, these VARs place Fortune Systems more than halfway to its June 1987 goal of having 50 master dealers and VARs in place across North America.

PIXAR ADDS C COMPILER, MAKES ITS IMAGE COMPUTER MORE WIDELY ACCESSIBLE

Colour graphics technology is reaching the point where it is opening up previously unimagined vistas for moviemakers and graphic artists, and Steve Jobs' Pixar Inc in San Rafael, California is in the forefront of the revolution with its Pixar Image Computer - but the machine is so specialised that its market has been somewhat limited. Now, however, Pixar is opening it up with several new software and interface products for the machine, which is optimised for both advanced image processing and computer graphics. The new products are ChapReyes, a package that renders images of three-dimensional objects and scenes in a fraction of the time that a similar operation would take on other general-purpose computers; and interfaces between the Image Computer and the Silicon Graphics 3100 series and DEC's MicroVAX II, and a C that enables standard C programs to run on the Image Computer. Pixar claims that with ChapReyes, the machine can achieve rendering speeds of 140,000 to 280,000 polygons per minute - performing computationally intensive rendering tasks in minutes instead of the hours they would take on superminis. The new host interfaces enable Silicon Graphics 3100 users in the fields of product design, broadcast, simulation and three-dimensional visualisation, MicroVAX II Ultrix users in the scientific community, as well as Sun Microsystems' Sun-3 and Symbolics 3600 users all to access to Image Computer. The Silicon Graphics interface and ChapReyes are already in use by Toronto, Canada-based Alias Research Inc, which has an OEM agreement with Pixar. Using the Chap C compiler, general image processing functions which use the speed of the Pixar Chap and the flexibility of the Image Computer's large picture memory can be easily implemented. The compiler also taps into a large existing base of C software and programming talent and will enable Pixar to broaden both the base and scope of its applications. ChapReyes will be out in the second quarter at $12,000. The new interfaces, available at the same time, will be provided through additions to both ChapLibraries and ChapTools. The Chap C compiler is set for the third quarter and will be included in ChapTools. ChapTools, at $10,000, provides software development tools, and source code for the ChapLibraries run-time system. After the recent price cut, the Image Computer is $79,000.

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Minigrams

Gould Inc has filed to issue 2m convertible exchangeable preference shares through First Boston Corp and Kidder, Peabody & Co Inc; the shares will be convertible at any time into Gould common, or at Gould's option, into its convertible subordinated debentures at $50 face amount per debenture.

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Star Computer Group Plc, of London, has reported net profits for the six months to December up 9.5% at £231,000 against a period that included a tax credit of $181,000, on turnover up 20.8% at £4.9m. At the pre-tax level, profits rose 1,003% at £331,000 and earnings per share were up 9% at 3.5 pence.

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STC Plc has reported net profits for the year to December 31 of £103.1m against a loss last time of £53.8m on turnover that fell 5.8% to £1,933.4m. At the pre-tax level, profits were £134.2m against a loss last time of £11.4m, struck after extraordin-ary charges of £15.0m this time and £66.9m last. Net earnings per share came out at 4.5 pence.

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Bull SA is tipped to announce 1986 profits equivalent to about $42m on turnover of around $2,800m.

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The board of directors at **Oracle Corp** in Belmont, California has approved a two- for-one split of the company's common stock with the payout date on which the shares issued int he stock split will be distributed will be March 24 1987: Oracle, which is a publicly-held corporation whose shares are traded on NASDAQ/NMS, makes database management, applications development, decision support and network communications products with flagship product - the Oracle relational database management system.

- o -

Chairman and chief executive of Maidenhead-based **Sphinx Ltd**, Dr Pamela Gray, has been selected as the only computer industry representative among five fin- alists for the Business Woman of the Year Award: Dr Pamela Gray, who has also been appointed President for the 1986/87 of the industry's US-based international users group, set up the now £4m Sphinx with Dominic Dunlop, backed by venture capital in 1983.

Silicon Graphics of Newbury has announced the availability of a new finite element analysis and modelling program, called Ansys, for its Iris workstation family: the product generates 2D, 3D hidden line or section plots with such capabilities as multiple windows, zoom and perspectives and it supports a variety of analysis types including static, eigenvalue, buckling, mode frequency, nonlinear transient dynamics and heat transfer.

- o -

Emerging Technology Consultants of Boulder, Colorado has announced the availability of the Edix and Professional Writer's Package software for the DEC VAX running under Unix and also available under MS-DOS and Xenix: Edix is a full- screen text editor designed for programmers and the Professional Writer's Package is a word processing and document development system, including 66,000 word spelling checker and an automatic index generator.

- o -

Hewlett-Packard is evaluating AT&T's Remote File Sharing as a possible offering on its technical workstations and declares that regardless of its decision it will continue to offer Sun Microsystems' rival Network File System as well.

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Wang Laboratories, which already has a VLSI implementation of the basic 2200 16-bit processor, has kept faith with the 70,000 users of its aged 2200 family around the world by introducing a new line of 2200-compati-ble machines, the CS series: the entry model in the CS line costs just $4,950 and can grow to a system supporting 16 users, and the CS models are pitched at prices 25% lower than those of the machines they replace.

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Texas Instruments executive vice-president Grant Dove has been appointed chairman and chief executive of the Micro electronics & Computer Technology Corp in succession to retired Admiral Bobby Inman, who quit at the end of 1986.

The mailing system manufacturers, **Pitney Bows**, has placed an order valued at around £450,000 with the Optim Computer Group for an Olivetti-AT&T 3B5 and six 3B2/400 machines: the Unix System V based systems will run software jointly devloped by Pitney Bows and Optim designed to manage and control Pitney Bows' field service operations - the system is scheduled to become operational in June.

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The hotel reservation and marketing company, **Utell International**, will be installing the Unix System V.3 based Motorola 8000 series of computers throughout its hotel reservation offices: the first eight systems of the minimum $500,000 order have been installed in London, Frankfurt, Dusseldorf, Amsterdam and Sydney - the Paris and Tokyo offices will be next.

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Jodrell Bank, the radio astronomy laboratory, will be installing a DSP 9000 from **Apollo Computer (UK) Ltd** will be used to process data gather from remote corners of the universe.

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Eastman-Stuart, of Watford, Hertfordshire, has launched E-S Accounting for systems running Unix and the NCR proprietary operating system: the modules currently available include; nominal ledger, purchase ledger, sales ledger, cheque writer and payroll - prices start at £1,500 for a single module and £4,700 for all five.

- o -

If memory serves, it was Control Data's founder and deep thinker William Norris who first came up with the idea of having private companies run prisons, and indeed CDC and RCA both got into the business: now that the idea is being seriously proposed by the Adam Smith Institute over here, another company with computer connections, Xerox's partner Rank Organisation Plc must be the ideal candidate to become the first private prison operator - instead of blowing up all those redundant holiday camps for TV commercials, a simple conversion job would turn them into ideal prisons.

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Number 120

AT&T SETS FAST DUAL PROCESSOR 3B2 FOR LATER THIS MONTH

If there is a rash of very high-performance Unix supermicros coming out over the next few weeks, the explanation is that the US Air Force has now put out formal invitations to tender for up to 20,000 Unix systems, the requirements are exacting, but the business is irresistible and bids have to be in by May 20. NCR's contender, the new Tower 32/800, is already out, and Computer Systems News reports that AT&T Information Systems will bring out its offering in the shape of the 3B2/600 on March 24. The paper hears that the 600 will initially come with one or two 18MHz 32100 microprocessors - the 3B2/400 uses a 10MHz version, and will take 4Mb to 16Mb main memory, have a 6Kb cache, 250Mb to 3Gb of disk, and Unix System V.3.1. It will have 26 to 90 ports, and will feature AT&T's first SCSI bus for disk support. Performance is rated at 2.4 to 4.7 MIPS, and the configuration compares with a maximum 4Mb main memory and 720Mb disk on the 3B2/400. Most noteworthy feature of the new machine is that it has been designed to be upgraded easily to the new WE32200 microprocessor running at 30MHz as soon as that chip is available in sufficient quantities; general availability of the 32100 version of the 3B2/600 is set for June in the US. Word is that IBM is also working on a contender for the Air Force contract, but there are no indications as yet whether it will be a 9370 with Unix or an RT - or something else again.

ICL SETS MAJOR DEPARTMENTAL UNIX SYSTEMS LAUNCH FOR APRIL

ICL has also inked in April 6 for the date when it brings its Unix strategy out of the closet and goes onto the offensive with all the benefits of the groundwork put into the X/Open application portability standards body. The introduction will create a unified line of six Unix models covering the performance range from IBM's System 36 to above the 9370s, made up of models from Computer Consoles, Datamedia, and in-house.

AND GOOD EUROPEAN ICL AWARDS NETWORK CENTRE TO ICL FRANCE

Over the past couple of years, ICL has followed a commendable new policy of adding a European dimension to its philosophy, playing the leading role in establishment of the X/Open Unix applications standards body, siting a factory automation centre in West Germany, and setting up a Unix software development operation in Dublin, Eire. Up to now, France, by far ICL's largest continental European market, has not benefitted from the company's new European policy, but all that is to change with the announcement on Friday that ICL France is to host a new Network Applications Business Centre that will develop viewdata and messaging applications, and communications with alien network architectures, and market them on a European scale. ICL France also reported operating profits for 1986 up 94% at FF64m on turnover up a modest 4.6% at FF708m, £72m.

NCR BELATEDLY ENTERS LU6.2 TO UNIX INTERFACE MARKET

NCR Denmark has announced the availability of LU 6.2 and DISOSS interfaces for Unix on its Tower series of minicomputers and the UK arm intends to make the interfaces available in the near future. These interfaces, important for NCR's retail systems, have been developed internally. Siemens, another strong retail systems vendor, has, however, had similar software for around a year, developed by Rabbit Software Corporation of Malvern, Pennsylvania. Rabbit's closest competitor, Orion, of Berkeley, California, supplies Olivetti and Philips with Lu 6.2 and DISSOS interfaces for Unix. Separately NCR in Cambridge, Ohio, is developing a real-time implementation of Unix for delivery in 1988. These products, when available, will combine to give NCR a strong Unix-based retail system; the ability to sell into large corporations.

SIEMENS TO SELL SEQUENT BOX THROUGH TELECOM PLUS

Once Siemens wraps up the purchase of the Tel Plus arm of Telecom Plus, which it threatens to do any day now, it plans to start offering Sequent's Balance Unix multi-CPUs as departmental processors to its Hi-Com ISDN PABXs in the US.

MICROSOFT SIGNS FOR SUN WINDOWING SYSTEM

Sun Microsystems and Microsoft have decided to pool their resources in the windowing arena and have an agreement under which Microsoft will licence Sun's NeWS technology, which takes advantage of the Adobe Systems PostScript imaging model. The two companies will also exchange information on technical developments and future products plans. (See Page 3).

X/OPEN PORTABILITY DEMONSTRATION RECEIVES EEC SUPPORT DESPITE NON-CONFORMANT PRODUCTS

The recent X/Open extravaganza was an occasion that both delighted and depressed. The Demonstration of Portability hosted by the EEC in Luxembourg proved a success in that eleven major manufacturers showed that they were prepared to spend a great deal of time and money to let the world know that they were comitted to the X/Open common applications environment. Despite the professional presentation, however, what we saw did not show "how a single application package can easily run on hardware systems supplied by all eleven members of the X/open group"; as the X/Open press release supplied for the occasion suggested it should. The demonstration proved that, with a lot of behind the scenes work, ten computers systems could be tuned to run a modified version of a standard package. Of the ten machines presented half needed modifications; a couple are not yet X/Open conformant and several do not come with floppy disk drives. This was not the impression given at the demonstration or during the associated question and answer session, but in fairness to the members they are not committed to producing compliant machines until the third quarter of this year. Access Technology's 20/20 spreadsheet, which incidentally already runs on a wide variety of equipment, was ported to the offerings of AT&T/Olivetti, Bull, DEC, Ericsson, Hewlett-Packard, ICL, Nixdorf, Philips, Siemens, and Unisys.

AT&T/Olivetti provided a standard 3B2 for the occasion; Bull had a large configuration of the SPS 7; the MicroVAX II running Ultrix from DEC required minor changes; Ericsson produced a prototype system based on the Sun Microsystems' Sun II workstation; Hewlett- Packard had a standard HP 9000 on show; ICL had a 68020-based Clan 4; Nixdorf used the Targon 31; the Philips P9000 launch a week before the demonstration provided it with a suitable offering; Siemens demonstrated the PC MX2; and Unisys wheeled out the 5000/50 machine.

The preparation for the event was carried out by Ace of Amsterdam, technical advisors to the X/Open group, over a period of three months. Ace took one of the versions of 20/20 currently available on the market and produced another set of source code that was X/Open conformant. This set of source code for 20/20 is now X/Open technology property and not available from Access Technology. Despite some cynicism the event was a success in that it attracted over 100 jounalists and over 200 users, independent software vendors and uninvolved staff from the X/Open member companies. Thus in terms of getting the X/Open message across and drumming up support the two day event deserved resounding applause.

The hosts, EEC, gave a vote of confidence to the X/Open efforts by exempting the group from the Community's Competition Policy. The Commission is responsible for ensuring that dominant positions within the EEC are not abused: as seven of the X/Open member companies are the largest computer manufacturers in Europe this banding together could be seen as a possible cause for concern but the Commission has decided that the group "encourages competition within an harmonious environment". The Commission's representative also said that promoting Unix portability would give European ISV's "with good ideas an open market to work for". Buying Unix workstations at the rate of 1000 per year makes the Commission an interested party, it says that its relationship with X/Open has made it possible to implement office automation systems at the lowest cost per workstation. The Commission added that it supported the initiative to give the X/Open Portability Guide official recognition as an international standard but concluded that it hoped that the growing size of the organisation will not slow down the momentum. The forming of X/Open Ltd (UX No 118) should help solve any of these problems.

EXPERTWARE HAS CONFIGURATION MANAGEMENT AND DOCUMENTATION TOOLKITS FOR SUN-3

Expertware Inc has announced that its software development products are now available for the Sun-3 family of technical workstations from Sun Microsystems. The Santa Clara, California- based company claims that the Configuration Management Toolkit and Documentation Support Toolkit take full advantage of the power of the Unix operating system and the distributed computing capabilities of the Sun workstation to provide users with computer- assisted software engineering solutions for managing software development. Developed originally for use in large-scale software projects for government, military and aerospace applications, CMT and DST now bring expanded management capabilities for micro- based software development projects, the company says.

HEWLETT-PACKARD HOPES TO TAKE WORKSTATION WORLD WITH 16.67MHz MODEL 330

Hewlett-Packard has improved its workstation offering by introducing the HP 9000 Series 300 Model 330. Surprisingly the company with its UK base in Bracknell, Berkshire only uses the 16.67MHz Motorola 68020 processor as opposed to the 25MHz version now available. Hewlett-Packard is offering its implementation of Unix, HP-UX, on the workstations in modular form. The minimum module is the Applications Execution Environment which includes an AT&T System V compatible kernel with windowing and systems maintenance extensions. It can be upgraded with a programming module and language modules including C, Fortran 77, Technical Basic, Ada, Common Lisp and Prolog. The company says that the 330 is object-code compatible with other series 300 systems. As well as the 68020 processor reported to deliver 2 MIPS the 330 uses the Motorola 68881 floating-point co-processor and a new 32-bit I/O bus which provides 6Mb per second bandwidth to high-speed peripherals. Four configuartions are avialable for the new system: the basic monochrome system - 330MMA - costs £11,300; the basic colour system - 330CMA - is £14,000; a monochrome version with a larger monitor and greater resolution - 330M - is priced at £11,500; and the enhanced colour monitor - 330C - is £15,300. Hewlett-Packard is initially targetting the machine at engineers, scientists, programmers and architects. The company hopes that this new offering will graetly increase its share of the workstation market; it cites a report from the International Data Corporation which shows that its share of the market has increased from 15.3% in 1985 to 32.5% in 1986.

ADVANCED MICRO DEVICES UNVEILS 32-BIT RISC MICROPROCESSOR

Advanced Micro Devices was this week scheduled to come in ahead of a string of big-name companies led by AT&T Co and Motorola Inc that are planning 32-bit Reduced Instruction Set microprocessors with the unveiling of the Am29000 chip. No doubt derived from the company's Am28300 32-bit slice, the new microprocessor is rated at a steady 17m (reduced) instructions per second, with peak performance of 25 MIPS. It will be accompanied by a 29027 arithmetic co- processor, and is due for sampling this summer or autumn, with volume set for early 1988. Prices are expected to start at around $500, falling, if the part lands enough design wins, to $100 in three years time.

TADPOLE INTRODUCES LOW-COST TANSPUTER ENVIRONMENT

Tadpole Technology has introduced a transputer systems card, the Transputer Systems Controller, based on the Inmos T414/T800. Tadpole's implementation differs to Inmos' in that it has VME interface, the Inmos version is simply in VME format. Tadpole intends that the system is sold either as a main system processor, or as a specialised accelerator within existing systems, or as a transputer development environment running in conjunction with Unix. The Cambridge based company expects to gather the most interest from people wishing to evaluate the transputer environment without incurring large costs. The TSC is available in single units at a price of £3,175, discounts are available for quantity orders. Tadpole expects the board to be used to develop the currently practically non-existent range of Occam software.

MICROSOFT LOOKS TO SUN TECHNOLOGY TO BRING HIGHER QUALITY WINDOWS

Microsoft and Sun Microsystems look to the new relationship (see front) to further development of technology to bridge the high- end technical workstation and the personal computer markets. Microsoft says it wants to look at the Sun technology to evaluate ways to bring even higher quality screen output and faster display performance to Windows in the future. "While this announcement will have no immediate impact on Microsoft Windows, we have a long-term interest in understanding ways of transferring data and sharing information with high-end technical workstations. There will be more overlap in these markets with the arrival of powerful 80386-based machines," it says.

TERADATA ADDS DBC1012 COMMUNICATIONS PROCESSOR

Teradata, the Los Angeles company that builds the giant DBC1012 database processor out of scores of Intel 80286-80287 chip combination processors, has adapted the basic building block processor to create a communications processor for the DBC1012, so that it can be used with mid-range machines and micro- computers as well as mainframes. In its initial incarnation, the processor supports AT&T's 3B2 via Ethernet, and also offers Open Systems, TCP/IP and MAP protocols. It costs $39,000 for a 2Mb 80286-287 processor with Ethernet adaptor for either TCP/IP or Open Systems. The software is $4,000 per CPU for either. An IBM Personal interface costs $5,000 to support up to 10 Personals and the 3B2 interface is $2,000. Support for DEC's VAX/VMS operating system is in the plan.

APRICOT GIVES SUPPORT FOR XENIX, SETS UP XENIX CENTRES

Apricot Computers plc has announced the Xenix System 8 and shown that it is serious about its Xenix offerings by setting up a new division it says will be dedicated to the distribution, development and support of Apricot Xenix. The System 8 is based on the 45Mb XEN-i 386 micro and the Edgbaston, Birmingham-based company says that it is capable of supporting eight terminals or PCs. It has 2Mb RAM, a high resolution monitor, ATE style keyboard, eight serial ports and 20Mb external tape back-up. The system will be supplied as standard with Xenix 386 from Root, the Rootmap user interface and the Root print spooler and a year's free software maintenance. The entry level price excluding VAT is around £6,999 shipping starts in April. The System 8 can be upgraded to the Apricot VX system, capable of supporting 48 users, when it is shipped in May. Apricot's push into the Xenix market is a result of its opinion that Xenix-based systems will account for half of all multiscreen micro sales by the year end. To this end the Apricot Xenix Centres will be set up, headed by John Wilson. New centres will not be set up but existing Apricot Business Centres having Xenix/Unix experience will be awarded Xenix Centre status. Other VARs willing to make a commitment to training, investment and end- user support with reference to Xenix will also be considered. John Wilson intends to sign up 50 centres during 1987.

RIDGE RAISES $12m IN FOURTH ROUND OF VENTURE FUNDING

Ridge Computers Inc, Santa Clara, California, has raised $12m in its fourth round of venture funding, bringing its total to $31m. Additional cash was put up by two of the original backers of the RISC Unix workstation manufacturer, Hambrecht & Quist and Arthur Rock, and another existing investor, Groupe Bull of France, which builds Ridge machines under licence. Other investors include Riksa Trust, J F Shea & Co, Fayez Sarofim and Hansa Aktiengesellschaft. In December 1986, Ridge and Groupe Bull extended their co-operative sales and development agreement and Ridge Computers can adapt and distribute products based on Bull developments, including its operating system based on Unix System V.2 and its graphics and communications products. Ridge plans to use the new cash for development of follow-on products, to build its sales organisation, and to finance volume growth projected for 1987 and 1988 - following the 50% to 100% increases in orders recorded over the last two quarters.

BBN HAS $700,000 WORTH OF SALES FOR BUTTERFLY PARALLEL PROCESSOR

BN Advanced Computers Inc this week announced sales of its Butterfly parallel processor to Indiana University, MITRE Corp, FMC Corp and the Naval Research Laboratory. The systems have a total value in excess of $700,000, and will be used for applications ranging from artificial intelligence to real- time control. Indiana University is using the Butterfly system for projects including the design of parallelising compilers, graphics, AI applications, and the development of genetic algorithms for solving complex combinational problems. The university's Butterfly system consists of 16 processors with floating point platforms and 16 megabytes of memory, along with the Butterfly compiler. MITRE Corp. has installed an eight-processor Butterfly system with 32 megabytes of memory and compilers for Butterfly Fortran and C. The system will be used primarily for artificial intelligence applications. FMC Corp., in Minneapolis, has purchased a three-processor Butterfly computer with three floating-point platforms and 12 megabytes of memory. The Butterfly computer installed at the Naval Research Laboratory, targeted for a range of compute- intensive applications, contains 32 processors with floating-point platforms and 128 megabytes of memory.

DENEB CONSTRUCTION PACKAGE AVAILABLE ON NCR TOWERS AND UNISYS 5000

Deneb Systems has announced the release of the complete Deneb construction accounting & estimating system for the NCR Tower series. Deneb of dayton, Ohio says that it has ported its construction package to the more powerful 32- bit machines in response to increasing speed and memory requirements in multi-user environments within the construction industry. Written in Cobol, Version 3.0 of the Deneb system includes applications for payroll, job cost, purchase orders, accounts payable, accounts receivable with inventory, general ledger, bank reconciliation, item billing, equipment control, estimating and order entry. Deneb Systems Inc specialises in the development, marketing and support of software for the construction industry. Its construction software is currently only available in the US through a national dealer network in 38 states. The suggested retail price is $1,295 per application. Deneb also announced the release of the complete Deneb construction accounting & estimating system for the Unisys series 5000 family.

UNIFY PUTS CARDS ON THE TABLE FOR DISTRIBUTED DATABASE - WHAT WILL INFORMIX DO?

Unify Corp has joined Oracle Corp and Relational Technology Inc in deciding that the way forward is through distributed databases by outlining its two year plan for a co-operative processing architecture. The co-operative processing architecture is based on the premis that personal computers are now almost as cheap as terminals so why not hook PCs up to database engines and retain the friendliness of the PC. The system will spread the components of Unify's products across three levels of computers: the first layer is the human interface layer and will be implemented on the PC; the second layer is the applications layer, providing the processing logic and the database requests, resident on a 68000 or 80386 Unix box and the company says VMS and VM versions will follow; the actual database processing is the third layer implemented on a Unix supermini initially but with again with VMS and VM versions later. NFS will be used to connect the various machines used in the third layer and to connect the third layer with the second. Connections between the second and first layer will be handled in the future by PC NFS and initially by an RS-232 serial port. Access to mainframe MVS databases will be provided by a standard SQL interface. The first phase of this project due for delivery first quarter 1988 was announced this week in the form of three new products Accell/CP, Query/CP and Unify DBMS/DOS. Accell/CP is software that allows PCs to handle wordprocessing type oerations whilst minis, or database engines, continue with other tasks. Accell/CP offloads the human interface portion of the Accell Integrated Development System to the DOS-based PC for data entry, validation, window management and systems prompts and messages. Query/CP is a file transfer utility that formats data extracted from host databases so that it can be used directly by popular PC packages such as Lotus 1-2-3, Ashton-Tate dBase II and III, Microsoft Wordstar, Lotus Symphony, Ashton- Tate Framework, IBM DisplayWrite, Microsoft Multiplan and several graphics packages. Unify DBMS/DOS is predictably a Unify DBMS version for DOS users and a set of devlopment tools for PC DOS environments that includes the ability to write C programs to access data directly. Prices for the Unify PC environment start arond £700. The company claims that there is complete compatibility between Unify's DOS and Unix products and that users can progress from PCs to larger machines without changing their DBMS appliactions software. This move now leaves Informix Corp out in cold as the only one of the big four database suppliers not to have announced development of such a project. Relational Technology Inc and Oracle Corp made their bids last year (UX No 98) although Oracle have recently announced setbacks (UX No 116).

UNIX PENETRATION GROWING AT OVER 25% A YEAR IN US, DATAQUEST DISCOVERS

Penetration of the multifarious flavours of Unix in the US market is rather broader than most observers imagined, as the following figures and forecasts from the Dataquest research house indicate:

1985	No.	Value
Mainframe	71	$241m
64-128 users	282	$142m
32-64 users	844	$172m
20-32users	4,347	$213m
2-20 users	118,448	$2,138m
Workstations	15,674	$517m
Personals	26,737	$98m
Totals	166,403	$3,521m

1986	No.	Value
Mainframe	89	$303m
64-128 users	423	$199m
32-64 users	130	$264m
20-32 users	6,224	$297m
2-20 users	142,075	$2,552m
Workstations	27,324	$836m
Personals	45,984	$162m
Totals	222,249	$4,413m

1987E	No.	Value
Mainframe	114	$393m
64-128 users	564	$240m
32-64 users	1,700	$335m
20-32 users	7,689	$357m
2-20 users	178,791	$3,050m
Workstations	40,170	$1,044m
Personal	64,038	$224m

In terms of penetration, the Dataquest figures indicate 60% growth on mainframe Unix systems by number over the three-year period, 100% in large supermicros and minis serving 64 to 128 users, 101% in the smaller ones, 77% in mid-to-low multiuser systems, 51% in low-end multi-user, 156% in workstations, and 146% in Unix personals. The growth in market value is indicated at 25% last year, and the forecast for 1987 is almost 28%. And a fair part of that is business (remember these figures are US only) that might otherwise have been expected to go straight to IBM. Little wonder then that IBM now has 1,000 people on Unix in Austin.

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Minigrams

Masscomp with its UK headquarters in Reading, Berkshire has announced that Systems Strategies' mSNA/3270 communications software package is available on its MC5000 series, this means that the MC500 family can connect to an IBM mainframe by emulating a 3274 cluster controller with attached devices: this package is the basis of a joint marketing agreement between the two companies and prices start at around £4,500.

- o -

Gould Inc will be marketing an opimizing version of a C compiler from **HCR Corp** of Toronto, Ontario, the compiler enhancements are based on HCR's Portable Code Optimizer, which is also available on other manufacturers' hardware: Gould of Fort Lauderdale, Florida will be selling the compiler on its PowerNode series running its implementation of Unix, UTX/32.

- o -

Sphinx has appointed a German company to join its recently formed International Consortium for Unix software (ICUS) (UX No 112): **Garmhausen & Partner** is involved in applications software development, software distribution, training and consultancy and has offices in Bonn, Wilhelmshaven, Berlin, Frankfurt and Freiburg.

- o -

Sequent Computer Systems with a UK base in Hounslow, Middlesex, has announced an agreement with Carnegie Mellon University to assist in the development of a standard operating system for running advanced Unix applications over a wide variety of multiprocessing architectures, the MACH project: the Defence Advanced Projects Agency (DARPA) is funding the software development by CMU which has also bought a Balance 21000 from Sequent - Sequent intends to integrate the results of the MACH project into its own Unix implementation, Dynix.

- o -

S-Com of Aylesbury, Bucks has announced a Xenix version of its X.25 driver, written in C, originally developed for a German videotex manufacturer but is now avaialable as part of the S-Com25 product.

- o -

NCR has appointed Frederick Newall, currently vice president marketing Europe Group, to Vice President of the company's Europe Group as a result of Herbert Schene's retirement.

Symbolics Inc has won a significant OEM contract from one of the most esoteric computer manufacturers - its Cambridge, Massachusetts neighbour **Thinking Machines Inc**, which is building massively parallel processors under the name The Connection Machine: the Connection Machine , a single-instruction, multiple data computer, has 16,000 to 64,000 very simple processors, each of which holds data that can be operated on by a single instruction and runs *Lisp, and Symbolics 3670, 3650 and 3640 Lisp computers are to be used as front-ends to the box.

- o -

The splits in the US administration are beginning to assume UK Labour Party proportions, but two of the most frequent squabblers, Commerce Secretary Malcolm Baldridge and Defense Secretary Caspar Weinberger, are deaf to complaints that since Schlumberger is French, they have no jurisdiction to oppose the proposed sale of its **Fairchild Semiconductor** unit to **Fujitsu** of Japan, and are agreed that the sale must be blocked: officials say that the Central Intelligence Agency is opposed to the sale, but it is unclear what steps the administration can take to block the sale - one suggestion is that the Pentagon could strike Fairchild from its list of approved suppliers - except that it is the sole source for some parts.

- o -

The April 2 date now has the Wall Street Journal seal of approval for launch of **IBM's** next generation Personals, and as well as the 8086 and new architecture 80286 machines it reckons that the announcement will include IBM's first 80386 machines: as well as the features we gave in No 635, it looks for a new proprietary bus and proprietary graphics - those Inmos CLUTs are expected to feature - and Microsoft Windows as part of the semi- proprietary operating system.

- o -

Control Data Corp this month steps up its bid for the superminicomputer market with launch of the low- end (in its powerful range) Cyber 930 machine - on Tuesday March 24.

Computer people are a bit bemused as to what **Philips'** latest Compact Disk standard - Compact Disk Video - has to do with them - it's great for three-minute pop single videos but not much else, but the RCA Digital Video Interactive proposals are getting a warmer reception: the RCA standard is designed for use with any operating system - including MS-DOS of course - where Philips is trying to standardise on the Unix lookalike OS-9 on the 68000 chips for home use.

- o -

We hear that **DEC's** crash programme to expand its US sales force has been so successful that it now has some 8,000 people on the road, up from 5,000 last year, and that the numbers are catching up with IBM.

- o -

Interleaf Inc, Cambridge, Massachu setts, is promising mainframe and personal computer versions of its computer-aided publishing software for later this year: the software currently runs on 32-bit engineer ing workstations, and Interleaf says the mainframe version will be out on the fourth quarter, while text-editing and read-only software for personal computers will arrive in the third quarter, and the existing software will be enhanced to work with the mainframe version; no indications of prices were given.

- o -

Star Computer Group Plc has just announced acquisition of ft HB **Orchard Management Services Ltd** for shares worth £500,000: the news put 12 pence on the Star price at 138p.

- o -

The EUUG Spring 1987 Conference and Exhibition entitled **Unix Grows Up** will be held from the 11th to the 15th of May on board the M/S Mariella which sails between Finland and Sweden with tutorials to be held in Helsinki, Finland: papers to be presented at the conference include Computer Workstation Architecture; Structural Regular Expression; Multiple Inheritance for C++; Minix - a Unix clone with source code for the IBM PC - further details the conference are available from the EUUG Secretariat of Buntingford, Hertfordshire (0763 73039) and the exhibition is being handled by Anita Nilsson of Uniforum Svenska, Stockholm, Sweden (010 468 11 53 53).

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AT&T ACCOMPANIES 3B2/600 SUPERMICRO WITH PRICE CUTS ON OTHER 3Bs OF UP TO 24%

AT&T yesterday wheeled out its new computer chief and Olivetti refugee Vittorio Cassoni to take the wraps off that string of new or newish products led by the 3B2/600 supermicro - and slashed prices on its existing 3Bs. The WE32100-based machine supports up to 64 simultaneous users with optional second processor board which increases the machine's power by up to 50% from 2.6 MIPS to a peak 4 MIPS. The base price of $46,500 buys CPU, 4Mb of ECC memory, two 142Mb hard disks, a 720Kb floppy disk, SCSI interface supporting up to 6.5Gb, 60Mb cartridge tape and three enhanced ports. AT&T also extended support for IBM's SNA with LU6.2 emulation at $3,000. The price cuts range from 17% to 25% on the 3B2/310 and 3B2/400, and 12% to 24% on models the 3B15/301 and 401. The 3B2/310 and 400 can also now double as Starlan personal computer servers with new network management facilities. The model 310 is now $16,600 and the model 400 $29,500. The Starkeeper I network management system provides local and remote administration and connection to DEC environments, and a remote concentrator that gives small branch offices access to AT&T's Information Systems Network release 4.0 network management tool. The new Model 495 laser printer costs $3,595. The AT&T Dataphone II line of multiplexers adds the 740 Acculink model, and AT&T released version 2.0 of its OfficeTelerSystem.

MOTOROLA AIMS VME DELTA AT REAL-TIME UNIX FACTORY MARKET

Motorola's Microcomputer Division in Tempe, Arizona has previewed a new line of Unix microcomputers aimed at the OEM market for technical systems. The VME Delta Series is based on the MC68020 microprocessor and VMEbus, and the machines are designed to complement Motorola's existing board-level systems for the technical market, and their launch reflects forecasts that the industrial automation and real time market is growing at a compound 25%. The company plans models targeted at three specific niches - work group computers for fewer than 10 users and selling at $7,000 to $11,000 in OEM quantities; small departmental systems for up to 34 users, at from $14,000 to $25,000 in volume; large departmental systems for up to 96 users at from $18,000 to $55,000 in volume. The systems run Unix System V/68 release 3 with Remote File Sharing and support for the Manufacturing Automation and Technical Office Protocols and SNA. The VME Deltas will be upgradable to the 68030 when it arrives.

GOULD SETS REAL-TIME UNIX MINI-SUPERCOMPUTER LINE

Sketchy details of Gould Computer Systems' next generation of top end systems, due to be announced this week, are already out of the bag. Gould plans to unveil the N Processor Line, NPL - a slight exaggeration since N can be no greater than eight in its initial incarnation. The 100K ECL machine, with a minimum two CPUs - rated at 10 MIPS, 12 MIPS with arithmetic accelerator, in one cabinet and a minimum 64Mb main memory, going to 512Mb, will expand in pairs of CPUs to a maximum eight, linked by a 154 Mbyte-per-second bus. The NPL will run under proprietory real-time Unix.

HIGH LEVEL HARDWARE SETS FAIRCHILD CLIPPER UNIX BOX

On March 30, High Level Hardware Ltd, the Oxford Unix systems manufacturer, will broaden out its line of Unix processors with a top- end line built around the Fairchild Clipper chip set. High Level is not saying anything about the new machines beyond the fact that they will come in above the existing Orion bit-slice machine and that it will definitely not be discontinuing the latter - "you can't micro-code the Clipper, comments the company". Users of the Orion will also be able to upgrade to the new Clipper-based processor. The Clipper is a three chip set comprising the arithmetic logic unit and two large cache memories and controllers.

TEXAS SETS THIRD UNIX BOX IN SIX MONTHS - WHICH CHIP?

Texas Instruments Data Systems is keenly aware of a gap between its top-end multi-68020 System 1500 Unix machine and the entry-level System 1100 - which is based on the 80286 and not the 68020. The new machine has a code-name, the Road Runner - but its spec is sufficiently fluid that Texas has not yet decided whether to use the 80386 or the 68020 in it. It wants the machine because resellers are demanding it, saying that customers are concentrated in the mid-to-low end of the market, below the mighty 1500, which supports up to 128 users. The 1100 supports 16 users and the new machine is to take from 15 to 32 and to be brought in at between $21,000 and $40,000, with availability in the third quarter. The new Unix machines succeed the Texas 990 minis, with Cobol conversion tools from Micro Focus Plc.

PRIME USES MIPS TO PRODUCE RISC-BASED GRAPHICS WORKSTATION

Prime Computers Inc has launched a 3-D graphics workstation, the PXCL 5500, based on MIPS Computer's 8MHz 5 MIPS Reduced Instruction Set microprocessor in the US. The workstation runs Prime's implementation of Unix System V.3 with Berkeley BSD4.3 extensions. The company of Natick, Massachussetts boasts that the product has twice the performance of the Iris 3120 series and five times that of the VAX 11/780. Prime will begin beta testing in April and first shipments are scheduled for June; the UK announcement will take place in about a months time. A standard configuration will include the 5 MIPS CPU and floating point co- processor board from MIPS in a two tower configuration; 4Mb high speed main memory; Ethernet controller with TCP/IP software and network server utilities; 170Mb Winchester disk; eight colour planes with 256 colours; 19" colour monitor with keyboard and mouse; the Unix operating system; C compiler and debugger; graphics library; window manager; and documentation; for a price of $74,900.

MASSCOMP ENTERS RELATIONSHIP WITH VI FOR GRAPHICS SOFTWARE

Masscomp has entered a joint marketing relationship with VI Corp for VI's line of DataViews Graphics Software Products. VI will offer DV-Draw and DV-Tools to Masscomp customers on the basis of joint sales activities coordinated through Masscomp field offices. In addition, Masscomp of Westford, Massachussetts will promote VI products into government and commercial accounts which focus heavily on the reliability of real-time display of dynamic data inputs. According to David Schell, manager of the Complementary Products Program at Masscomp, "DataViews has long been popular with many of our customers. It is rapidly becoming a standard for typical applications in the areas of data acquisition, network monitoring and command and control (C3I) in which Masscomp is a price/performance leader." All VI products are written in C and were developed under Unix, specifically for use in the Unix workstation environment. VI claims that DataViews has a variety of user-generated graphics and display type formats, user interface, modular design, efficient display of real-time data or data that must be monitored on a continuous basis. VI, based in Amherst, Massachussetts, has been a developer and marketer of graphics software for scientific and engineering applications since February 1986.

REDAC ALLOWED TO ANNOUNCE $5m HUGHES PACT FOR VISULA WORKSTATIONS

Racal Redac has finally gained permission from Hughes Aircraft to announce an order worth $5m for 116 of its Visula workstations based on the Apollo Domain system. Hughes will be using the workstations to design its new electronic products for the next five years and because much of this will be used by the US Department of Defence the company took six months in clearing publicity. 20 of the machines have already been installed and the remainder will go in over the next 15 months. Redac says that it will be announcing another large contract with a major US air company boosting its year end results, due March 31. The Tewkesbury, Gloucestershire-based company expects to announce figures of £45m which represents around 33% growth.

INFORMATION BUILDERS UNVEILS UNIX VERSION OF THE FOCUS DATABASE MANAGEMENT SYSTEM

Information Builders developers of the Focus database management system has decided that "Unix has the potential of becoming the next major operating system used by leading UK companies". To meet this demand Information Builders has begun porting its traditionally IBM mainframe-based product to Unix-based minis. A port has already been done for the AT&T/Olivetti 3B2 series; a version is currently being done for the IBM RT, or 6150; and next month Focus will be demonstrated running on Pyramid Technology's Series 9000 family of minicomputers. The company, with its UK base in Wembley, Middlesex, thinks that large corporations with mainframes and PCs are now looking to Unix to fill the gap between. Although Information Builders realises that the likes of Informix Corp and Unify Corp are way ahead of itself in knowing and understanding the Unix-based database management system market it sees its prodct being successful because it will run in other environments and adds that Focus is compatible between different systems. Focus consists of: a Dialogue Manager, which generates user-driven, interactive procedures; Modify, which allows the collection, validation and monitoring of data processing; and Ted, an integrated screen painter and text editors for the development of screens and creating Focus procedures. The Unix version of Focus for the Pyramid 9000 series costs £62,100 and a monthly licence option is available for £1,600 per month.

ADVANCED MICRO's 29000: THREE 32-BIT BUSES, 192 REGISTERS

The forthcoming Am29000 32-bit reduced instruction set microprocessor - Advanced Micro Devices' first microprocessor with a native instruction set and its first major part in CMOS will have three separate 32-bit buses - data, instruction and address. The part will be clocked at 25MHz, and will come in a 169-pin package. Being a RISC, it will have a large number - 192 - of on-chip registers, as well as concurrent instruction and data accesses, 4Gb of virtual address space with demand paging, 4Gb address range with paged virtual memory, a 64-entry on- board memory-management unit, and floating- point acceleration. The microprocessor will also include an on-chip branch target cache for single-cycle branching. Advanced Micro hopes to see first silicon on the part in early summer, but claims to have scored several design wins with it on the basis of preliminary information. The Sunnyvale, California company expects it to be used inter alia in embedded controller environments that demand high performance such as robotics, as well as demanding applications such as workstations for foreign-language translation, speech recognition and other machine intelligence systems. A 29000-based Unix co-processor for IBM Personals, and a VME board computer are also likely. The Am29027 floating-point arithmetic accelera-tor will follow the 29000 within three months, and will consist of a 64-bit arithmetic-logic unit, 64-bit data path, and a control unit; it will implement both single- and double-precision working as well as integer and conversion operations.

TURKISH DELIGHT: ICL HOPES TO FOLLOW POLLY PECK WITH EXCLUSIVE EKDATA PACT

Following the demise of ICL's one distributor in Turkey, Mistas, the company has now signed a sole distributorship agreement with Istanbul-based software house, Ekdata. Mistas ceased trading at the beginning of this year. Under the terms of the agreement, initially valued at £2.9m, ICL will supply the Unix-based Clan range, the DRS 300 and System 25. ICL sees Turkey as "high growth market for information systems" currently there is a plethora of out-dated systems and consequently the Turkish government has passed laws making it more difficult to import old technolgy rather than state-of- the-art products. Another move to help Turkey step into the world of high technology is the regulation that calls for distributors of technology to have at least one office in each of the seven Turkish geographical areas: thus preventing small outfits setting up, making quick money and promptly going out of business leaving unsupported goods behind them. Distributors also have to register all contracts with the Ministry of Science and be prepared to have their operations scrutinized regularly. ICL says that it has no plans to licence product manufacturing in Turkey dring the short term but it is open to discussion. Ekdata will initially concentrate on the public services and defence vertical markets but will be looking into the undiscovered market, in Turkey, of retail. Ekdata's software for sales and purchase accounting, import/export processing, stock control and municipal applications are being ported to ICL's Clan and DRS 300 systems. ICL will be giving training to Ekdata staff and helping out at the forthcoming Office Equipment and Computer Fair, Bukoma '87, next week.

ISO VOTING ON POSIX TO BECOME A "WORK ITEM"

The International Standards Organisation has sent out a letter ballot to its memebers to decide whether the IEEE Posix standard (UX No 110) is worthy of becoming a "work item". The results of this are expected to become known over the next week or so. The ballot papers are expected to be returned with comments raising issues such as Unix being a licensed product; Jim Isaak, Chairman of the Posix committtee, says that they will answer any concerns like this by saying that Posix does not require any connection with the AT&T product although taking System V would obviosly be an easy and cost-effective means of getting there. It is anticipated that Posix will become a "work item" which means that participating ISO memebers will check the draft standard to ensure that non- standard terminals have not been specified and documents within the ISO domain have been properly referenced, for example, and feed their findings backs to the IEEE.

CBC LTD SET-UP CAUSES UPSET AMONGST BURROUGHS USER GROUP

The setting up of Computer Business Centres Ltd (UX No 118) has caused concern and anger amongst members of the Association of Burroughs Computer Users (ABCU). ABCU says that "as yet the user base has not been advised" but Unisys maintains that it has contacted all users by letter and intends to meet with most in order to explain the situation to them. The group is worried about the consequences if CBC does not prove viable because although all hardware and software maintenance will still be handled by Unisys all additional support expertise such as pre-sales and consultancy now no longer exists within Unisys, these personnel will become the staff of the new company. Graham Margitson is "sympathetic to the users concerns" but is convinced that non-viabilty fears are groundless and adds that users will be dealing with the same people that they have always dealt with and so know the problems and requirements of individual sites. The warning from ABCU to Unisys is that the move may create a situation where users are less happy than they were and as many are now facing up to the fact that they must change their equipment and may as a result leave the Unisys camp. According to Unisys the users that have given feedback on the move are "completely satisfied".

NEW COMPANY PRODUCES MODULA-2 COMPILER FOR 68000 UNIX MACHINES

Recently formed Masthaven Development Ltd of Cambridge has launched its first product, a Modula-2 compiler running under Unix. The Masthaven Modula-2 compiler is a single pass, optimising compiler for the 68000 series of processors. This version of the Modula-2 compiler was originally written by a US-based company called Volition Systems that was composed almost exclusively of the academic team that developed UCSD Pascal which subsequently went out of business. Masthaven bought the licence to the product at this point and enhanced it for commercial use. The company, formally set up towards the end of last year, says that the primary difference between other Modula-2 compilers available under Unix and its, is the support available for it. Masthaven thinks that people that want support should pay for it and is offering it at 12.5% of the unit price: the compiler costs £900 and the symbolic debugger is available for an additional £200. The company expects to sell £300,000 worth of the product into the educational, software houses, embedded systems and large corporation market before the end of the year. The initial porting has been done for Sun Microsystems' workstations and the Torch Triple X. Masthaven say that they will port to any 32-bit machine that is commercially viable and will begin 80386 ports as soon as it "has taken off".

POLYGEN BRINGS OUT CENTRUM ENVIRONMENT FOR DRUG DESIGNERS

Computer-aided designer drug software specialist Polygen Corp, Waltham, Massachusetts, has unveiled the Centrum Technical Information Management System, which it describes as a unified computer- based research automation environment for the chemical and pharmaceutical industries. Built around an intelligent document composer, Centrum provides scientific researchers with access to a series of information management, analysis, modelling, and document composition services designed to help automate the production of typeset- quality technical documents for papers, abstracts, patent applications and correspondence. It supports integration of text, diagrams, experimental data and complex graphical charts from a variety of applications running on heterogeneous computers. Electronic mail facilities are provided, and Centrum includes a set of scientific applications, including chemical structure construction, numerical analysis and equation solving, and access to third-party statistical analysis, chemical structure data base and molecular modelling systems, through hooks and entry points that enable users to incorporate their own applications, to add new ones and to define new information types that can be incorporated into documents. Under Polygen's agreement with DEC, the Maynarder is providing Polygen with technical consultation and prototypes of its personal graphics workstation line. Centrum runs under both Ultrix and VMS on the new DEC VAXstation 2000 and on other VAXen; it will be available in the second quarter but Polygen gave no prices for Centrum.

FUJITSU, SCHLUMBERGER AGREE TO CALL THE WHOLE THING OFF

It is still by no means clear whether it was Fujitsu bowing to surreptitious Japanese government pressure, or Schlumberger feeling it could afford to wait no longer to get the affair settled, but the two sides announced late on Monday that sale of 80% of Schlumberger's Fairchild Semiconductor subsidiary was off. Some observers believe that Fujitsu, stoutly maintaining until late last week that it was not going to be bounced out of a superb commercial deal by politics, finally caved in when Defense Secretary Caspar Weinberger joined forces with traditional antagonist, Commerce Secretary Malcolm Baldrige, to oppose the deal with the CIA nodding vigorously in the background. Now the management of Fairchild Semiconductor is trying to put together a buy-out package, but several US companies, including LSI Logic, the company founded by one-time Fairchild president Wilf Corrigan, and Advanced Micro Devices, are expected to weigh offers.

HEWLETT-PACKARD GOES TO P-CAD FOR ADDITIONAL CAD SOFTWARE

In a bid to broaden both companies customer base Hewlett-Packard and Personal CAD Systems Inc have entered a joint technical and marketing effort to develop a migration path linking HP workstations running HP-UX and PCs using P-CAD software running MS-DOS. P-CAD and HP intend to develop bi-directional links for schematic data and printed circuit board artworking. This agreement means that P-CAD users can access HP's top-end systems and HP can offer its customers a link to P- CAD's entry-level electronic design software. Users can now transfer 'netlists', the logical connections of a design, from P-CAD's schematic capture system, to the HP printed circuit design system. No date has been set for the completion of the project but discussions are underway to provide further integration between the two products including: investigation of design-data management; human interfaces; and networking. Personal Computer Systems Inc of san Jose, California has within the last nine months set up offices in Brussels and Windsor, Berkshire.

STAR COMPUTER GROUP EXPLAINS ITS ACQUISITION OF ORCHARD MANAGEMENT

Star Computer Group Plc's purchase of Orchard Management Services Ltd for 360,000 new 10p ordinary shares and additional shares taking the total paid to £500,000 extends the company's customer base downwards into the smaller accountants' practices. The £2m-per- annum Orchard - net profits of £90,000 for the year to September 30 1986 - designs and sells MS-DOS-based packages for accounts production, payroll and book-keeping, and timesheet entry. Star's traditional business has been in similar products, developed by Tetra Business Systems and supplied on Convergent Technologies' N-Gen and Unix machines, for the medium size accounts practice, but it now receives nearly 50% of its income from packages for general commercial accountants. The acquisition gives Star a 25% stake in Orchard Inc, a US West Coast- based start-up that is currently rewriting Orchard's products for the US market, but Star chairman David Blechner says only Orchard and not Star packages will be sold there.

HARRIS INTO THIRD PARTY MAINTENANCE IN THE US

NCR, Honeywell, Control Data and Xerox have all done it, so if a company aspires to the Big League, it must be a desirable move - "it" being driving one's essential maintenance operations harder by throwing them open to third party products, and Harris Corp has just taken the plunge in the US. The Melbourne, Florida company's Customer Support operation will primarily target IBM and DEC sites, and is not concerned that users have any Harris kit. It will support everything, including telecommunications equipment, except mainframes. It looks for the third party business to generate $1.5m to $2m this year, and to grow it to some $5m in 1988.

SILICON GRAPHICS USES MIPS TO JOIN PRIME IN OFFERING TOP-OF-THE LINE GRAPHICS WORKSTATION

Unfortunately for Prime Computers (See Page 2) Silicon Graphics Inc has introduced a top- of-the-range 3D graphics workstation, the IRIS-4D Series, that uses the RISC processor from MIPS Computer. The company says that these new superworkstations set new standards for compute-intensive graphics applications. Using the Dhrystone benchmark, the industry standard for measuring integer computing performance, the IRIS 4D/60 provides seven times the performance of a VAX 11/780. The company also claims that for actual user applications, the IRIS 4D/60 is five times more powerful than a VAX 11/780, delivering a sustained rate of five MIPS of integer computing performance. "No other system comes close to the performance of the IRIS-4D Series," said Roselie Buonauro, vice president of marketing. "This combination of RISC technology and graphics performance and functionality make the IRIS-4D Series the first superworkstation family to offer users the fourth dimension of real-time speed and responsiveness. These systems redefine the market for high-performance 3D computing." The first member of the IRIS-4D Series is the IRIS 4D/60, a 12-slot workstation featuring a RISC processor subsystem from MIPS Computer Systems, Sunnyvale, California. This subsystem includes an 8MHz 32-bit RISC processor, which offers up to three times the computing performance of Silicon Graphics' previous product family, the IRIS 3100 Series. The graphics performance of the IRIS 4D/60 also has been greatly enhanced by incorporating 38 custom and semicustom graphics processors into the design. The 4D/60 performs 140,000 3D 32-bit floating point transformations per second and renders over 4,500 100-pixel polygons per second with smooth shading and hidden surface removal. The IRIS 4D/60's graphics processing power for rendering solid objects is over five times faster than for the IRIS 3100 Series, providing dynamic motion of 'solid' objects and greater on-screen realism and accuracy. These sophisticated graphics features are especially crucial for applications such as mechanical computer-aided engineering animation, molecular modeling and industrial design. Graphics functionality is also superior on the IRIS 4D/60 superworkstation. The system's five key graphics features include: 24 color bit-planes providing more than 16 million colors; four user-accessible system planes for overlay/underlay, menu and windowing functions; the only 24-bit Z-buffer available now on an engineering workstation, enabling hidden surface removal with much greater accuracy and realism for complex real world solid objects; high-level primitives such as splines and surfaces for more accurate renderings; and a multi-mode graphics windowing environment, allowing multiple applications which use different display modes, such as 12-bit versus 24-bit colour, single versus double buffered operation and Z-buffer, to run concurrently in overlapping windows.

According to Dataquest, the overall workstation market is growing at up to 51% per year and the compounded annual growth rate for conventional workstations is growing at 37% per year. While the demand for graphics and computing is strong, there have been few solutions capable of answering both needs, say Silicon Graphics. "When we announced our first product in 1981, we redefined the 3D graphics market. "Today, with the introduction of the IRIS-4D Series, Silicon Graphics has established a new standard for 3D graphics and computing performance," said Buonauro. The IRIS 4D/60 includes the following in its standard configuration: 4Mb CPU memory; eight color bit-planes - 256 colors; four system planes for overlay/underlay functions, a Weitek-based floating point accelerator board; a 170- Mbyte, high-performance ESDI disk and controller; a 19-inch 1280 x 1024 60 Hz non- interlaced color monitor; keyboard and mouse; and a floor-standing chassis with 12 VME slots and a 1000-watt power supply. Hardware options include up to 12 Mbytes of CPU memory, up to 24 color bit-planes, 24-bit Z- buffer, Ethernet controller, 1/4-inch and 1/2-inch tape controllers and a second 170- Mbyte disk drive. In addition, the IRIS 4D/60 supports RD-170A video output, with Genlooking and NTSC color encoding capabilities, and a variety of color hardcopy output devices. The new IRIS 4D/60's Graphics Library is software compatible with Silicon Graphic's IRIS 3100 Series of superworkstations allowing easy porting of existing software applications. The workstations includes Unix System V Release 3.0 with Silicon Graphics' Extent File System for fast file access and handling, an optimizing C language compiler, window manager and the Graphics Library. Software options include TCP/IP, an optimizing Fortran compiler and the Network File System for transparent file sharing in a heterogeneous network of computers. Like the prime offering the IRIS-4D series is housed in a twin tower package. The first tower is a 12-slot VME board card cage incorporating all the CPU, graphics and controller boards. The second tower includes the power supply and stackable peripherals modules, which can be easily removed in secure environments. The company says that "to differentiate the new family of superworkstations, the products are packaged in slate grey cases complimented with raspberry trim". "This is a new generation of graphics superworkstations. We wanted the exterior of the product to reflect the bold new direction we have taken with the IRIS-4D Series," said Buonauro. First shipments of the IRIS 4D/60 will begin in April 1987. Shipments in the second quarter will be targeted toward key OEMs and VARs. Volume shipments to the general customer base will begin in June. The IRIS 4D/60 lists at $74,900 in its basic configuration. Target applications include mechanical computer- aided engineering, visual simulation, animation, molecular modeling, VLSI design, industrial design and manufacturing simulation.

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Minigrams

The Transputer System Controller from Tadpole Technology (UX No 120) has been added to Inmos' list of around 14 transputer evaluation boards and will be avialble to its OEMs and clients as the IMS B011.

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IBM has quietly over the last couple of months dropped its implementation of Xenix for the PC AT and XT, PC/IX, in the UK.

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Nichimen Electronic Systems is to market the Informix relational database on DEC's MicroVAX II, and aims for 1,500 systems a year; Nichimen is also selling Berkeley 4.3BSD Unix in Japan - at $10,000 on the MicroVAX II.

- o -

Japan is rushing to buy and play with artificial intelligence technology at an incomparably faster rate than the US or Europe, and the big Marubeni trading company is getting in on the act with a new company, part-funded by the Intelligent Technology Inc venture start-up, which is the Japanese representative of Carnegie Group Inc, Pittsburgh: Marubeni will invest in Intelligent Technology, and help to generate sales for Cranegie's Knowledgecraft expert system shell, which is set to be introduced in Japan next month.

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Mitsubishi Electric has announced three new 32-bit models at the upper end of the its Melcom 70MX/2000 range, and looks to sell 700 per year: the 2600, rated at 1.2 MIPS, comes with two 147Mb Winchesters, floppy disk and tape unit at $64,477; the multiprocessor 2800, rated at 1.8 times the single processor is $82,000, and the 2900 has a built-in 16 megaflops array processor for vector processing, and costs $95,394; the machines run Mitsubishi's OS60, which is based on Unix with high-speed real-time processing extensions and the machines are aimed at the artificial intelligence and CAD/CAM/CAE markets.

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Bridge communications of Mountain View, California has introduced a Xenix-based network management server designed for local area networks based on the TCP/IP protocols: the NCS/AT Network Control Server allows centralised control and monitoring of computer resources attached to a TCP/IP based Ethernet or Bridge's own 5Mbit per second broadband LAN - the NCS/AT is available now for £8,400.

NCR Corp, which started the year modestly optimistic, is now confident after two months' trading that it will be able to top last year's record net profits of $336.5m.

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Unix arrives on Wall Street: Morgan Stanley & Co has given Sun Microsystems Inc a $1m plus contract for workstations, and networking and Unix system software for automated securities trading; the pact covers Sun-3 workstations and servers, office automation software, high-performance graphics options and floating point accelerator options for compute-intensive operations.

- o -

Hewlett-Packard Co this week told its international user group in Vienna, Austria that it had begun limited customer shipments of the first beta test units of the HP3000 Series 930 Precision Architecture RISC business computers on schedule, and remains on target for first commercial ships in mid-1987; shipments of the Series 950 are still set for second half 1987; the company says that it is still too early to make performance projections with certainty and that software engineers would continue to tune the operating system during the beta-testing process - and "much work remains to be done".

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Uncertainties over the state of readyness of Hewlett-Packard's new HP3000 Model 930, voiced by the firm at its user group bash this week, is echoed by Peter Haymann, computer analyst with Drexel Burnham Lambert, who told the Wall Street Journal "they still haven't solved their problems with the input-output system - I understand they're out looking for new talent to solve" it; Hewlett-Packard's problem is that while the RISC hardware works fine, it has run into a brick wall trying to optimise the input- output subsystem supporting the Precision Archtecture CPU to handle the necessary number of active terminals without grinding to a halt.

NEC Corp this weerk announced that it, Honeywell and Bull were on target for creation of the joint US company to be created out of Honeywell Information Systems in which Bull and Honeywell will have 42.5% each and NEC 15%, by the end of this month, the deadline set at the time of the preliminary agreement towards the end of last year; NEC Information Systems and the Honeywell-NEC company selling NEC supercomputers in the US will remain separate entities outside the new tripartite joint venture company.

- o -

Siemens and Philips have shown off prototypes of their first jointly- designed circuit, a 4M-bit memory chip due to go into production in the autumn of 1988: the part is twice the size of the 1M-bit chip that Siemens plans to start manufacturing in volume under licence from Toshiba Corp later this year.

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While some software developers see Microsoft's "New DOS" or CP-DOS for the 80286 as only an interim step to a proper 80386 op-erating system, Lotus Development Corp says that it certainly won't be waiting, but will use New DOS as the environment for its next generation of software products - but is committed to bringing out new products that have a high degree of compatibility with existing ones, according to Infoworld magazine.

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AT&T Co is to spend $809m to redeem 15.5m of its 16.7m preference shares to reduce its servicing costs - $50m a year in dividends: the redemption is to be made on May 1, and will bring to $2,500m the reduction in the debt the company has to service since it began a redemption plan last year.

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Star Computer Group has announced that the 386 NGEN workstation (UX No 103) from Convergent Technologies is now available from its East London base.

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London-based Xoren Computing has announced a Unix/Xenix version of its IPL-11 interprocessor link pacakage, written in C, which the company claims provides a simple and secure means of transferring programs and data from one computer to another which may be different models from different manufacturers running different operating systems.

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NIXDORF "BIGGEST EVER" UNIX FOR GERMAN JOBLESS

The West German Bundesanstalt fur Arbeit - Federal Labour Office - has awarded Nixdorf Computer AG its largest-ever contract - and probably the biggest contract for Unix systems ever placed in Europe. The order, worth about $165m over three years, tops Nixdorf's $100m-plus point of sale systems contract with Montgomery Ward last year, and requires the Paderborner to install Targon/32 68000-family fault-tolerant Unix machines derived from the original design from defunct Auragen Corp, in 90 main labour exchanges throughout the Federal Republic. The machines, which will support databases of employment opportunities compiled using the Reflex relational database manager, will support 12,000 job counsellors helping West Germany's unemployed to find work. The programme is to be completed by 1990.

GOULD RATES FIERCE NEW NPL FAMILY AT UP TO 320 MFLOPS

Gould Computer Systems Inc duly unveiled (UX No 121) the first offerings in its new N Processor Line, NPL, of 32-bit minisupercomputers yesterday with the launch of the NP-1, offered in configurations of from one to eight processors. Contrary to expectations, the machines are offered in single as well as multiprocessor configurations, the base model being the NP-1 Model 110, fitted with a hefty 64Mb of memory, expandable to 512Mb, and a base processor price of £310,000 with 64Mb - US prices are put at $395,000 to $2.9m. The single processor is rated at 10 MIPS on the Whetstone benchmark, and can be expanded with additional CPUs to a maximum of eight, creating a Model 480, which has up to 4Gb of physical memory and is rated at 96 MIPS and 320 Mflops. The machines run Gould's proprietary MPX/32 operating system and its UTX/32 Berkeley-based Unix with real-time and System V extensions. Multiprocessor configurations can optionally be tied together via a new £43,000 real-time Hub that enables each node to communicate with the others via shared memory regions, with common address ranges set aside for shared functions. Each NP-1 processor operates as a master with its own copy of the operating system, and in theory each processor in an eight processor array could be running a different operating system. UK deliveries start September.

MIPS COMPUTER RAISES THE ANTE TO 8 FROM 5 - MIPS, THAT IS

MIPS Computer Systems Inc, Sunnyvale, yesterday introduced its second generation of RISC microcomputers as the M/800 system, providing overall sustained performance of eight times a VAX-11/780 minicomputer, widely benchmarked as a one MIPS machine. The M/800, the second in the company's M Series building blocks, is designed as a flexible platform for OEM customers building high performance Unix systems. It comes with networking tools that allow integration into an Ethernet-based network, and can be configured as a compute server, network file server, or multi-user system. The Racal-Redac Visula Mipper design automation system, announced this week, is based on the M/800. Redac will market the Visula Mipper as a compute server to customers with networks of Unix technical workstations. New and existing M/500 customers can buy the M/800 upgrade for $11,150: it consists of replacing the R2300 CPU board with the R2600 board and requires no additional software or hardware. The R2600 CPU uses a 12.5MHz version of the MIPS RISC and in standard configuration, the M/800 includes 8Mb error-correcting main memory, 12-slot VMEbus cardcage, a 337Mb disk drive and a 60Mb quarter inch tape drive. Memory goes to 20Mb, and up to 32 serial ports and an Ethernet interface with TCP/IP protocals can be added. Bundled software includes either System V.3 or Berkley 4.3 versions of the UMIPS operating system and an optimising compiler system that includes C, Pascal, Fortran 77 and a symbolic source-level debugger. Sun Microsystem's Network File System and Sun's PC NFS, which allows the M/800 system to be included in heterogeneous networks. The M/800 goes for $51,330 in quantities of 10 or more and will be available in July.

NEW PLEXUS INTEGRATED FILE SYSTEM WINS $2.5m US WEST PACT

In a major product diversification, Unix supermicro specialist Plexus Computers Inc, San Jose, California is today scheduled to introduce a system that brings together its Unix machines with AT-alike workstations under MS-DOS 3.1 and MS-Windows, the Informix relational database on juke-box optical as well as magnetic disk drives, and scanners, optical character readers and facsimile machines using the Group III and IV com-pression alogorithms. First customer for the mixed mode database system - called Extended Data Processing or XDP - is the US West Direct unit that handles Yellow Pages directories for all the telephone operating companies in the US West Inc group; the US West contract is worth $2.5m, and "will pay for itself in 12 months" according to the phone company. The processor used can be a new Plexus P/95 system, based on the 25MHz 68020 and VMEbus, supporting 48Mb memory and up to 128 users or the existing P/75 based on the 12.5MHz 68020 for production work, or the low-end 68010-based P/55 for development work. The optical juke-box systems come from Cygnet Systems Inc; source of the other bought-in parts has not been disclosed. The linking software was developed jointly by Plexus and Informix; the system is tied together via Ethernet. In the UK, the XDP system will start at £60,000 with a P/55 processor, rising to £750,000, and the company says it has received 30 inquiries in the UK alone, typically regarding multiple installations. In the US, the P/95 costs $57,200 with 4Mb, 16 ports, 142Mb disk and cartridge tape. A typical production XDP costs $150,000 to $200,000 with four stations, a scanner, software and a laser printer.

NATSEMI PROMISES NEW UNIX MACHINE WITH 32532

National Semiconductor has unveiled its latest processor, the NS32532, which it expects to deliver to customers in the fourth quarter of this year and at the same time introduce "a fully integrated Unix- based computer module" using the 532.

NATSEMI PUTS MMU, CACHE AND PIPELINE ON 532 CHIP: BOASTS SUPERIORITY

National Semiconductor has unveiled its latest 32-bit processor, the NS32532, which the company intends to implement into a Unix- based machine during the fourth quarter. NatSemi claims that the new chip will provide around twice the performance of the Motorola 68030. The main difference between the new processor and the previous top-of-the-range 32332 is that NatSemi has put on-chip: a demand paged virtual Memory Managaement Unit; a 512 byte direct mapped instruction cache; a 1,024 byte two-way set associative Data Cache; and an instruction execution pipeline. NatSemi say that the primary advantage of an integrated MMU is faster execution time because signal propogation delays are reduced to a minimum, the MMU can use half-clock cycles on-chip, and virtual to physical address translations can be performed in parallel with other operations such as cache look-ups. The MMU has an integrated Translation Lookaside Buffer which acts as the MMU's cache holding the 64 most recently used virtual addresses and their corresponding physical addresses. The integrated instruction and data caches increase execution speed because external memory does not have to be referenced so often. NatSemi say that it chose a 512 byte instruction cache size because "it provided the optimum balance between performance and required area". The company added that because the data cache has a two-way set associative structure - for each memory address there are two lines where the address can be placed - it performs as though it were a 2Kb direct-mapped cache. The pipleined instruction execution architecture is organised into four stages which all work in parallel: the Loader, which prefetches instructions and decodes them for the next two steps: the Address Unit, which calculates effective addresses and prefetches source operands for the following stage; the Execution Unit, which executes instructions and processes exceptions; the Register File, which holds the Program Counter and other registers for the Address and Execution Units. The disadvantage of a pipelined machine is that it wants to read ahead to keep the instruction pipe as full as possible so it tends to prioritize reads over writes which can lead to a read or write operation to different locations occurring out of execution order but NatSemi claims that the NS32532 has a special I/O detection mechanism that ensures that read and write operations that are addressed to I/O devices are performed only once and that they are correctly ordered. The company claims a 10 VAX equivalent MIPs avarage for its 370,000 transistor processor and adds that it is currently finding less than one bug per week and is on target to bring it out in June. NatSemi intends to have the silicon in the third quarter and begin customer shipments in June; simultaneously introducing a Unix-based computer module using the 532. The NS32532 will cost around $400 - $500 in some volume.

ROOT CONSIDERS LAUNCH OF TP MONITOR FOR UNIX ENVIRONMENT

The Business Systems division of Root Computers is "considering" the launch of a transaction processing monitor for Unix which we assume will be a package born out of the work done with Hoskyns. Root teamed up with Hoskyns in order to convert the Hoskyns IBM mainframe-based Modular Applications Software (MAS) to a Unix environment. The core of the work was a year and a half's work producing software to emulate the facilities of the CICS Translation Processor Monitor. The transaction processing market is an area that is currently being looked at by many of the major company's, X/Open has said that this is the next area that it will be addressing, but few products actually exist.

MATRA OEM FLOATING POINT PACT FOR ND500 COUPLED WITH M64/30

Norsk Data's French partner Matra Datasysteme is set to offer the ND500 mini under Sintran III and Unix coupled with the new 12 Mflops M64/30 vector processor announced by Floating Point Systems last summer, says Le Monde Informatique. The OEM pact with Floating Point, put at $1.6m, is a stop gap to the planned 100Mflops Norsk-Matra desktop minisupercomputer.

HONEYWELL-BULL INC INHERITS THE HONEYWELL COMPUTER EMPIRE

A venerable name, Honeywell-Bull, that belonged to a French-based company 66%-owned by Honeywell until 1976, is revived for the new firm that takes over Honeywell's computer interests in the US, the UK, Italy, Australia and the Far East, on April 1. Honeywell-Bull Inc will be head-quartered in Minneapolis, Minnesota with Bull chief Jacques Stern as its president and Honeywell vice-president Jerome Meyer as chief executive. It excludes Honeywell's Federal Systems Division and the Honeywell-NEC company formed to market NEC supercomputers in North America, and if it had existed at the end of last year, would have reported 1986 turnover of $1,892m, 52% of it outside the US. It has 20,500 employees, 9,000 outside the US, and has manufacturing plants in the US, Italy and the UK. Compagnie des Machines Bull will initially hold 42.5% of the new Honeywell-Bull Inc, for which it is paying $131m, Honeywell will retain another 42.5%, and NEC Corp will pay $46m for 15%. But Honeywell has set a price of $527m on the company, which will owe the $350m balance. After two years, Bull will have the right to raise its stake to 65.1%, which would reduce Honeywell's holding to 19.9%; that in turn would mean that it no longer had to consolidate Honeywell-Bull's financial figures with its own.

HIGH LEVEL HARDWARE TOPS UNIX LINE WITH THE CLIPPER CHIP SET

High Level Hardware duly launched its Clipper chip set-based Orion 1/05 yesterday saying that the Fairchild option was preferable to the already highly developed offering from Motorola, National Semiconductor or Intel because of its new clean architecture. The Orion 1/05 will run under High Level's implementation of Unix BSD 4.2, OTS, and Fairchild's version of System V, Clix, will be made available on customer demand. The Clipper three-chip module will fit into High Level Hardware's traditional Orion system architecture which uses a proprietary 32Mb per second synchronous bus allowing the new machine to connect to the company's existing range of input/output products. Peak operating speeds have been achieved of up to 33 MIPS, says High Level. The Orion 1/05 is initially targetted at the company's traditional user base of research and acadamic establishments but this time for more general purpose applications rather than research and in time "the company's planned entry into the commercial Unix market". The company stresses that the new machine will not replace the existing Orion range and High Level will continue to support it but adds that customers wishing to run Fortran or Lisp programs will probably be lost to the high- performing Clipper. The Orion 1/05 is available now and a medium configuration with 8Mb memory, three 20Mb disk, cartridge tape and Ethernet will cost around £25,000. High Level says that it has already received "a number" of orders.

UNISYS ADDS N-GEN 386, RECASTS UNIX LINE; NEW Vs IN US

Unisys Corp yesterday announced its version of Convergent Technologies' 80386-based N-Gen and defined, at last, its Unix line up. The B38 will now top the B25 BTOS range. Unisys also announced ClusterShare to net-work up to 11 Personals around the B38. Two versions of the B38 are available, the B38-CPU and the B38-MCP, both with up to 4Mb memory. The B38-MCP adds a 10MHz 80287 maths co- processor; all will be out here in May. A new OFIS-designer package, integrating text, graphics, spreadsheets and voice in one document - based on the Unisys Secretarial Word Processor; an Intelligent Data Communications Module, the B25-IDS, which uses the Intel 80186 processor and has 512Kb memory and two communications ports: an Ethernet LAN module, B25-EN3 which allows B26, B28 and B38 workstations to be connected over a high speed local net, will also arrive in May. Merger of the Sperry and Burroughs Unix lines involves only renaming the Burroughs-Convergent XE500- 5 the 5000/70 and squeezing it into a gap no- one realised existed between the NCR and Arete machines in the Sperry line. The line up, in order is the 5000/30 and 50, NCR; the 70, Convergent; 90, Arete; and 7000/30 and 40, Computer Consoles. In the US, two top-end V-series machines, the 510 and 530, successors to the old batch B29-39-4900 line were added.

AT&T ADDS PRODUCTS FOR NON-UNIX SALES AND OUTLINES FOREIGN CAMPAIGN

In addition to last week's new 3B2/600 supermicro and 3B price cuts AT&T announced the acquisition of protocol-translation modules from Soft-Switch Inc which will link AT&T applications to IBM's Professional Office System (Profs) and Distributed Office Support System (Disoss), DEC's Decnet, Ethernet and Wang's VS systems. The links are intended to promote AT&T sales in non- Unix accounts. "We need to offer systems that can work with whatever profile the customer implements," explained Vittorio Cassoni, senior vice-president of AT&T's Data Systems Division. Jack Scanlon, group vice-president of product development, hinted at a host machine for the AT&T line, set for later this year, which is expected to be based on multiple microprocessors and expandable,through the addition of printed-circuit boards. AT&T also announced a $3,595 AT&T 495 laser printer from Genicom Corp. The new version of Unix System V.3, Release 3.1, been optimized for international communications protocols; enhancements include improved remote file- sharing performance and decreased response time for remote file access, the company says. The release should be available next month for $300 as an upgrade from Release 3. Also included in the announcement was a $5,000 version of the Information Systems Network (ISN) software, Release 4.0, that supports extensive DEC connectivity through a high-level interface; a $7,500 remote concentrator for the data-switching system; and a $12,000 network management system called Starkeeper that runs on the AT&T 3B1. Up to 128 voice or data channels can be combined on a Dataphone II 740 Acculink Multiplexer. The system multiplexes data and voice and supports Accunet T-1 services. It should be available in June at prices ranging from $15,000 to $52,000. Starlan PC Servers, Models 310 and 400, were also included priced at $16,600 and $29,500, respectively. The 3B2-based servers use 10-MHz WE32100 chips and offer PC access to Unix applications as well as shared printing and file services. New software, a 3B2 Remote Management Package, is said to allow a single 3B2 to manage a network of remote 3B2s, priced at $900. By December, AT&T's product line is scheduled to include an Intel 80386-based workstation that will run both MS-DOS and Unix System V, as well as a modular minicomputer that will run a modified version of Unix. AT&T currently has a market share of just 14 percent of all installed Unix machines but AT&T's growth "will have to come from markets beyond the US," AT&T Chairman James Olson said last week in a speech that outlined the company's strategy for expanding its influence in nations where AT&T is not well- known. "The US market is still important to us, but the most promising areas for growth are beyond North America," Olson added. AT&T needs to expand its presence in Western Europe and the Far East, he said. Along with North America, those regions represent a $500 billion market for information movement and management products. The three regions also comprise 90 percent of the total worldwide market, Olson said. The underpinning of AT&T's international strategy is to form alliances with established foreign vendors, Olson said. Currently, AT&T has teamed up with 40 foreign vendors, including Olivetti in Italy, Philips in the Netherlands, and Ricoh and Toshiba in Japan. Olson, however,expressed frustration over political factors barring AT&T's entry into foreign markets. "Innovation and demand have been the greatest in those nations where trade restrictions have been removed or relaxed," he said. Among AT&T's international struggles has been its battle to crack the French market, bidding with Philips and Societe Anonyme de Telecommunications for partial ownership of the state-owned equipment manufacturer Compagnie Generale des Constructions Telephoniques.

SUPER NEWS FROM THE GIGAFLOPPERS

Geof Conrad examines some of the designs at the International Solid Circuits Conference

Last month the world's top chip designers, silicon architects and devices devisers gathered in New York to strut and boast and gaze into their crystal balls to frighten the opposition with their plans for the future. The pilgrims to the annual International Solid Circuits Conference were given previews of a whole range of spectacular chips as the semiconductor industry showed how far it had managed to stretch the limits of technnology in the past year. To show the speed of developments: last year the star of the show was a 1-mbit DRAM (dynamic random access memory), this year five 4-mbit devices were on show, but the star came from Japan's NTT Electric Communications Laboratories - a 16m-bit DRAM, holding 2Mb on a single chip.

Staid DEC

Of the processors, the design that was really over the top came from, of all people, Digital Equipment Corp, the staid DEC. This was for an array of 262,144 processors - 8,192 chips each with 32 processors - and 384 companion router chips each with 64 data inputs and 64 data outputs which allows each element to communicate with any other in the array. The massively parallel architecture of the full-scale array is claimed to pump out 10 gigaflops (10 billion floating point operations per second) or 2.6 trillion 4-bit operations per second. The processing element chip has 242,000 transistors and each of the 32 individual processing elements has 1K of static random access memory, two shift registers of programmable size, a 4-bit adder, an arithmetic logic unit, two 1-bit registers, and neighbour and router communication paths. A 4-bit operation in each processor takes 100 ns to execute; allowing the whole chip to handle 320 million 4-bit operations per second. Or, by expanding in nibble-serial fashion it can handle 40 million 32-bit operations per second. Each processor has the logic to connect to the memory of three adjacent memory chips to give it access to 4K of memory.

Hewlett-Packard, which already has a reduced instruction set computer at the heart of its Spectrum "Precision Architecture" commerical machines, showed two other Risc Chips at the ISCC show. One was a 30MHz 15 million instructions per second, 32- bit chip designed to implement a set of 140 instructions using direct hardwired decoding and execution. No less than seven internal 32-bit buses are used to link the various on-chip go- faster feature: 25 control registers; a shift/merge unit; a five-stage three word deep instruction pipeline; and a 32-bit arithmetic logic unit. The chip includes logic for decoding and prioritizing traps and interrupts and has a special interface to support data transfers among the cache, the cpu and the coprocessors, which handles the copy-in and copy-back traffic between the cache and the main memory. HP's other 32-bit part was a stripped-down basic Risc chip with 164,000 transistors and a peak performance of 8 mips. Virtually all instructions requiring more than one clock cycle to execute (apart from load/store coprocessor and branch instructions) have been eliminated, and the total number of instructions has been reduced to a minimum. The chip used a common multiplexed data and address bus and a five-stage pipeline.

One of the universities that continued work in Risc technology after its start at IBM - Stanford University's Centre For Integrated Computing - unveiled its third generation of 32-bit Risc chips: the MIPS-X. The Stanford researchers have simplified even further the instruction set for the chip, using a simple instruction format that can be decoded very quickly, allowing an instruction to be decoded every cycle. MIPS-X uses the conventional Risc load/store architecture similar to the earlier MIPS chips and most other Risc machines, but the number of instructions have been pared down to a very basic 37, each 32 bits long. But, it is claimed, the key to its speed and high throughput is the large (2Kbytes) on-chip instruction cache and the ability to fetch two words per cycle, reducing the off- chip instruction bandwidth. The 150,000-transistor double-metal n-well CMOS cpu has a peak operating frequency of 20 mhz.

AT&T Bell Labs presented two papers on their high-speed, 32-bit Crisp - CMOS reduced instruction set processor that can execute instructions at up to 16 mips with a 16 mhz clock. The 172,000 transistor Crisp is a memory to memory registerless machine with only 25 instructions and four addressing modes. Crisp gets its speed by being organised into two logicaly separate machines: a prefetch decode unit and an execution unit, each with a three-stage pipeline. It contains seven static random access memory arrays, totalling 13 Kbytes. Unlike other Risc machines it has no hardwired address or data stacks. Instead, 32 internal stack-cache registers are allocated and mapped onto the on-chip SRAMs, allowing the physical cache to be changed without affecting the control software.

Branch Folding

It was a hardware show, but the development of a Risc machine involves at least as much development work with an associated smart compiler to take advantage of the architectures, on-chip registers and pipelines and other quirks of the design. But apart from AT&T's mention of its development ot the technique of branch folding (where branches are executes along with other non- branches are executes along, non-branching instuctions), the software support for the Risc chips was ignored.

Meanwhile, even more work is going into further developing the conventional Cisc (complex instruction set computer) machines to take advantage of the new developments and higher densities now available. DEC, for example, describd a VAX-compatible 32-bit single-chip microprocessor with a host of advanced architectural features: an on-chip 1 Kbyte instruction and data cache with tag and data parity, pipelined micro instruction execution, overlapped instruction prefetching, paralled instruction decoding, and on-chip memory management. The 180,000 transistor part uses a set of 304 instruction and runs at 25 mhz.

US STAFF JOIN EXPANDING UNIX EUROPE AS LEADERS MOVE ON

All change at AT&T Unix Europe, after the departure of marketing manager Ray Sheath, to become UK Managing Director of IBM communications specialist Adacom, and technical head Ely Lamb who has returned to the US after two and a half years. In come two more US AT&T staff, Ed Chatlos to handle the sales/licensing side and Sue Pickus, formerly supervisor of the Language System Engineering Group at AT&T Bell Laboratories to head the technical staff. unix Europe Ltd also says that it is expanding, with 25 staff on board and another two or three technical staff due to start in the next few weeks.

GENEROUS MOTORLA PASSES ON SAVINGS TO CUSTOMERS IN VME-BOARD REDUCTIONS

Motorola has announced a general price reduction on 28 VME compatible board-level products. The company says that commensurate with falling component prices, especially RAM parts and 68020 processors, and increased volumes and manufacturing efficiency at Motorola's Tempe facility, savings averaging at $700 per board "are being passed on to the customer". According to Fred Rehhausser, product planning manager at the Microcomputer Division, "Numerous equipment and procedure enhancements in our manufacturing, test and diagnostic processes have been implemented in the past year and a half". Reductions range from a mere 7% to a bargain 67%. The 67% reduction is on the MVME215-2, which now costs $895 reduced from $2,775 which has a high speed 512Kb CMOS RAM with on-borad battery backup. The MVME215-3, which is the same as the 215-2 except it has 1Mb CMOS RAM, has been awarded a 66% price reduction. Reductions of around 25% have been made to the MVME133-1, MVME204-1, MVME214, MVME320A and MVME320A-1.

ITL OFFERS X400 TOOLS AND UNIX-BASED OFFICE AUTOMATION SYSTEM

Information Technology Plc, ITL of Hemel Hempstead, Hertfordshire, is preparing to market the research it has carried out for the UK government's Inter-Departmental Electronic Mail, IDEM, project in the form of four systems packages, which are claimed to beat the pants of IBM's 'insubstantial' X400 announcements. ITL sees X400 as the first and nearest fully-fledged Open Systems standard to date. It claims its new products, expected to be marketed from July, will also fill the gap left by the European public telecommunications authorities that are late in getting their public X400 message handling services under way. Heading the list of products is a private message handling service enabling messages to be routed between personal computers or asynchronous terminals using the CCITT- recommended P1 protocol for local message exchange, providing a user agent environment as well so that such devices can also link with non-X400-compatible devices. And there is a Unix V.2-based office systems product, which conforms to the System V Interface Definition, aimed at organisations with many small offices to connect.

CIE SYSTEMS SUPPORT UNIX, PICK AND DOS ON MULTI-USER AT-ALIKES

A series of multiuser IBM PC AT-compatible systems that support Unix, DOS, RM/COS, and the Pick operating system were announced by CIE Systems Inc of Irvine, California, a subsidiary of the C Itoh Elecronics arm of the $80,000m-a-year Japanese trading giant. The two-, six-, and nine-user systems are compatible with CIE Systems' 68020-based supermicros, the company said. A user of a CIES/286-series machine can choose, using software, a 6-, 8- or 10-MHz clock rate for the 80286 microprocessor. The two-user CIES/2286 includes a 40M-byte hard disk drive, a 1.2M-byte floppy drive, 512K bytes of RAM and a system console. The CIES/2286 will cost around $5,960 and the six-user CIES/6286 adds a 60M-byte quarter-inch backup tape drive and is priced at $8,085. The nine-user CIES/9286 offers a 70M-byte disk drive, a 60M-byte tape drive, a 1M-byte floppy and the system console for $9,800. System prices vary with the operating system chosen. RAM can be increased to 4M bytes of zero-wait-state memory or 8M bytes of conventional extended memory. The Unix and RM/COS operating systems require an optional 68000-based coprocessor board but MS-DOS is included with all the CIES/286 models. CIE Systems will offer the series to its VAR network and all three versions will be available in April.

SPHINX JOINS BANDWAGGON IN OFFERING SUPPORT TO PC USERS: DESKTOP

Increasingly, suppliers are beginning to tackle the need for low cost services for PC users looking to upgrade or even just get what they hoped for out of their systems, and Sphinx is the latest to try its luck with the new Desktop service. Desktop provides an umbrella for existing support and other services offered by Sphinx, and involves an initial evaluation of the users problem which Sphinx claims will be considerably cheaper than bringing in a fully fledged consultancy. "We are trying to use people who don't get charged out at £900 a week", commented commercial marketing manager Mike Maunder. Inevitably the result for users wanting to go multi-user might be to offer Sphinx products, but the company claimed that Desktop is not just a pre-sales pitch and because Sphinx is a software company it is not biased in favour of recommending specific hardware.

Indeed, the problems of offering affordable consultancy to users with a relatively small investment in systems cuts both ways - Maunder said that in the past Sphinx has effectively ended up giving free consultancy to users who wanted to do more and more with PCs.

Sphinx expects two main types of customer for Desktop - first time users looking to get more out of their systems, and large companies who may have hundreds of micros that may only be used for simple tasks but nevertheless overload in-house support. It has already undertaken two assignments: a database development for a financial company with three micros; and a small company looking to upgrade a CPM system.

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Minigrams

Lifeboat is to distribute AT&T's Advantage C++ high-level extended- function C language compiler in Japan for the NEC PC9800 series, Fujitsu's FM16B and FMR series and on the IBM AT; versions for the DEC VAX range and for workstations are also in the Lifeboat plan.

- o -

Toshiba Corp has developed Irex, an expert system support tool for general workstations, to be offered initially on **Sun Microsystems' Sun 3,** which Toshiba sells as the AS3000; the Irex kernel is written in C so that general purpose programs can run unchanged; the program combines two artificial intelligence description modes, If...Then-type and frame knowledge expressions, built around a base of procedural knowledge expressions; set for delivery in the spring, it is not yet priced.

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Nippon Olivetti, 20%-owned by **Toshiba Corp,** has formed its own 100%-owned development subsidiary, to produce software exclusively for the Japanese market, and in particular do pioneering work in artificial intelligence, electronic publishing using Compact and other optical disks, and value-added nets; **Olivetti System Technology,** capitalised at $650,000, will initially work on design of expert systems and 32-bit engineering workstations.

- o -

LSI Logic Corp plans to offer $100m of convertible subordinated debentures due 2002 through Morgan Stanley International and Prudential-Bache Capital Funding: the company is offering the debentures with an indicated coupon range of 5.75% to 6.25%, and an indicated conversion premium range of 24% to 26%. The debentures, likely to be listed on the Luxembourg Stock Exchange, have not been and will not be offered or sold in the US, its territories or possessions, or to its citizens or residents.

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Specialix Systems Ltd of London has signed an agreement with Sphinx to distribute the **Santa Cruz Operation** Xenix, System V, on its Chase AT8 add-in board for IBM PC-ATs.

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Bleasdale has announced that, as promised at its 68020 launch (UX No 106), it has successfully upgraded some of its 68010 user base.

ComputerVision Corp, Bedford, Massachusetts, yesterday unveiled the CADDServer 34, based on the Sun-3 workstation and selling for $90,400 from the third quarter: it also added a complex parts machining program, enhanced its printed circuit design software and extended Personal Designer to 80386 machines.

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Cray Research Inc reports that the Los Alamos National Laboratory in New Mexico has installed a Cray X- MP-416 supercomputer worth about $22m: the machine went in at the end of last year, and the lease was converted to purchase this month.

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Altos Computer Systems Inc, San Jose, looks to support up to 120 users under Pick on its 68020-based Altos 3068 supermicro, reports Infoworld: support will be offered under a new 2.15 release of the Altos Pick implementation, accompanied by a more efficient version of Pick Basic; the system also uses the Altos' Multidrop shielded, dual twisted pair cabling system and 80286 master processor that was previously available only with Unix; the Altos Pick 2.15 costs about $2,000 for every 10 users.

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Interleaf Inc has renewed an OEM pact valued at $15m over one year, with Sun Microsystems Inc for Sun-3 technical workstations: Sun has been an OEM supplier to Interleaf since 1982, and this time will be taking Sun-3/50s and Sun-3/160s.

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Financial & Corporate Modelling Plc has ported its Staffware office automation software to Unix-based machines from Unisys, Olivetti, ICL, NCR, IBM and British Telecom Fulcrum.

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Redwood International Ltd has appointed **Baan Info Systems bv** of Barneveldt, Netherlands, as a distributor for the Uniplex II Plus office automation system.

- o -

Sequoia Systems Inc of Marlborough, Massachusetts has announced that it has a full implementation of co- existant Unix and Pick on its Series 100 fault-tolerant on-line transaction processing system: the Pick port was produced by Concurrent Operating Systems Technology a Newport Beach, California-based company.

AT&T's extended support for IBM's SNA with LU6.2 (UX No 121) emulation comes for the **Orion Group Inc** of Berkeley, California.

- o -

Root Business Systems has won an order from **Tolerant Systems,** Santa Clara, California, for Root's Sort/Merge facility which will become standard on Tolerant's Eternity range of fault-tolerant Unix-based systems.

- o -

EWA, an information management company, has bought a Pyramid 98x system to cope with its software development, database management, direct mail services and programme administration demands: the Pyramid system will run the Accell, database management package, from **Unify Corporation.**

- o -

Microport Systems Inc, Intel 80286 and 386 software developers, of Scotts Valley, California, has opened a European sales office in London: the company has also named **Rakon Computers pty** as a source licensee for Microport products in Australia and New Zealand.

- o -

Varityper Inc of East Hanover, New Jersey, will shortly announce the highest resolution yet on a desk- top laser printer: the 10-page-per- minute-VT-600 will do 600 dots per inch, is driven by a Motorola 68020, supports Adobe Systems' Postscript page description language and will sell for $18,760 and is set for June; the company declined to disclose the source of the mechanism.

- o -

A combination of uncharacteristic misinformation by **IBM UK** and a slip of the word processor at this end resulted in an erroneous report in last week's issue of the status of IBM's PC/IX version of Unix; for the record PC/IX for the XT was still being marketed at the time of writing.

- o -

System Simulation Ltd of London has developed an online retailing database, MusicMan, for HMV's new Oxford Circus branch and will be demonstrating the product at the **Unix User** show in May: the system runs on an NCR Tower 32 system.

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Also at the Unix User Show **Hewlett-Packard** is threatening to demonstratethe HP 840 for the first time at any UK exhibition: the 840 is the technical version of HP's Precision Architecture based on RISC and running its real-time implementation of Unix, HP-UX.

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RT-COMPATIBLE AIX FOR NEW IBM PERSONALS IS VAPOURWARE

Although the 80386-based Model 80 is set to ship in the third quarter, it is not clear what software users are intended to run on it, because not only OS/2, but also the AIX implementation of Unix turns out to be vapourware, with no release date to be given till the fourth quarter - which implies a substantial opportunity for all the third party vendors of 386 Unixes. The Model 80s are very clearly designed as floor-standing multi-user machines - yet the only IBM operating system that will be available then will be single-user, single-tasking PC-DOS 3.3: and only well-behaved PC-DOS programs at that. This means that programs that write beyond the BIOS of existing Personals and direct to the hardware will need to be modified. OS/2 only starts appearing in the first quarter of next year. Described as a subset of AIX Unix on the Personal RT, AIX 386 will run PC- DOS 3.3 as a task and will support the RT VS Fortran, VS Pascal and C compilers.

ICL ACCOMPANIES NEW CLANS WITH 80386 DRS UNDER MS-DOS 4.0

ICL Chairman and Managing Director, Peter Bonfield, yesterday announced the company's first MS-DOS machine the DRS professional workstation running MS-DOS 4.0 and based on the Intel 80386 as well as new models in the company's Unix-based Clan range at the biggest press launch ever mounted by the company in Chantilly, France. "I hope IBM will be very irritated at us for announcing just four days after its OS/2 launch" said Bonfield in the grounds of Chantilly Castle. The DRS Professional workstation software multi-tasking machine with 4Mb extended memory is being previewed at Sicob running standard applications with communications multi-tasking in background mode. The company's concurrent DOS machine, the DRS 300, is now also available as the DRS NX under Unix System V. ICL claims that the DRS 300 now has around 17,000 local area networks installed in Europe. ICL also launched new models in its departmental Unix System V Clan range from Datamedia and Computer Consoles Inc and they are the Clan 4, 5, 6 and 7. The company also launched Office Power, from Computer Consoles Inc, on the continent and they say that 30 to 40 accounts have been shipped in the UK. The company is spending #3m - #5m to persuade software houses to produce applications software for the Clan range. It has opened eight porting centres in the US, Australia, New Zealand, France, Holland, West Germany, Sweden and the UK. The company is looking at the possibility of manufacturing in Spain and West Germany. Various tools, such as 4GLs and databases, will be made available on the Clan range including Ingres from Relational Technology Inc. The new Clan systems will support Oslan by the third quarter of 1987, 3270 and LU 6.2 are available now. The Clan range currently supports TCP/IP and conventional Ethernet. The Clan 5 is being previewed at Sicob, shipping will begin mid-year, using 5.25" foramt disks and single phase power supply rather than three phase power supply. The Clan 4 is a 68020-based machine from Datamedia which can support up to 32 users. It has a maximum memory of 14Mb and can support 448Mb disc storage and 60Mb cartridge tape. The other models are all from Computer Consoles Inc; the Clan 5 will support 48 users and has a maximum memory of 8Mb and a maximum disc storage of 1.1Gb. The Clan 6 can have up to 32Mb memory and 6 Gigabytes of disc storage and support 64 users. The Clan 7 has the same configuration as the maximum configured Clan 6 but will support 128 users. Detailed prices were not available but the company says that the cheapest Clan will cost around £20,000 and the most expensive £250,000.

CCTA "INTENDS" TO SPECIFY UNIX AND NOW "WATCHES" UNIX WORLD

In a recent speech made in London at the Unix '87 conference organised by ILA Computer Systems Don Folland, Operating Systems Branch Head of the CCTA, said that "it is the CCTA's intention to specify a formal standard for the procurement of Unix systems for use in the Government". Although no dates or further details were available the CCTA representative did add that the goverment's Information Technology advisory body is tracking the work of X/Open and the IEEE and at the same time watching the the attitude of the US Government Departments that have standardised on Unix.

FORTUNE SYSTEMS' HARDWARE SIDE TO GO TO SCI SYSTEMS

The attempt at a management buyout of Fortune Systems' Formula 68020 and 68000-based 32:16 Unix systems manufacturing and marketing business has failed (UX No 117), and Fortune has a letter of intent to sell to SCI Systems Inc of Huntsville, Alabama for whatever it assets are valued at at the time of purchase. Fortune Systems is now left with its tiny Tigera Unix software development and marketing business in Belmont, California, $20m cash in the bank, plus whatever it receives from SCI for the hardware business - plus some $60m in unused tax loss carry forwards racked up as Fortune accumulated losses over the years. 250 employees out of 275 will be going to SCI from Fortune. SCI is mainly a subcontractor, numbering IBM as one of its clients, but also builds Intel family Unix systems which the company believes will complement the Fortune products.

SUN-3 PRICE SLASHED 37%

Sun Microsystems Inc has just responded to IBM's Personal System/2 and DEC's VAXstation 2000 by slashing the entry price on the 68020-based Sun-3-50M 36.8% to $4,995. That buys 4Mb processor, 1,152 by 900 pixel 19" colour monitor, Ethernet interface and Unix System V. The 68881 co- processor falls 43% to $400, and add-on memory by 33% and on-site maintenance is cut up to 50%.

PHYSICS COMES TO THE RESCUE OF SUPERCOMPUTER RESEARCHERS YET AGAIN.

Physics has come to the rescue of supercomputer researchers yet again. The workers at the hairy end of computer design have just about squeezed the last drop out of existing technologies to get the present top performance of around a billion sums a second from their machines. They have tried linking lots of CPUs together - up to a quarter of a million - with lots of different architectures - the binary n-cube, loosely and tightly coupled, the hypercube, crossbar switching, radial connections, multiple buses, shared memory, multistage networks... - but so far they have tended to lose on the swings most of what they gained on the roundabouts. A distressing number of programs and real-world problems turn out to be very difficult or impossible to divide up so that the separate parts can be run on different processors.

Other exotic architectures such as neural networks that try to mimic the way a brain works, dataflow machines, applicative language engines, or graph reduction, have yet to demonstrate their full potential. However, most observers believe that at best they will only show dramatic improvements for a limited range of applications or, like RISC technology, show a useful but hardly earthshaking incremental increase in performance and flexibility. So the desperate designers, frantically searching for orders of magnitude improvements rather than incremental ones, have seized on the recent, much hyped, advances in superconducting technology as a heaven-sent answer to their problems.

(After all, when valve computers grew to the size of small factories and used as much electricity as a small town, the physicists obligingly invented the transistor. And the integrated circuit. The VLSI. As every circuit engineer's granny used to say: "Necessity is the mother of invention". Necessity is just cutting up a bit of fine time.)

Superconducting materials allow electricity to pass with no resistance - a current in a loop of wire will flow around it forever. It can be used to make very powerful magnets, transmit electrical power without losses and, in the field of electronics, supersensitive detectors called Squids, microwave signal processing, and all sorts of good things.

Unfortunately, up until now superconductors only worked at a few degrees above Absolute Zero - minus 273 degrees centigrade - and had to be expensively cooled with liquid helium. Now a range of materials have been discovered that superconduct at higher and higher temperatures. IBM researchers in Zurich started the bandwaggon rolling by reporting superconduction at a record 28 K (Kelvin - degrees above absolute zero) but this was quickly beaten by researchers in Japan, the US, China and Europe.

The record for the highest temperature was broken almost weekly as researchers tested the new ceramics made from compounds of barium, strontium, calcium, oxygen and copper, progress has been so startling that some researchers believe that a room temperature superconductor is just around the corner. The developements have been hyped as "the most important discovery of the century" and were even reported in the daily newspapers - albeit with a level of accuarcy and imagination usually reserved for political reporting.

The computer designers are excited because of a British invention called a Josephson Junction device, which switches thousands of times faster than the fastest existing device used by chipmakers and uses around five thousand times less power. Unfortunately they use superconducting technology, which caused insurmountable problems at a few degrees above absolute zero - IBM spent many years and hundreds of millions of dollars trying to perfect the technology before abandoning it in 1983.

IBM's faint heart brought research almost to a standstill. However, small research projects kept going in Europe, the Japanese kept working at it and the Pentagon has recently stepped up funding in the area - partly out of fear of a Japanese breakthrough that would give them a big lead in supercomputers and partly to try and develop Josephson junction-based signal- processing technology fro space-based microwave systems and imaging radars for Star Wars.

When IBM shut down its research effort, there was nowhere in the US that had the clean room facilities to fabricate Josephson devices. Now, thanks to the Pentagon prodding and funding, Westinghouse, TRW and Hypres all have the capability, but they seem to be concentrating most of their efforts on military projects.

In Japan there are a number of development projects working with Josephson technology as part of the government supercomputer project plus a large effort by Nippon Telegraph and Telephone Corp, who refuse to discuss it. NEC is working on memory while Fujitsu and Hitachi are working on logic - the latter has developed a 4-by-4-bit multiplier and a 3,264 gate array. The work at the goverment's Electrotechnical Laboratory is even more ambitious: 2-bit slice ALU building blocks, a multiplier, latches, registers and program counters - all the building blocks needed for a complete computer built with Josephson technology. As they all work at a few degrees above absolute zero, the new materials that work at much higher temperatures may mean that all the effort has been wasted. Or perhaps the new materials will simply increase Japan's apparent lead in the technology.

But whoever wins in the end, the prize for the first commercial product on the market using Josephson junction technology has gone to a tiny US company called Hypres. To give a taste of what we can expect in the future, Hypres put a single Josephson junction circuit into the measurement head of a digital oscilloscope, giving it a performance that far outstrips any of its competitors.

The tiny chip is cooled by a Heath Robinson device:; a hosepipe that sprays it with liquid helium from a thermos flask under the machine. But they have shown that the technology is reliable enough to be used in a commercial machine, just as new discoveries open the way for devices that work at room temperature. And when they put hundreds of thousands of them on a single chip to make a computer , it will make the present generation of supercomputers look as fast and brainy as a dinosaur. Meanwhile, while development goes on at labs all over Japan, Hypres is still trying to find a partner to finance the development of a Josephson junction computer.

UNIX BECOMING PART OF THE FURNITURE IN CAD/CAM WORLD: NEW PRODUCTS

The recent CAD/CAM '87 show demonstrated that Unix "is fast becoming the engineer's operating system", as Geoff Hall of Intergraph said. The stands at the Birmingham National Exhibition Centre abounded with 32-bit Unix workstations such as Suns, Torches, and Apollo Domains. Intergraph one of the leaders in CAD/CAM workstations took the opportunity to launch new software, MicroStation, and little bencnchMark Technologies produced a new product based on its Graphics Image Processor and the Fairchild Clipper chip set. Whitechapel Workstations, manufacturers of Unix-based workstations, announced price cuts and DEC had one of the few VAXstation 2000 in the country on show. The Intergraph MicroStation software is a 3D design and drafting package based on Intergraph's Interactive Graphics Design Software intended for use on IBM PCs and compatibles as well the company's own Interpro workstations. The package comes from Bentley Systems which Intergraph has acquired a 50% stake in. The company says that a PC-based configuration for MicroStation could cost as little as £10,000 but a system intended for real production work would be more realisticly priced at around £20,000. The software itself costs £2,880. benchMark Technologies Ltd has used its Graphics Image Procesor (GIP), built of Am29116 16-bit slices, married with its Fairchild Clipper-based Unix processor board to produce a high resolution graphics and image processing workstation, Picture Processor. Up to eight GIPs can be cascaded to provide 256 display planes; one GIP provides eight planes and has a double buffered frame store of two 1280 by 1024 by 8 bits per pixel. 256 simultaneous colours can be displayed at 60Hz non-interlaced. The Picture Processor comes with Unix System V.3 and I/O is controlled by an integral secondary 80286 processor. The entry level VME-based tower system, based around a single GIP with 85Mb hard disk, floppy drive and 60Mb tape streamer will cost around #90,000. The Whitechapel MG-1 price reductions amount to about 20% of the old price; a fileless node version will cost around £5,825 and a 125Mb hard disk model with 2Mb memory is now £9,750. Cambridge Micro Computers chose the show to launch a Unix-based workstation which the company claims outperforms any of the US- based competition such as products from Apollo and Sun. The VGS Vitesse Graphics Unit uses the 16MHz Motorola 68020 processor coupled with a 68881 floating point unit and a high resolution colour graphics controller. The graphics controller provides an analogue RGB and synchronous output with a 40MHz pixel rate, giving a line frequency of 32KHz, and provides up to 16 simultaneous colours from a palette of 4096. The one-off price for the VGS graphics workstation is £14,950 but reductions are available for OEM volumes.

IBM SHEDS SOME LIGHT ON NEW 6150 DETAILS AND WINDOWING STRATEGY

IBM's view of AIX as the model for its future Unix offerings came a little closer last week with the announcement of a subset of AIX promised for the Personal System/2 - although it is hard to tell how much closer because IBM is not even giving a firm date for announcement of a shipping date. Meanwhile observers are still unravelling the details of some of the features announced with IBM's new 6150 models a few weeks ago, and IBM UK shed a little light on one or two of them recently. One of the more intriguing additions is the distributed services' remote file system, based on the SNA LU 6.2 protocolsand so far restricted to the 6150, although IBM earlier suggested that versions for other IBM systems would follow. Distributed services is, as one would expect, implemented within the kernel of the AIX operating system, uses a client/server model familiar from AT&T's and Sun's efforts, and involvesproviding some extra calls, for instance to determine the status of remote systems. IBM emphasises performance, providing caching at both client and server end of communicating systems. Security is handled by both SNA features, and user and group IDs and passwords. Applications can use distributed services via an IPC message queue facility, which relieves them of the need to know where data resides. The fact that IBM introduced distributed services at all could be interpreted as an omen of its intent to lock users into the SNA fold or alternatively as a decision to go it alone in the absence of a single market standard - and it was naturally the latter that IBM was promoting, saying that the software users a virtual file system architecture claimed to be sufficiently open to allow other schemes to be introduced as the market perceptive becomes clearer. IBM also clarified it position in adopting X Window which it is basing on release 10.4 from MIT. It fills the need for a windowing system on the 6150, and puts a damper on any prospects that the Andrew Windowing software developed for the machine at Carnegie-Mellon University as part of the Scholars Workstation project might appear as a product. IBM, while avoiding suggestions that X is an IBM standard, said that the management focus at the Austin RT development centre is on the use of X and that it was unlikely that alternatives would be adopted. And despite the fact that the market interest over here has not generally been seen to have resulted in shipments, IBM said that the 6150 did better in the UK than elsewhere in Europe in its first year and that sales targets were met.

AMD PULLS AHEAD OF THE PACK

WITH 'WORLD'S FASTEST 32-BIT MICROPROCESSOR'

Advanced Micro Devices, the California chipmaker that specialises in exotic high-speed devices as well as bread-and-butter memory chips, has designed its very first microprocessor - three times faster than any other 32-bit chip on the market.

The comany has "enhanced" a basic, stripped-down Risc (reduced instruction set computer) architecture with concepts from conventional designs to produce the Am29000 Streamlined Instruction Processor. Operating with a 25Mhz clock it can hit a peak execu-tiuon rate of 25 million instructions per second and is capable of a sustained throughput of 17 mips.

It has all the lastest Risc features: a four-stage pipeline; 192 internal registers to cut off-chip memory accesses to a minimum; and a massive 128-instruction branch target cache (to hold alternative lines of instructions after a conditional branch, so the next instructions available on-chip whatever the result). Plus it has a built-in memory management unit complete with protection logic and a three-channel interface channel capable of transferring data at a rate of 200 megabytes per second. The three 32-bit buses use an extended Harvard architecture: an instruction bus to move data on and off-chip; and a separate address bus to provide the addresses for both the data and instruction accesses. (Standard Harvard architecture provides for separate instruction and data/address buses to avoid bus contented bottlenecks. The Am29000 goes one better by providing separate data and address buses, spreeding things up by avoiding the need to multiplex on a shared bus).

The instruction set has been designed to make it easy for optimising compilers to convert C-language source code into compact AM29000 machine code, with some C statements directly hardwired on the chip. The 115 instructions all execute in a single cycle.

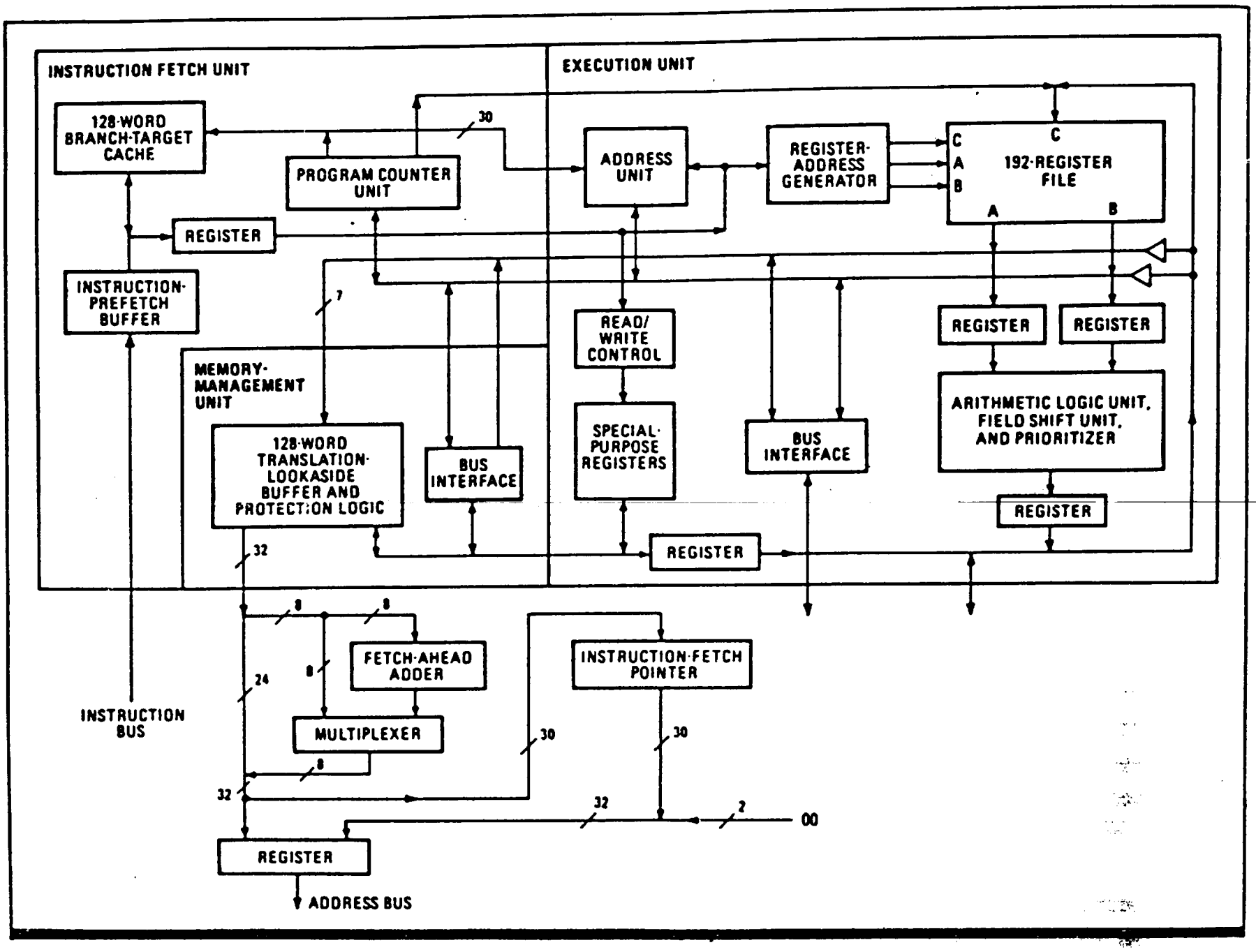
Its companion floating point accelerator, the Am29027, interfaces directly to the microprocessor and performs single and double-precision floating point operations, and integer and conversion operations.

It gains extra speed from its ability to simultaneously handle one single precision operand and one double precision operand.

To help minimise off-chip load/store operations which delay the processor, the 29000 has 192 32-bit gerenal-purpose registers to maintain a file of frequently-used data on-chip. The file is divided into 128 local registers addressed relative to an internal stack pointer, and 64 global registers, addressed by absolute register number. The 128 local registers can be used by compilers as a run-time stack, a process which is claimed to reduce the overhead for many procedures by a factor of five or ten.

The file can also be divided into banks of 16 registers to support very fast context switching: normally , when control is passed from one program to another, the contents of the registers, flags, counters and pointer shave to be saved in memory, and restart the nfew program. On the 29000, all the data for one program can be held in a single bank of registers and switching contexts merely involves loading the data held in a different bank of registers - a process that takes less than 700 nanoseconds. This also allows very fast interrupt processing - interrupting the normal flow of a program in mid-execution and passing control to a subroutine to deal with a high-priority task or real-time event. On the 29000 the interrupt response time has been cut to around 200 nanoseconds.

The chip also has a standard Risc instruction pipline to prepare an instruction for processing and ensure that any required operands are on hand. The pipeline has four stages: fetch, decode, execute and write back. In the first stage instructions are profetched up to four cycles in advance of execution and the next instruction is selected for decoding. During decoding, the previously fetched instructions is decoded, the operands needed are fetched or assembled, and addresses are evaluated for branches or stores. In the execution stage the operation specified by the instruction is performed and in the last stage the results of the operation are stored in the register file.



A go-fater feature of the pipeline is hardware forwarding: when the result of an arithmetic logic unit operation is needed by the next stage, it is forarded directly, by passing the register file where it would normally be loaded first, helping to minimse resource contention and interlocks. But the major feature is delayed branching and the branch target cache. Normally, when a pipeline executes a branch instruction (and they can make up 25 per cent of the code) it has to be stopped, reloaded with the branch target instructions and data, then restarted, significantly slowing down the execution rate. The 29000 avoids this with a combination of a delay instruction and the 128 word branch target cache: after a branch an independent instruction that does not depend on the result of the branch is executed (the delay instruction) and while this is being executed the next instruction chosen by the branch, together with the operands it requires, are fetched from the branch cache and loaded into the pipeline and are ready to be executed in the next cycle, avoiding any delay.

Finally it has built-in memory management with on-chip cupport for a demand paged virtual memory system, allowing the system designer to overlay any virtual memory architecture he or she likes. It has a 128- word Translation Lookaside Buffer which provides 64 sets of 32-bit vitural addresses and their corresponding 32-bit physical addresses, providing a translation in a single cycle.

This is the first excursion into the commerical fixed instruction set microprocessor market by AMD, which made its name with memory devices and the 2900 microprogrammable bit-share building block series. Apart from being used as a superfast 25 mips cpu and in embedded applications, AMD claim the speed and power of the Am29000 "will allow the creation of markets that we don't even envisage yet." As the company spends $160 million on R&D each year, even when, as now, it is running at a loss, it deserves all the success it gets.

MASSCOMP EXTENDS HARWARE OPTIONS AND IMPROVES COMMUNICATIONS SOFTWARE

Masscomp has announced a number of new software and hardware products for Masscomp 5000 Family micro supercomputers. These include new MC5600 and MC5550 hardware options: the MC5600 now supports up to three CPUs; both the MC5600 and MC5550 have new 15- slot package options with power supply enhancements; and both systems can optionally be equipped with the new FPA-2 Lightning Floating Point Accelerator, a choice of new data acquisition modules, and a new Multibus expander box. The latest model of the FPA-1 offers 4 million Whetstone per second performance, and is a new option for MC5450 and MC5550 systems. It can also be used with the MC5400, MC5520, MC5500 PEP, MC5600, and MC5700. The Westford, Massachussetts company also included: a Disk Performance Accelerator (DPA) for 278 MByte disk subsystems which enables 278 MByte disks configured with Masscomp systems to run at their maximum transfer rate of 2 MBytes/Sec within a cylinder; a Data Acquisition Control Software (SP-50 Version 3.3) which has been enhanced to support three new I/O modules, to provide additional clock setup support, and to increase the functionality of the AD12FA High-Speed A/D Converter. A new Ethernet Software SP-70 version permits in-kernel protocols to run on any Masscomp system, and affords higher throughput on MC68020-based systems than previously attainable. The updated SP-75, X.25 software, features a new programmer's interface library of functions, and supports up to 120 virtual circuits per Serial Communications Porcessor, compared to the previous limit of 16 per port. Masscomp systems can support up to two SCPs. The latest releases of MC-CORE, MC-GKS, and Metafile include enhancements to segment storage functions, as well as rearranged, more easily linked libraries, and new graphics driver capabilities. The MC5550 and MC5600 options and enhancements and the new graphics releases will be available in April; Lightning FPA-2 in July; and the other products in May.

ORACLE CORP SAY UNIX NOW MAKING SUBSTANTIAL CONTRIBUTIONS TO REVENUES

In announcing Oracle Corp's third quarter figures to February 28th 1987 the company said that revenues had increased 118% to $34.9m, compared with $16m in the third quarter of fiscal year 1986. The US accounted for around $17.7m leaving the international sales with $17.2m of which Europe accounted for $14m. The UK took $4.6m of the total European revenue and was the highest profit making region. The company says that Unix is becoming increasingly more important and accounted for around 10% of total sales.

BOLT BERANEK TO BUY NETWORK SWITCHING, FORM BUTTERFLY VENTURE

Bolt Beranek & Newman Inc is one of those companies that is far too fascinated by the challenges of pushing back the barriers of technology ever to get really rich, but the gnomic Cambridge, Massachusetts company has put on a big growth spurt over the past three years, and is now set to grow further, albeit at the expense of profits. It is acquiring privately-held Network Switching Systems Inc, formed in 1983 to design and manufacture high capacity digital switches, and as the company is still in the development stage, Bolt Beranek will take the acquisition as a research and development cost, charging $18m to its fourth quarter figures to leave it with a loss for the year to June. It is also paying $10m to buy the partners out of its BBN RS/Expert Limited Partnership, and raising $31m via a private placing for a new Limited Partnership to develop a computer based on its Butterfly parallel processing architecture, offering investors in it warrants for 470,000 of its common shares.

UNITED LEASING RECOMMENDS £51m BID FROM INSPECTORATE INTERNATIONAL

Ian Orrick Director of Racal Redac has left the Racal fold to become managing director of United Leasing. Two of the best known faces in UK computer leasing, brothers Parry and Ashley Mitchell, have agreed to sell their combined 40% stake in United Leasing Plc to Swiss banking, industrial security and property conglomerate Inspectorate International AG and are recommending outside holders to accept the £51m all-cash bid. If, as is likely, the 265 pence a share bid succeeds, it will be Inspectorate's second takeover of a listed UK computer company within 12 months. Last June, it paid £1.65m for lessor and microcomputer dealer CPS Computer Group Plc. The proposed acquisition will add a company with an annual revenue for the year to March 31 1986 of £242m - pre-tax profits of £4.4m - to an already extensive leasing operation that includes Meridian, like United's Unilease subsidiary, one of the top 10 US computer lessors.

JJJ ON SCHEDULE TO SELL $3m OF FORTUNE SYSTEMS - NOW SCI OWNED - BY '89 END

JJJ Inc, formerly Jones Business Automation Center, has announced that it has been nominated "Master Dealer of the Year" in the Southeastern United States by the sales and marketing staff of computer manufacturer Fortune Systems Corp of Belmont, California. The award was announced by Fortune Systems' district sales manager Rudy Prater from his office in Atlanta. "Since re-signing as a master dealer in December 1986," noted Prater, "JJJ has done an outstanding job. JJJ of Charlotte, North Carolina sold 115 new Fortune Systems in its statewide territory during 1986. This puts JJJ and its president Jim Jones well ahead of schedule in their program to sell $3 million of Fortune Systems by December 1989."

INMOS ADDS SECOND DISTRIBUTOR IN JAPAN

Prospects for Thorn EMI's problema-tic Inmos International chip shop have improved immeasurably over the past year, and that $20m or so contract with IBM for Colour Look-Up Table chips is expected to be followed by pentration of the high- performance engineering workstation market with the new Transputer-based mathematics co-processor, which may well turn up in future offerings from the likes of Sun Microsystems and Apollo Computer. And now the company has moved to extend its position in the semiconductor Mecca, Japan, signing a second dis-tributor alongside Matsushita Electrical Trading. The new distributor is Daiya Semiconductor Systems, a member of the Mitsubishi group, and Inmos looks for the new agreement to double its 1986-87 sales of $3.5m in Japan in the fiscal year just started. Daiya was picked for its extensive sales network that already handles the Intel 80386: the Inmos chips are seen as complementary to the Intel parts, and after IBM's endorsement, are likely to turn up in Japanese personals.

NIPPON UNIVAC TO MERGE WITH BURROUGHS JAPAN

Following creation of Unisys Corp, Nippon Univac Kaisha, in which Mi-tsui Co holds 34.21% and Mitsubishi and Oki also have about 2.5%, is to be merged with 100%-Unisys-owned Nippon Burroughs Co in Japan, probably in July, but definitely by year-end. The Mitsui holding in Nippon Univac complicates the situation, as does the fact that the company is quoted on the Tokyo Stock Exchange, which is why the merger was not effected immediately. Nippon Univac is much the lar-ger company - the 1100 is a major product in Japan, and is now manufactured there, as is the System 80 line, and annual turnover is about $919m; that compares with $555m for Burroughs Japan - although the latter has nominal capital of $75m against only $25m for Nippon Univac. The merger will create a new, quoted Nippon Unisys in which the Japanese partners - or at least some of them, will retain a stake.

NEW BULL DPS 7s: ONE YEAR WARRANTY, GRADED SOFTWARE TAGS?

The new line of low-end DPS 7 machines promised by Bull may be pitched at the DEC VAX line as much as at IBM's 9370, observers claim, suggesting that the company may not only use a graduated GCOS 7 software pricing policy according to the size of the processor to match the system initiated by IBM with the 9370, but that, like DEC, it may also offer a one-year free warranty on maintenance with the new machines. Observers suggest that there will be five models in the field-upgradable line, which is designed to be used in an office environment, and that it will offer a bottom- to-top performance range of some six to one. The machines, which ~~are due to be launched worldwide on April 6, may also be~~ baptised with a new name, with the DPS 7000 tag favoured, tying in with Honeywell Italia's DPS 4000 successor to DPS 4.

INTEL "SET WITH 80386 PLATFORM FOR CAD, CAE"

Nothing like sleuthing at exhibitions for stumbling upon unconsidered trifles, and Electronic News turned up an unannounced Intel system based on a 16MHz 80386 on the ComputerVision stand at a show last week. The machine, clearly intended as an OEM platform for computer-aided design and engineering systems, is IBM AT-compatible with eight slots - two 8-bit, four AT and two 32-bit, 80287 co-processor, floppy and hard disk controller and EGA graphics for up to 1,024 by 832 on a 19" screen. It is expected to be under $6,500 with 1Mb CPU and 40Mb disk.

HITACHI, FUJITSU SET 20 MIPS 32/300 TRON CHIP FOR 1988

~~The first generation 32-bit microprocessor optimised for~~ Japan's Tron - The Real-time Operating Nucleus - won't be ready until the end of the year, but already the two partners on the chip, Fujitsu and Hitachi, are looking ahead to a second generation version of the part that is being designed to run at 20 MIPS. The first generation, dubbed either the H or the F32/200, depending on whether you get it from Hitachi or Fujitsu, is set for sampling at the end of the year, and has been designed to deliver 10 MIPS, topping the 7 MIPS rating put on the forthcoming Motorola 68030 that Toshiba will be manufacturing in Japan. The part will be offered to support Cobol under Unix System V as an alternative to ITron, which is the version of Tron that has been tailored for industrial applications. The second generation 32/300 will have an enhanced pipeline architecture, on-board virtual memory manager and a gigantic 4Kb on-chip cache, and will be fabricated in CMOS to one micron design rules.

unigram·x
Published in co-operation with the European UNIX™ systems User Group

Sun Microsystems Inc has filed with the Securities & Exchange Commission to issue up to 677,265 new shares in connection with its proposed acquisition of **Centram Systems West** of Berkeley, California.

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Bolt, Beranek & Newman Inc have filed with the US Securities & Exchange Commission to issue $75m of convertible debentures due 2012 and will use the cash for its Network Switching Systems Inc and BBN RS/Expert Limited Partnership acquisitions; lead underwriter is Paine Webber & Co.

- o -

Xylogics Inc has launched its initial public offering of 1m shares, 750,000 of them new, setting a price of $16 a share. The manufacturer of disk and tape controllers wants the $11.5m or so net proceeds for automated manufacturing, testing and engineering equipment, to expand its facilities and for general purposes. Lead underwriters to the issue were Salomon Brothers Inc and Cowen & Co.

- o -

Although initial versions of **National Semiconductor's** NS32532 microprocessor will be in 2 micron CMOS and clocked at 20MHz, the company says it intends that production parts will be in 1.25 micron CMOS and have a 30MHz clock; the part will initially be offered with the NS32381 arithmetic co- processor for applications that need one, but a higher-performance part will be announced later this year.

- o -

General Automation Inc, Anaheim, California, has completed the acquisition of **Parallel Computers.**

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Silicon Graphics, based in Newbury, Berkshire over here, has a new finite element analysis and modelling program, called Ansys, for its Iris workstation family: Ansys generates two- and three-dimensional hidden line or section plots with such capabilities as multiple windows, zoom and perspectives, and supports a variety of analysis types including static, Eigenvalue, buckling, mode frequency, non-linear transient dynamics and heat transfer.

Minigrams

The twelth and latest member of the **Sphinx** -led International Consortium for Unix Software (ICUS) is **Systems & Management** of Milan, Italy: Systems & Management is a software development and consultancy company that will now market and support Unix and Xenix- based software throughout Italy.

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Sphinx has also said that ICUS will have **Redwood International** products in its portfolio of Unix/Xenix software.

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Pyramid Technology intends to be the first vendor to provide mainframe-class database performance wity SQL-standard relational databases on the "more cost-effective superminicomputers" and to this end has announced partnerships with **Oracle Corp** and **Relational Technology Inc** and a joint marketing relationship with **Information Builders Inc.**

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Separately **Oracle Corp** has also signed a joint marketing agreement with **Sequent Computer Systems.**

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Sun Microsystems expects to complete the transaction concerning its acquisition of Centram Systems, which is subject to certain closing conditions including approval by Centram shareholders, is expected to close this month.

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Docugraphix Inc, Cupertino, California has announced an automated documentation and management system for Apollo Computer Inc's family of Domain workstations: the new system called Adam, is described as a full integrated technical documentation creation, revision and management system with applications for composition, revision management and control, drafting and technical illustration, linked to a bill of materials processor; configured systems start at $29,000 and shipments are set for this quarter.

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Point 4 Data Corp of Tustin, California has announced Release 9 of its proprietary operating system, Iris, which UK distributors, Wednesbury, West Midlands-based Isis and Stockbridge, Hampshire-based Aspin Management Systems say "is poised to take on Unix": Isis says that Iris is more portable than Unix, it is based on Risc architecture and can execute an instruction in one machine cycle compared to 7-10 for Unix.

Counterpoint Computers based in Slough, Berkshire in the UK will be demonstrating Remote File Sharing (RFS) under Streams on its System 19K Unix-based machine at the European Unix User Show in May.

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Specialix Systems Ltd has announced a marketing agreement with Sphinx Ltd for Sphinx to market Specialix's Chase AT8 intelligent multi-user controller for PC ATs and compatibles.

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Computer Hyphenation Ltd has developed Hyphenologist which is a new adaption of a family of long- established word-splitting algorithms integrated into a subset of the C programming language: the company, with technical director based in Bradford, claims that the product will perform hyphenation in English, French, German, Dutch/Afrikaans, Italian, Spanish, Portuguese, Norwegian, Swedish, Finnish, Danish, Greek, Russian, Serbo-Croat, Hungarian, Czech and Polish.

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Sequoa Systems has has announced that it has completed an implementation of Pick and Unix to run on its Series 100 fault- tolerant on-line transaction processing system.

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Esprit Systems Inc of Melville, New York has launched a new version of its DEC VT220 compatible terminal saying that there is a lot of demand for the product in the non- DEC market and attributing this largely to Unix.

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Intergraph Corp has assured customers that the shortage of Fairchild Clipper processors is at an end: the number of Clipper chip- sets at Intergraph each month is put at around 500 of the units.

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Masscomp has announced formally that it now supports the proposed Window Management Standard - X Window: version 11 of X will be ported to all the MC5000 systems.

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Altos Computer Systems is boasting that it now has over 900,000 Xenix-based systems installed worldwide.

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Unisys Sweden has given the local subsidiary of **Unixsys SA** 1 million Swedish Krona (£100,000) to change its name - and the UK subsidiary of Unixsys in Warrington has lodged a complaint with Companies House about the similarity of the two names.

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PRIME EXPECTED TO TAKE UNIX NETWORKED APPROACH

The UK launch of Prime Computer Inc's engineering workstation (UX No 121) is expected to be part of a networked Unix product line which will also feature a minisupercomputer, available later this year, from Cydrome in which Prime has a stake. The products are expected to be compatible with existing Prime machines in that Prime minis will act as servers. Prime has also been forced to introduce two new minis in order to compete with DEC's latest offerings. Prime is entering the price performance war with the 6350 and 6550 expected to run a hosted version of Unix, Primix, under Prime's proprietary operating system, Primos. Available in June the first machine will be the Prime 6350 which boasts 11.8 MIPS which the Natick, Massachusetts company claims makes it as fast as DEC's fastest machine and faster than any of Data General's offerings. The new 6550 will use two of the 6350 processors and cosequently has a 23.6 MIPS rating. The 6550 will be available in the fourth quarter of this year. The 6350 will have an entry level price of $549,000 and the 6550 will cost $804,000. Prime is also expected to introduce a workstation based on the Intel 80386.

CONVERGENT HAS FULL UNIX SYSTEM V.3 IMPLEMENTATION

Convergent Technologies Inc has announced just about the first third party implementation of full Unix System V.3, complete with AT&T's RFS Remote File Sharing and an internally-developed Streams- based TCP/IP transport protocol. Called CTIX 6.0, the Convergent offering for its 68020-based OEM processors, also implements Sun Microsystems' Network File System, NFS, with both Streams and Berkeley Sockets network interfaces, and an array of IBM and Open communications implementations. These comprise SNA LU 6.2/PU 2.1 emulations, Document Interchange and Content Architecture, SNA3270, RJE and bisync, and X25, X28, X29 and X3 protocols.

SOFTWARE HOUSES REASSURE USERS ON PERSONAL SYSTEM/2 COMPATIBILITY

The Santa Cruz Operation already has its Xenix 286 operating system up and running on the IBM Personal System/2 Models 50 and 60 and will have its Xenix 386 ready to go on the 80386-based Model 80 when it becomes available late in the third quarter. SCO's standard version of Xenix 286 release 2.2 was demonstrated on the 50 and 60 models, generally available in July, at the conference that accompanied the IBM announcement. Separately Microport Systems Inc, which has recently set up in Colney, Hertfordshire, has also leaped into the breach, announcing that its full line of Unix and PC- DOS-under-Unix operating systems will be available for the Models 50, 60 and 80 - notably the company's new System V/386 implementation of Unix for the 80386. And Microsoft Corp plans to enter the network operating system market with OS/2 LAN Manager later this year: Microsoft adds that it will be fully compatible with previous revisions of Microsoft Networks for both MS-DOS and Xenix.

MICOM-INTERLAN HAS DIRECT ETHERNET LINK FOR UNIX V/386

A hardware-software combination designed to enable 80386-based microcomputers running under Unix System V.3 to connect directly to Ethernetworks has been introduced by the Micom-Interlan Inc Boxboro, Massachusetts subsidiary of Micom Systems Inc. The $1,390 NP622 package combines the NP600 protocol processor board with TCP/IP - Transmission Control Protocol/Internet Protocol - software from Excelan Corp. Micom Interlan developed the product in collaboration with Interactive Systems Corp of Santa Monica. System V.3 includes the Streams communications feature, and the Micom product will make connection to Ethernet transparent to the user, and developers will not have to write custom interface software to make the connection to Ethernet.

BENCHMARK GETS DTI SEAL OF APPROVAL

benchMark Technologies Ltd of Kingston-upon-Thames in Surrey has been awarded a £250,000 grant by the Department of Trade and Industry for the development of its workstations.

IMP INTRODUCES SINGLE BOARD COMPUTER FOR OEMS

Integrated Micro Products has introduced a single board computer, JT Board, that it claims will meet any conceivable OEM requirement and claims advance orders worth around £1.5m. The JT Board is a densely packed single board computer based on the Motorola 68020 processor, running at 16, 20 or 25MHz, on which it is possible to piggy-back dozens of personality modules. The first modules available is for memory management using the 68851 PMMU, additional serial I/O, fast disk I/O, additional memory, and prototyping so that OEMs can develop their own daughter boards. More modules are currently being designed. The system also includes an optional floating point co-processor, up to 4Mb dual ported dynamic RAM, with full parity protection, up to 2Mb EPROM, and two serial ports. The company claims that by adding personality modules an extreme configuration could provide a further 16Mb of parity protected on-board RAM, 14 serial I/O lines and a high performance SCSI controller using another 68020 processor. The JT single board computer will initially run Root's port of Uniplus V.2.2 but work is underway to port Unix System V.3. OEMs are expected to use the board as a CPU or stand-alone system for graphics workstations, commercial systems and industrial controllers. IMP has made allowances for manufacturers wanting to implement the board into a parallel processing system by including a bus throttling mechanism. IMP claims that its work, past and present, will help them to build a one of the first Unix computers based on the announced but not yet available 68030 processor.

JAPAN GETS BITTEN BY THE UNIX BUG
- OR IS IT JUST A STEPPING STONE TO TRON?

Despite the gathering commitment to the original Japanese Tron operating environment, 1987 is widely seen as the year when Unix really takes hold in Japan. A survey conducted by **Denpa Computer** earlier this year found top commentators describing the the Unix market as a sleeping giant still, most notably because of the dearth of business applications (where have we heard that before?). However, they say, 1987 will bring two significant events. The first is the launch on the market and rapid take-up of 32- bit systems, in particular the workstations developed under the Sigma Project. The Sigma operating system is based on Unix, and a total of 50 of the workstations were shipped to the project organisers by seven of the leading Japanese hardware manufacturers in the middle of February. The second is increasing use of networking software (including cheap imported software) and interfaces to create a complete Unix environment regardless of machine size. There are many Unix applications already in use in the engineering field, but third party software houses writing business-oriented applications are waiting to see what the mainframe vendors do, and in particular how successful Hitachi is in selling its 2050 workstation series.

Control applications

Among the companies prominent in the Unix field, **Software Research Associates**, a pioneer in the commercial application of Unix using the Berkeley version running on the DEC VAX, has been using it since 1980. It has evolved software development methodologies and tools - and is the Japanese agent for several overseas packages, including the venerable British Filetab program. It uses Unix is all control applications and for the year just ending looks to report sales of about $66m.

It has several unreleased Unix products, including a design tool that is a sort of electronic jotter pad for ideas. **Image Partners** is a software house specialising in business packages, and is committed to making Unix easier to use. It offers a set of Unix products called Image- Shell, Image-Report, Image-Base and so forth.

System Network is the Japanese agent for Unify, and has created a Japanese version of the relational database; it claims to have sold 30,000 copies between 1982 and 1985, giving it top spot in the Unix database market with 52.5%.

Engineering, business

Hitachi Ltd is planning to use Unix as the base of an integrated offering combining both engineering and business products. It offers HI-UX/M for the M-series mainframes, Uniris for the EWS7000 series, and HI-UX for the new OWS2050 series. The 2050 is aimed at both the data processing and office automation users and the Unix implementation is extended with more accessible user interfaces for multi-windowing, Japanese language and communications functions. It also supports artificial intelligence tools such as ES/Kernel, and runs Prolog. The 2050 can also be used as a server for a network of personal computers via RS232 interfaces. It is to be sold through 11 value-added- resellers, in a novel approach to marketing in Japan, and the arrangement will later be extended to 100 resellers. Third party software houses will be developing applications for it and already 50 products for the 2050 and 40 for the 2020 have been registered. The machine with monochrome 720 by 520 screen, 1Mb CPU, mouse, Centronics parallel, five serial including two RS232 ports, and SASI disk controller is $2,700. With a 1,120 by 780 colour screen it comes it at $3,300.

Fujitsu started shipping Unix products in September 1985. It offers Amdahl Corp's UTS/M on its M series IBMulators, and sold 50 copies in the fourth quarter of 1986 alone. It offers UTS/S on its S3000 series, SX/A on the Panfacom PFUA-30 minicomputers, and SX/AU on the A-200UX Unix workstation due out this month. Fujitsu's various Unix implementations include both AT&T System V and Berkeley BSD 4.2 features.

Ricoh Co has been the Japanese agent for AT&T's 3B Unix supermicro and minicomputer line May 1985, and in January this year started selling the low-end Starlan local area network, and looks to sell 300 this year. It will be adding an internetworking gateway called ISN this summer.

Rikei has been a long-time distributor of DEC VAX machines, but last year added the Multimax multi-processor machines from problematic Encore Computer Corp to its line.

Nippon Masscomp has been marketing the Masscomp MC5000 series of scientific real- time Unix machines in Japan since last year, offering them with Communications Machinery Corp's Ethernet Node Processor. **Nippon Sun Microsystems** is the 100% subsidiary of Sun Microsystems and was formed just over a year ago to sell the 68020-based Sun 3 stations through OEM customers, value-added resellers and distributors. The Suns, also the subject of a major OEM contract with **Toshiba Corp**, are used in Japan for software development, computer-aided design and manufacturing, and delivery of artificial intelligence systems. Japanese language processing will be available on Sun 3s this year.

Sign of the times

Mitsubishi Electric, in a firm sign of the times and indicator of the prevailing wind in Japan, last week launched three new 32-bit models in its long-standing Melcom 80G series of office computers - the 10G, 30G and 40G - and offered them with a new operating system, DPS10, which once again is based on Unix. It will be the preferred operating environment on future models of the family. Peripherals include a 300 lpm Kanji printer, and the machines, on five-year contracts, range in price from $680 a month to $2,600 a month. Mitsubishi looks to sell 75,000 over three years.

Ascii Corp, Microsoft's former Japanese partner and now a $100m a year company, is also deeply involved in Unix, in particular development of the Kanji version. It started offering Kanji Unix BSD in 1984 and sold 50 copies in 1986. It started selling the Informix relational database in 1985 and has sold 2,000 copies. Ascii is pushing Sun's Network File System and is wavering over whether to pick X Window or NeWS for windowing. But Ascii sees Unix merely as a stop-gap on the way to the all-Japanese Tron operating system, which now comes in a multitude of applications-specific variants - B-Tron for the office, C-Tron for communications, E-Tron for education, I-Tron for industrial automation, D-Tron for applications development....

AT&T UNIX EUROPE CLEANS UP V.3- INCLUDES TRANSPORT INDEPENDENT RFS

With 25 source licencees under its belt for System V, Release 3.0, since its launch nearly a year ago, out of a European System V claimed customer base of about 150, AT&T Unix Europe has announced Release 3.1. Basically a maintenance release, V.3.1 tidies up a few rough edges, and is said to improve performance as well as bringing in new facilities. After Remote File Sharing had been touted as the general Unix solution for distributed data access since its release with V.3, the rather unfortunate discovery was made that it relied on the assumption that the underlying transport layer could provide message boundaries, which restricted its use to certain transports. V.3.1 is said to sport the new, transport independent version of RFS, and also features RFS performance improvements with optional caching on RFS client systems. Several utilities have been rewritten, including awk and the curses library of terminal handling routines which is now smaller and faster, according to UEL. Other performance improvements include user area paging. And AT&T has, at last, begun to introduce internationalisation features to System V: it says that V.3.1 will handle 8- bit character sets, and different date/time formats. As expected when V.3.0 was released, it has taken a considerable time both for manufacturers to announce V.3 implementations, and for support for Streams- based protocol modules to appear. With suppliers now beginning to show TCP/IP implementations, a variety of others are under development from third parties including MS-Net and OSI/MAP, with OSI and TCP likely to appear in various board-level and in-kernel forms. AT&T also has plans for a higher level interface for applications than the current ISO layer 4-equivalent Transport Layer Interface. The key feature of this will be an application layer interface that combines features of IBM's SNA LU6.2 and the ISO CASE; applications written to either will, tyhanks to Streams, be independent of the underlying protocols, but will be able to get at features of whatever is underneath - SNA services for instance. AT&T's progress on this appears to be largely dependent on the work of standards bodies including ISO and X/Open; it doesn't appear to be just round the corner. One feature conspicuously still missing from V.3.1 is an AT&T-Sun Microsystems agreement on what to do about compatibility between RFS and Sun's Network File System. The intention is that they should be able to coexist, and one prime area of incompatibility is at the virtual file system level: AT&T's File System Switch, Sun's Vnode. AT&T left FSS "undocumented and liable to change", but the two companies still have not resolved the problem. Andy Rutter, technical director of The Instruction Set, which distributes NFS in Europe, said however that the company has managed to implement versions of NFS that use the FSS for some customers.

NCR-ADDS WORKING ON PICK ALONGSIDE UNIX FOR NCR TOWER

Up to now, Applied Digital Data Systems, the Hauppauge, New York display manufacturer just diversifying into microsystems when it was acquired bought by NCR Corp in 1979 after a bitter bid battle with Mitel Ltd of Canada, has maintained such a sturdy independence from its Dayton, Ohio parent that the relationship has been well-nigh invisible. ADDS has ploughed a successful furrow of its own with the Pick operating system running mainly on machines built around the unfancied Zilog Z8000 chip - but reports from the US say that all that is about to change. ADDS is now working on an implementation of Pick that will run side by side with Unix System V on the NCR Tower line of 32-bit 68020-based supermicros, notably the top-end Tower 32/800. No word on when the product is likely to be ready, but it should give a useful extra string to the bow of Electronic Data Systems Plc, the Sheffield company that assembles the ADDS machines for the European market and is set to move up to the Full List of the London Stock Exchange after just two years as a public company.

SAS SET TO TAKE ITS TRADITIONAL IBM MAINFRAME "SYSTEM" INTO UNIX ARENA

The first Unix implementations of one of the IBM mainframe world's most widely installed packages will be available later this year. The 450 attendees at SAS Institute Inc's European User Group meeting in Montreux, Switzerland last week were told that HP-UX - for the Hewlett-Packard HP9000 - and Ultrix - for the DEC VAX range - versions of the SAS System would be available by the fourth quarter at the latest. The SAS System, which SAS claims has been bought by 60% of sites running IBM's MVS batch processing operating system, was originally designed as a statistical tool for the agrochemical and pharmaceutical industries but has since been extended to cover a wide range of data analysis including computer performance, financial planning, operations management, quality control and forecasting. It also offers fourth generation language applications development and prototyping capabilities, and, crucially for report writers, device intelligent colour graphics that were much praised by users at the Montreux meeting. The SAS System consists of a base product, priced according to the MIPS rating of the computer up to a maximum of £9,500 for the first year and £4,000 for subsequent years, and various add-ons that provide full screen facilities for on- line development; full screen data entry and verification; multiple concurrent batch or interactive access to data libraries; and interfaces to other software packages such as IBM's DB2 and SQL-DS interfaces. Like the base product with which they are fully integrated, the add-ons are written in C. As a result, the company says, further Unix implementations depending on demand could be delivered fairly soon after the HP-UX and Ultrix versions. The SAS System already runs on the DEC VAX under VMS, and under IBM's VM/CMS development environment, Prime Computer's Primos, Data General's AOS, and on IBM-compatible personal computers. In the IBM mainframe environment, several vendors, most noticeably Morino Associates and Merrill Associates, have introduced performance monitoring products that require the SAS System base to run.

MOTOROLA OFFERS 4Mb 68020 OEM BOARD FOR $2,250

Motorola Inc has introduced a short cut for those wanting to implement Unix systems on the 68020 microprocessor with a single VME board, the MVME134 that offers 16MHz 68020, with 68851 paged memory management unit, 4Mb of shared memory, and 2Kb of battery-backed static RAM, with four 28 pin sockets for any type of read-only memory chip. Another new board product, the MVSB2400, from Motorola supports the VME bus subsystem but also reduces the amount of circuitry room required by 20%, the company claims. Also launched were the first two new designs, the MVME135 and the MVME136, in a series of boards. The MVME134 boards cost $2,250, quantity unspecified, and will be available in June. A MVME134bug diagnostic and debug software package is $500 from July. Available in the US only the MVSB2400 costs around $300 and will be available in July. The MVME135 32- bit monoboard is priced at $3,934 and the MVME136 at $4,256.

BULL, AFFILIATES LAUNCH DPS 7000 DEPARTMENTAL LINE

Bull and its Honeywell Bull affiliates in the US, the UK and Italy duly launched the DPS 7000 line of low-end departmental processors in the French-designed GCOS 7 line of mainframes. The line consists of five models - 7000/10 to 50, each a uniprocessor built in 2 micron CMOS gate arrays having 22,000 logical gates per chip, over 60,000 transistors. Designed around a central memory bus 130 bits wide - 32 for data, 28 address lines, the rest for system functions - running at 27Mbytes per second, the system implements a five-stage pipeline. The machines have an enormous cache memory for their class of 64Mb, and the central processing complex of five processing elements is supported by separate input- output processors with an aggregate data rate of 25Mbytes per second. The entire complex is under the control of a Service Administration Processor. Main memory extends to 16Mb, and the DPS 7000 is pitched against the DEC VAX 8200 to 8650, and the IBM 9370s. Bull claims that the 7000 Model 40 outperforms both the IBM 9377/90 and the DEC VAX 8530. In comparison to the low-end DPS 7 models that are replaced, the Model 20 is rates at 50% to 80% faster than the DPS 7/307. The machines run the GCOS 7-AS operating system and are inter alia designed as remote processors to an IBM 370-type host. They support the Oracle relational database manager and offer direct communication with MS-DOS Personalikes supporting Oracle. Deliveries begin immediately, and a DPS 7000/20 with 8Mb memory, two 500Mb disk drive, 1,600 bpi tape streamer and one communications processor with three synchronous lines is about £91,800. The power range from bottom to top of the DPS 7000 line is estimated at about six to one. A 7000/40 with 8Mb, four 500Mb disk drives, 6,250 bpi tape streamer, 700 lpm printer and one communications processor with seven synchronous lines is £205,000. Bull offers one year's free maintenance; ships in France have begun.

NEC PREVIEWS INTELLIGENT STRING SEARCH PROCESSOR CHIP

We're going to be hearing a lot about neural networks and associative memory chips over the next few months and years, for they are likely to be the building blocks for computer systems that are already beginning to exhibit an almost chilling degree of machine intelligence. At the International Solid State Circuits Conference last month, AT&T Co des-cribed a neural network associative memory chip in CMOS that implements an algorithm based on a biological neural network that can recall 10 vectors within the memory in 500nS. The chip includes 54 amplifiers and 6K-bits of static RAM, and programmable interconnections, and integrates 75,000 transistors in 2.5 micron CMOS. But the Japanese are galloping down the same road, and Microbytes Daily reports that NEC has prototyped an Intelligent String Search Processor - an application-specific neural network chip. The NEC part is designed to search text for a specific character string, including vague strings - fuzzy matching. It compares text one character at a time against a pre-stored character string, at a claimed speed of 10m characters a second. Up to 64 character strings can be stored, with each string a maximum of 8 characters long. Each character is expressed with 16 bits to enable the system to support Kanji searches and input text is compared with the 64 stored strings in parallel. It tolerates poor spelling by signalling a near match when it sees one. The NEC chip is made up of associative memory and what the company calls a non-deterministic finite automaton structure. The target character string is stored in associative memory, and then a single character of the text to be searched is compared simultaneously with all target strings in memory. If there is a character matching the input character in the associative memory, a match signal is generated internally and sent to the Finite Automaton structure, which compares the stored characters and the input characters sequentially. When the entire string matches, a "complete match signal" is output. Other operational modes such as "don't care" - acceptance of extra characters in the character string, and "anchor" - separation of words with delimiters such as commas and spaces, are supported. NEC will enhance the chip by increasing the size of the associative memory and adding on-chip macro commands, and looks to have something on the market in about two years.

CONCURRENT ANTICIPTES FUTURE TRENDS IN TRANSACTION PROCESSING

Concurrent Computer Corporation has answered Big Bang by souping up its Reliance Plus on-line transaction processing and relational database management system. Reliance Plus runs on Concurrent's 3200 series of minicomputers which runs the company's Unix-based operating system OS/32. Concurrent says that in order to participate in the competitive deregulated market high volume, high security, and high availability transaction processing. To this end Concurrent's enhancements include: access to remote databases; initiation of remote transactions; distributed security systems; extended terminal support; program interfaces to transaction processing and relational database; and record selection using SQL-like commands. The company adds that networking support now uses the standard transport service layer of the OSI model.

ICL TRYING TO COVER ALL THE ANGLES TO ATTRACT DEC AND IBM CUSTOMERS

Having been pushed into offering industry standard operating systems for its DRS range of distributed micros, ICL is now making a virtue out of a necessity saying that by mid-87, it will be able to offer users an unparallelled choice of systems and services available from a desktop workstation.

The top of the range, DRS 300, was announced last March and the company claims around 5000 sales for it. The DRS range just used to run a proprietary operating system, DRX, but last year the DRS 300 was brought in with an industry standard operating system, Concurrent DOS, and last week Unix, DRS/NX, was announced as another option for the DRS 300. ICL also intends to release a range of software products for the DRS 300 to coincide with the launch of the Unix operating system on the machine such as Informix, Seachange, Staffware and a C compiler. Just prior to the Unix Users Show, in May, ICL will be giving away more details on its Unix-based software and strategy for the Clan range.

The launch of the DRS Professional Workstation, a single-user multi-tasking machine, added another string to the ICL operating system's bow because it will be available with MS DOS 4.0 which has an extended memory of up to 4Mb. In September of this year the Professional Workstation will have MS DOS 4.1, the result of a collaboration between Microsoft and ICL, which is a special ICL variant of MS DOS which will address an extended memory of up to 16Mb. The DRS PWS will typically be linked into a DRS 300 microlan terminal network or to a mainframe using OSI communications facilities. ICL reckon that they have stolen a march of around nine months on IBM in addressing the same area as IBM's new Personal System/2 by having the PWS available this July compared to IBM's earliest delivery of next January and say that it will offer a version of IBM's OS/2 - when it is actually a product. In the DEC arena ICL that the PWS is roughly equivalent to the new VAXstation 2000 but ICL feels that its workstation will be a more competitive offering in the office environment mainly because of the MS-DOS operating system and the software that runs on MS-DOS.

With a long term goal of listing exports to over half of ICL sales the company was stressing this week the fact that it now realises the UK is part of Europe but currently 35% of its revenues out of 70% overall in continental Europe still come from the UK. President of ICL's international operations, Tomo Razmilovic, says the new machines are expected to bring in £100m in revenues outside the UK over the coming year.

INTEL ENDS PACTS WITH AMD; MATHS BUG ON 80386

Jerry Sanders' efforts not to tread on the toes of its second source microprocessor partner Intel Corp with his new Am32000 chip have proved to be of no avail - Intel announced Friday that it had notified Advanced Micro Devices that it is terminating the agreements under which AMD manufactured the 8086 and 80286. AMD is taking disputes on the agreement to arbitration. Intel also says that not all 80386 chips perform a 32- bit maths function correctly; the bug does not affect MS-DOS programs. (A report on Jerry Sanders hopes for the new Am32000 will appear in a future Unigram.)

"UNIX IN THE UK" REPORT SHOWS MAJORITY HAPPY WITH UNIX, SOME NOT SO WITH SUPPORT

Unigram/X is in the final throes of producing its report "Unix in the UK", due for delivery in time for the Unix Users Show in May. The report is intended to give Unix watchers a clear idea of the current state of the market in the UK: which machines are being used; which Unix versions; the most popular software applications; how much people are spending on Unix-based systems and how much they intend to in the future; staffing and training levels and effectiveness; and how good the support is from the various manufacturers. Although analysis of the information is not yet complete the report shows that the majority of users rate the contribution of Unix to their company very highly. About a third of the Unix community interviewed said that they would be buying additional hardware within the next twelve months and that most of their expenditure was on hardware and peripherals rather than software. Some suppliers scored well in support levels but there have been some notable exceptions. Anyone interested in ordering a copy should contact Bill Carey-Evans on 01 439 1632.

NIXDORF FORMS MANUFACTURING GROUP IN STUTTGART; 2,000 NEW JOBS THIS YEAR

Nixdorf Computer AG has reported another year of seemingly effortless success - but one thing that can be said for certain about the Paderborner is that its continuing success is anything but effortless, and is born rather of relentless hard work, patient base-building and attention to detail. For 1986, the company has reported consolidated net profits up 29.1% at DM222.4m on turnover up 14.5% at DM4,510m, of which parent company sales accounted for DM3,790m, and net profits rose 22.6% to DM201m. The company plans to create 2,000 additional jobs in 1987 - and is already halfway there with 1,000 more on the payroll. Nixdorf also announced the creation of a Computer-Integrated Manufacturing systems development and sales centre in Stuttgart. In the UK, where Nixdorf struggled for years to win any market recognition at all, the company has just announced an order worth up to £3m.

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Minigrams

Having pocketed Parallel Computers Inc , Santa Ana, (UX No 123) General Automation Inc has got the taste for acquisitions, and has won shareholder approval to build a big paper war chest with which to shoot down potential targets: shareholders in the Anaheim, California Pick-popper, which currently has just 5.4m shares outstanding, agreed a tripling of the number authorised to 30m, as well as creation of 10m of a new class of preference shares.

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Despite brave words from Apollo Computer Inc that it has nothing that competes directly with Sun Microsystems' 3/50M - on which the Mountain View, California company slashed prices 36%, and that it has no present plans to cut prices, it is likely that the Sun move will force a response: immediately most exposed by the Sun move is probably DEC with the VAXstation 2000, and the company is going to have to decide whether it is going to mix it in the $5,000 market with Sun or try to remain aloof from the fray with high prices for higher performance; Sun says its plant "is primed so we can pump these out like cookies".

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Hot on the heels of its agreement to acquire most of Fortune Systems Corp, SCI Systems Inc , Huntsville, Alabama has agreed in principle to buy the assets of Team Semiconductors Pte Ltd of Singapore, which does custom packaging, assembly and testing of integrated circuits and says it will combine the business with its own Singapore operations.

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Pyramid Technology says that it will have SNA communications capability within the next two quarters and also intends to develop its own version of Cobol to take advantage of its RISC architecture: the company currently uses Austec's Ace Cobol which is conformant with the ANSI 74 standard but Pyramid intends to develop its version to the latest ANSI 85 standard.

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A small British company, Cambridge Micro Computers Ltd , is hoping to take on the likes of Sun Microsystems and Apollo in the 32- bit graphics workstation market with its VGS Vitesse Graphics System: the product which has a one-off price of £14,950 is based on the 68020 processor with the 68881 co-processor and has a 19" colour monitor with 1024 by 800 pixel resolution.

Kalamazoo 4-front Computer Services has ported the Appgen applications and development tools package to the IBM 6150 to run under the AIX implementation of Unix.

- o -

Unify Corp has introduced a new version of Unify DBMS, release 4.0, which includes Turbo/SQL; picture, speech and other data type handling; availability in eight European languages; and improved performance and reliability: the product will be avialable during the last week of April for the IBM PC AT running Xenix, the NCR Tower series, Altos 286, DEC VAX running Ultrix, Pyramid machines, and Sequent machines for a price of between £1,000 and £5,000.

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Additionally Unify has announced an Extended Programming Environment which combines the company's implementation, which it says is the fastest and most powerful embedded SQL for any DBMS, and its Direct Host Language Interface.

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Masscomp has launched a Unix- based analogue workstation for scientific laboratory applications: the Masscomp Analogue Workstation, priced at around £24,900, uses the company's real-time Unix implementation and software called Laboratory Workbench which is a menu driven that uses pop-up displays, graphical icons and interactive controls to eliminate the need for traditional programming.

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Essex Pick-popper Universal Computers Ltd is tipped to become a Plc and to go public in London shortly.

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MFT Computer Systems Ltd has signed an agreement with ICL to jointly market software packages for Local Authority Housing Departments intended to run on the Unix-based ICL Clan range: MFT of Manchester say that it will offer the complete package of ICL hardware, its own software and the Office Power office automation package.

Francis Lorentz, already managing director of Compagnie des Machines Bull , has been appointed president of the French operating company, Bull SA: the move reflects chairman Jacques Stern's increased work-load following the assumption of management control of the new US- UK-Italian Honeywell Bull Inc firm.

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Advanced Micro Devices reckons that it retains indefinite rights to manufacture the Intel parts it is already making, notably the 8086 and 80286 microprocessors, and is entitled to any updates to those parts unit 1991, but is very unhappy that Intel will not allow it to make the 80386 or the 8087 maths co- processor: Intel wants to terminate the pact as of April 1 1988; IBM has rights to make the 80386 and is being regarded as the second source, although IBM does not currently sell any of its circuits on the merchant market.

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An assembly of system software programmers from the likes of Apple, Microsoft and Ashton-Tate gathered in San Jose last week to talk shop, reports Microbytes Daily and the consensus was that C is the language for systems development - "at Microsoft we program only in C," said Charles Simonyi, "C now and C forever"; the programmers also debated the virtues of single- person programming versus team programming, with most of the assembly coming out as firm individualists, although John Warnock of Adobe Systems said that his company had found a three- person programming team was the most effective, and others acknowledged that major development projects were too large for one person to bring in in a reasonable time-frame; there was also disagreement about whether it was appropriate to use subroutine libraries, with Andy Hertzfield of Apple Computer saying "I consider myself an artist - if I were another kind of artist, a writer for instance, would it be right for me to go out and buy a paragraph here, a chapter there, and include them in my book - would it still be mine?"

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As Ian Botham and Graham Dilley prepare to start the new cricket season with Worcestershire County Cricket Club, Logitek VAR, Arden Computer Services of Stratford-on-Avon have supplied another "signing", a £13,000 Altos 686, which will be used to cope with the Club's growing number of membership applications and it's financial administration.

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UNIX BANNS: PLEXUS, ARETE AGREE A MERGER

Arete Systems Corp and Plexus Computers Inc have signed an agreement to merge their operations in an exchange of stock; the agreement is subject to approval by shareholders of both firms, but both are privately held so no financial details were given. The combined company will go under the Plexus Computer Inc name (no-one was sure how to pronounce Arete), and Plexus president and chief executive Paul Klein will hold the same posts at the new merged company. The combined revenues of the two San Jose companies totalled $65m last year; Plexus says it did $30m last year, implying about $35m for Arete. Together they have 500 employees worldwide. Both companies manufacture Unix systems: Arete's multiprocessor systems are mainly for transaction processing; Plexus just introduced its Extended Data Processing systems (UX No 122), designed to offer mixed-mode processing for image, text and data on departmental computers supporting IBM Personals and using the Plexus P range as the back-end processor. The pair cite their different sales fields as one reason for the merger: Arete operates mainly in the OEM market, with Unisys its biggest customer, while Plexus stresses end-user and value-added reseller sales and cites as UK customers Saatchi & Saatchi, British Telecom and a couple of Local Health Authorities. The merger will give existing Plexus users a growth path beyond its new line of 68020 boxes.

TANDEM TO OFFER LXN UNIX BOX FROM ALTOS AND SINGLE-CPU OPTION WITH NEW CLX

Tandem Computers this week brought in the first fruits of its agreement signed last year with Altos on Unix systems and plunged its maintream line of fault-tolerant machines running the Guardian operating system down market with introduction of its first machine to be based on a single-chip CPU, the NonStop CLX. A laser printer completed the line-up. The 32-bit LXN super- micro, based on the 68020-based Altos 3068, is enhanced with a five-minute graceful shut-down uninterruptible power supply, auto restart and mirror disks, is the Cupertino firm's first Unix- based system; it supports up to 32 workstations and comes with one to three processors; it supports SNA with X25 to follow. It is available now at from $23,700. In quantities of 25 and 39 systems, system pricing starts at $18,012. The company says that the reason for the introduction of a Unix machine now is to pave the way for more Unix-based products. The NonStop CLX systems are also the first from Tandem to be offered - in due course - in single-processor configurations for remote outposts on a Retain network, a move foreshadowed here last year; Tandem describes the CLX as user-serviceable; it comes with one to six CPUs as the 610 to 660; it needs no special air-conditioning. The CLX processor was designed using Silicon Compiler Systems Corp's Genesil tools and consists of four VLSI CMOS chips - central processor, interprocessor bus chip, input-output controller, memory controller, each integrating over 100,000 transistors - in 15 months. The CLX is claimed to deliver 2.5 to 15 NonStop SQL transactions per second and handles up to 612 remote terminals. The CPU, about the size of a four-drawer filing cabinet, starts at $57,000, and will be available in the fourth quarter. In quantities of 25 to 39 systems, the base price of a single processor falls to $39,900. The new Laser-LX laser printer, similar to Hewlett-Packard's Laserjet, does both text and graphics and prints up to eight pages per minute. Out in the third quarter, it is $2,595.

COMPUTER CONSOLES ENHANCES ITS UNIX SUPERMINI LINE

The Computer Products Division of Computer Consoles Inc in Irvine, California, this week introduced two new models in the Power6 line of Unix superminis. The Power6- 32EP and 32Sp replace the 32E and 32 models, and existing machines can be field-upgraded from their present 5 MIPS to the respective 8 MIPS and 14 MIPS of the new models. The new machines, with a new high- performance disk controller as standard, are due to be shipped in May, and base configurations of the new CPUs cost $145,000 to $275,000.

BENCHMARK BOASTS SUPERIOR PERFORMANCE FOR QUADSTATION

benchmark Technologies has announced the first of a new series of graphics and image processing systems, Quadstation. Quadstation is a four seat graphics and CAD/CAM system with real-time capabilities developed around the benchMark 32 32-bit graphics Unix computer. As standard the Quadstation is supplied with the 15MHz 32332 from National Semiconductor but the 33Mhz Fairchild Clipper and Motorola 68020 processors are available as options. A Quadstation system can be configured with up to 1.5 gigabytes hard disk, a floppy drive, a 60Mb tape streamer, half inch tape, TCP/IP networking and additional high performance disk processors. The operating system is Unix System V.3 including demand paging, virtual memory and real-time extensions in I/O with MS-DOS 3.2 running concurrently. I/O activity is controlled by secondary Intel 80286 processors. benchMark says that it has eliminated bus bottlenecks by providing VME support and local bus interconnections and that it has improved performance and access times normally associated with graphics systems by implementing 8 - 28Mb of dual ported surface mount RAM with 35 nano seconds access time. The graphics capabilities are provided by the benchMark bCG cards. The cost of the system is put at around £7,000 per seat with the Clipper option an extra £1,000 per seat more.

PRIME GETS DOUBLE PERFORMANCE FROM NEW DUAL PROCESSOR - 6550

Prime Computer duly added two new top-end processors to its 50 Series superminicomputers last week - the first of a series of announcements that will include a minisupercomputer from Cydrome Corp and a three dimensional graphics workstation based on the MIPS Computer Reduced Instruction Set microprocessor. The 6350 offers twice the performance - 11.8 MIPS - as Prime's previous high-end machine; while the tightly-coupled dual processor 6550 is claimed to be rated at 23.6 MIPS, making Prime the only company that can get double performance from dual processors. They won't say how they do it, only that the two processors are combined "in an innovative and balanced relationship". The two processors are symmetric (earlier Prime dual processors were designed in a master/slave relationship, with one processor handling all the I/O and the other working under its direction), both having access to I/O and the system resources. They share the same memory and run under a single copy of the operating system which swaps tasks back and forth as required to balance the load. It also gives a measure of fault-tolerance in that if one processor fails the other can be restarted to run the applications while repairs are being made. The processors are the first to use Motorola's new MCA2500 ECL technology - custom-designed VLSI circuits with 2500 logic gates per chip and are claimed to give extra performance by using ECL level connection techniques off-chip as well as on-chip - earlier ECL circuits were slowed down by using TTL levels off-chip , according to Prime. Each processor has a five-stage pipeline and gains performance from a branch cache: each time the program goes round a loop, the branch cache loads the instructions it chose after the branching last time around into the pipeline it misses in the first and last loop but hits on every other iteration. As most programs loop many times, the savings can be considerable as a miss means emptying the pipeline and reloading with a fresh set of instructions. The system also has a 32Kb cache memory and a segment table lookaside buffer to speed up virtual address translations. The cahe and segment table lookaside buffer are both two- way set associative - they are divided into two halves which are addressed simultaneously to improve performance - and have built-in error correction. Both the 6350 and 6550 support 64Mb of memory and up to 960 users and a new I/O system supports 64 770Mb disc drives for a total of 50 gigabytes. Each I/O processor has an I/O bandwidth of 24Mb per second. Both machines use Prime's proprietary Primos operating system, with Primix, the company's version of Unix system V.2 hosted under it.

Unix commands can be executed under Primos (with a prefix) and similarly Primos commands can be executed under Primix. Prices for the 6350 - available now - range from £439,200 to £532,600, while the 6550 dual processor, available in the fourth quarter, ranges in price from £643,200 to £736,600. Meanwhile at the end of the month, Prime, in the UK, is set to launch its three dimensional graphics workstation , the PCXL 5500, based on MIPS Computer's 5 MIPS reduced instruction set processor and developed by Silicon Graphics. Prime claims it was instrumental in bringing the two companies together and encouraged the development of the machine as its entry into the hotly contested workstation market. Silicon Graphics market the machine as the Iris-4D and claim a performance of 5 - 7 MIPS, thanks to the use of 38 custom and semi-custom graphics chips in the design. It runs Prime's implementation of Unix V.3 with Berkeley 4.3 extensions, beta testing starts next month and shipments in June. It comes with a MIPS floating point co-processor board in a two-tower configuration (the first tower is a 12-slot VME board card cage for all the CPU, graphics and controller boards, while the second includes the power supply and peripheral modules), 4Mb of memory, an Ethernet controller with TCP/IP and network utilities, 170Mb Winchester disc, Unix, C compiler and debugger, graphics library, window manager, eight colour planes with 256 colours, 19" colour monitor with keyboard and mouse all for $74,900 in the US. Other details are not available yet, but the Iris-4D is claimed to perform 140,000 three- dimensional 32-bit floating point transforms per second and render over 4,500 100-pixel polygons per second with smooth shading and hidden surface removal, giving dynamic motion to solid objects. One option includes 24 colour bit-planes, providing more than 16 million colours, four user accessible system planes for overlay and underlay, and a 24-bit Z buffer for more accurate and realistic surface rendering and hidden surface removal. It also offers multi-mode windowing which allows applications using different display modes to run concurrently in different windows: 24-bit colour in one, 12-bit colour in another and so on. It also comes with an optimising Fortran compiler and Sun Microsystem's Network File System for transparent file sharing in a heterogeneous environment. The Prime machine may not share all these features (it is likely to run the Primos operating system or at least provide access to Primenet so it can communicate with other Prime machines), but as it comes with exactly the same base price, it cannot be significantly different.

NCR CUTS TOWER PRICES FOR BETTER PRICE/PERFORMANCE RATIO

NCR has announced price cuts of around 7.5% on all its Unix-based tower products in the UK. The MiniTower entry level system is now priced at £4,320 including one year's field maintenance and prices for the recently launched top-of-the-range Tower 32/800 start at £79,000, again including the field maintenance. Like Motorola (UX No 122) NCR gives the reason for this surge of generosity as passing on the benefits to its customers the savings made through the price reductions in disk and memory costs but adds that it also gives them a competitive pricing policy.

TOSHIBA TAKES 33.5% OF COMPUTERVISION JAPAN

Following ventures with Olivetti, AT&T and Motorola, and close ties with Sun Microsystems, Toshiba is paying $1.8m for a 33.5% stake in ComputerVision Japan, and will supply hardware and convert software.

MASSCOMP TO PORT NFS TO MC5000 WITH HELP FROM LACHMAN ASSOCIATES

Masscomp with UK headquarters in Reading, Berkshire has announced an agreement with Lachman Associates Inc of Illinois to implement Sun's Sun's Network File System on its MC5000 family. Lachman Associates is the authorised distributor for the System V implementation of NFS in the US. Lachman will be working with Masscomp as consultants helping to port NFS to RTU, Masscomp's real- time implementation of Unix. Implementing NFS on the MC50000 calls for a new release of RTU as well as providing Etherent hardware and software.

APOLLO DOMAIN ON ETHERNET

Apollo Computer Inc has been promi-sing wider support for industry standards, and in its first major step has announced support for Eth-ernet within its Domain operating environment as an alternative to its 12Mbits per second Domain token passing local area network. Ether-net support is provided by the new 802.3 Network Controller-AT board. The board is compatible with the IBM AT bus used in the Series 3000 workstations and DSP3000 servers.

HONEYWELL BULL SETS DPS8000

Honeywell Bull Inc will shortly replace the DPS 8 and 88 line with a DPS 8000 line with three times the power of the 8/49 and up to 128Mb.

UNIX STILL MUCH IN EVIDENCE IN TRON DOMINANT JAPAN

Concurrent Computer Japan, a joint venture between the US **Perkin-Elmer** affiliate and **New Japan Steel**, is teaming up with **Apollo Japan** for joint development and marketing in a move that mirrors the collaboration announced in the US earlier this year: in Japan, the pair plan to develop Japanese language processing software, and Concurrent will add Apollo stations acquired OEM to its product line.

Hitachi Ltd has introduced a software development support environment for its 2050 Unix workstation under the name SEWB, which extends downwards the facilities of its Eagle software development support tool already offered on the M-series IBMulators: in in- house tests the environment is claimed to have doubled productivity, and reduced program errors by one third; it makes full use of graphic capabilities, using a graphic expression system instead of a flowchart to integrate the planning, programming and coding stages, and generates Cobol or C source programs; it consists of nine separately- priced programs at a typical $650 apiece.

The **Sigma Project** Task Force has begun to worry about the issue of copyright in the tools developed under the collaborative venture to create an automated software development hardware and software environment: the library was compiled at the end of last year, and while some tools have been specially created under the project, others are versions of existing tools supplied by participating software houses; ownership of the tools will transfer to the project, but the problem of how to split the copyright fees remains - and is urgent, because site testing of the tools so far is due to start this month.

Matsushita Central Research Lab claims to have developed the first implementation of B-Tron, the version of the Tron operating system for office automation and business applications: the company will be slapping in requests for 93 patents on the implementation for use on personal computers, and is entering into negotiations with Professor Sakamoto, who originally dreamed up Tron at Tokyo University on sharing of intellectual property rights in it; Matsushita has implemented the thing on an 80286 with 2Mb memory, 20Mb disk, 3.5" floppy, Tron keyboard and bit- mapped display, but says that it will be another two to three yeasr before B-Tron products are ready to appear on the market.

Nippon DEC is to distribute KBMS, an expert system development support tool developed by **Nippon Telegraph & Telephone** and marketed by NTT Software as part of a move to offer a full range of expert system development tools on VAX and MicroVAX computers: the offerings include artificial intelligence tools for database performance and fault diagnosis, integrated circuit design, and Computer-Aided Instruction; the KBMS software offers two modes of operation, an "if... then" rule mode, and a frame mode describing inter- knowledge relationships in a tree structure; it also has "forward" and "backward" inference mechanisms and costs about $65,000 on VAX 8000s, $40,000 on the MicroVAX II; Nip DEC is looking to sell 100 copies this year.

JERRY SANDERS: STAKING AMD's FUTURE ON ITS HOT NEW 32-BIT CMOS MICROPROCESSOR

Amiel Kornel talks to Chairman and co-founder of Advanced Micro Devices - Jerry Sanders III - one of the most colourful and outspoken characters in the semiconductor industry discussing perhaps the hottest product in his company's history.

When Advanced Micro Devices Inc announced in March its new 32-bit Am29000 microprocessor, chairman Jerry Sanders left little doubt about his goal: "The 29000 is AMD's shot at greatness," he said. For a man whose company was battling recently for survival, the boast might seem excessive. But Sanders does not shy away from bravado. And he has good reason for optimism. The company he helped found is looking forward to its first profitable quarter in two years and, with the Am29000, he has leapfrogged competition in the race to develop the next generation of 32-bit CMOS microprocessors. Sanders expects AMD to post a $100m to $110m loss on sales of $625m for fiscal 1987, which ended last week. But he added that the last quarter was profitable, the firm's first in two years. AMD registered a net income loss of $36.6m in fiscal 1986 on sales of $576m. It was the 18-year-old company's worst year ever.

Critical juncture

In a lengthy exclusive interview in Paris recently, Sanders discussed the road he and AMD have travelled to arrive at this critical juncture in AMD's history. In common with other US chip suppliers, AMD over the past few years has sought to shift its product emphasis from low-cost commodity semiconductors, mostly EPROMS (erasable programmable read-only memory), to proprietary bipolar chips. Sanders said that the firm's EPROM business has accounted for about 60% of losses and he blames Japanese price-cutting. AMD joined other US manufacturers in the anti-dumping complaint against Japanese rivals last year. The result was the US- Japan semiconductor trade agreement. Alleged breaches of that accord motivated President Reagan to announce plans to levy up to $300m in punitive import duties on Japanese electronics goods: those duties are scheduled to be imposed from about the middle of this month. Sanders doesn't see a swift solution to the trade dispute in sight and has been steering his company towards less dependence on memory products. Proprietary logic chips now account for 45% of AMD revenues, he said, and should rise to two-thirds of the company's business in coming years. The new 32-bit Am29000 microprocessor is to be the standard- bearer for the firm's new course. Sanders looks for the new chip and associated products to generate $100m annually for the firm by 1990. "I'm excited about having something to stake my reputation on," he enthused. Currently, 32-bit microprocessors account for only about a half of one per cent of the $29,000m worldwide semiconductor market, according to the London office of Dataquest Inc. But the high-tech market research outfit estimates that the 32-bit marketplace will grow more than 12-fold in terms of units shipped by 1991. Worldwide, sales should reach almost $400m. The Am29000, scheduled for volume production by early 1988, is the main fruit of an intensive research and development effort that has sapped 20% of the Sunnyvale, California-based company's revenues over the past three years. According to AMD, the chip will offer a sustained performance of 17 million instructions per second, three to five times the computing power of current 32- bit CMOS products offered by other manufacturers. A desktop workstation incorporating the chip would have a speed similar to IBM Corp's 3090 mainframe. The Am29000 has been designed to run applications compiled from high-level languages such as Fortran, Pascal, Ada, and C, which means it will offer compatibility with the Unix operating system developed by AT&T Bell Labs. Although it pioneered the bit-slice microprocessor that was the salvation of so many minicomputer manufacturers in the 1970s, minis are sold in hundreds or at best thousands, so that in the area of logic chips, AMD has derived most of its business until now not from its own slices, but from making products for the personal computer and office automation markets under second source and cross-licensing pacts with Intel Corp. Sanders has no intention of ruffling any feathers at Intel. "We decided not to target our product for office automation," he said. "Our view is not to come up with something that competes with our cross-licence partner." Instead, Sanders said, he is taking aim at rival Motorola Inc. "We want the Am29000 to rule in engineering and scientific applications", Motorola's traditional turf.

Dream machines

AMD sees the new microprocessor acting as heart of a new generation of laser printer controllers, high-speed network switching systems, network protocol controllers, computer-aided design workstations, and desktop database management systems. In addition, Sanders likes to talk about the product's potential for enabling engineers to develop such "dream machines" as intelligent robots, language translators, and speech- recognition devices. Although the product doesn't really exist yet - its design has been tested through the use of extensive simulation techniques - AMD says it will have working silicon this summer and ship samples for beta-testing in September or October. The chip will be introduced at $500 and the company expects the price to drop to $100 by 1990. AMD is a latecomer to the CMOS game. Suppliers such as Intel, Motorola, and National Semiconductor already offer 32-bit products using CMOS - complementary metal- oxide semiconductor. "It took us too long to develop CMOS processes," acknowledged Sanders. AMD started gearing up production in CMOS last year and Sanders says that every logic product the firm introduced during the past six months uses CMOS technology. AMD's CMOS- dedicated plant in Austin, Texas, currently operates at less than 10% capacity, according to Sanders. "We can easily shift to the new family," he assured.

The technical specifications of the Am29000 were discussed in Unigram.X Number 123.

GENERAL AUTOMATION LOOKING FOR MORE ACQUISITIONS: WILL NOT SWAP PICK HORSE

Following the recent acquisition of Parallel Computers, General Automation has said that it will not be the last. In the short term the two companies will not merge the two product lines but next year the Pick operating system will be put onto the Parallel fault-tolerant processor and become a Zebra. General Automation maintains that there will no conflict of interest in selling the two products side-by-side even with a faul-tolerant Pick implementation because Pick is superior in dealing with data and Unix is better for "number crunching", the company says. Additionally General Automation says that it has no plans to switch horses and will remain predominantly a Pick house.

CONTROL DATA SELLS ARBAT TO SWISS COMPANY LEAVING CDC WITH LITTLE FINANCIAL SOFTWARE

Control Data Corp has sold Arbat, the DEC VAX banking software subsidiary bought from Dow Skandia in 1983, to Winter Partners Holdings AG of Zurich for an undisclosed sum. The sale of Arbat leaves the Trader and Trader One dealing room products as CDC's only financial software packages and provides $13m-a-year Winter Partners - "Switzerland's largest banking software house" - with 68 new staff and offices in London, New York, Singapore and Hong Kong to add to its 110 existing staff and outlets in Zurich, Frankfurt and Tokyo. Neither CDC nor Winter will say what Arbat's turnover was last year but Winter says it was profitable.

FERRANTI "WORLD FIRST" RELATIONAL DATABASE CHIP

A challenging relational database search engine claimed to be 600 to 1,200 times faster than Oracle Corp's Oracle will be put into beta test sites by Ferranti Computer Systems in November. Designed to be used as a co-processor with the Motorola 68020, to which it links via the high-speed VSB interface, the Ferranti Relational Processor is fabricated in VLSI CMOS with search software microcoded for real-time database interrogation. The chip is designed to implement international and ANSI relational model standards, includes an SQL interface, makes 1,000 or more accesses per second, and supports up to 32Mb using currently available chips, with a maximum address range of 4Gb. It is designed to be programmed in high-level languages, notably Ada and Pascal. The first implementation is in a ruggedised version for Ferranti's naval command systems, and will form part of the company's bid for the command system for the Royal Navy's Type 23 Frigate, but it is to be made commercially available as a two-board set for about £10,000 next year.

COMPANY RESULTS

AT&T Co saw first quarter net profit up 25.7% at $445m on turnover up 6.8% to $8,121m. Net earnings per share rose 29% to $0.40. Comparisons are with 1986 figures restated for an accounting change.

Digital Equipment Corp has reported that third quarter net profits soared 80.6% at $307.5m on turnover up 25.0% at $2,410m; nine month net profit rose 101.7% to $760.2m on turnover up 24.1% at $6,720m. Net earnings per share rose 73% to $2.29 in the quarter, 90% to $5.69 in the nine months.

Intergraph Corp has reported first quarter net profit down 44.4% at $10.0m on turnover down 12.6% to $128.5m. Net per share rose 44% to $0.18.

Kalamazoo Plc has reported an interim pre-tax loss of £576,000, down from a loss last time of £770,000 on turnover that rose just 0.5% to £20.5m.

Microsoft Corp has reported third quarter net profits up 80.2% at $19.1m on turnover up 94.7% at $50.5m; nine month net rose 96.8% to $54.6m on turnover up 81.6% at $246.1m. Net per share rose 64% to $0.62 in the quarter, 74% to $1.98 in the nine months. The company is proposing to adopt an accounting change that would have boosted net profits to $28.0m in the quarter and $63.5m in the nine months, per share earnings to $0.69 and $1.98.

Motorola Inc has reported first quarter net profit up 24.4% at $56m on turnover up 15.5% to $1,547m. Net earnings per share rose 19% to $0.44.

NCR Corp has reported first quarter net profit up 23% at $61.5m on turnover that rose 17% to $1,120m. Net earnings per share rose 27% to $0.65.

Pyramid Technology Corp has reported second quarter net profits down 50.6% at $426,000, after tax credits of $27,000 this time and $333,000 last, on turnover up 13.6% at $12.6m; mid-term net profits fell 96.8% to $73,000 after tax credits of $27,000 this time and $972,000, on turnover that rose 9.1% at $24.6m. Net earnings per share fell 50% to $0.05 in the quarter, 97% to $0.01 in the half.

Sun Microsystems Inc saw third quarter net profits up 200% at $10.2m on turnover up 146% at $141.7m; nine-month net rose 323% to $348.6m on turnover up 161% at $348.6m. Net per share rose 131% to $0.30 in the quarter, 242% to $0.82 in the nine months.

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The message from Bill Gates of Microsoft is that if you want multi-user and portability from your micro environment, Unix - or Xenix - is the operating system for you: he declared last week that the OS/2 successor to MS-DOS would never be a multi-user operating system, and would never run on any processor that is not directly derived from the Intel 80286/80386 architecture.

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With **Advanced Micro Devices** chopped off **Intel** the 80386, what of the European second source, **Siemens AG** ? There's no word as yet, but Siemens may get masks for the 80386, because one complaint reportedly made by Intel about AMD is that it has contributed only one part to the iAPX-86 family, and Siemens has definitely contributed several more than one.

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MIPS Computer Inc in Sunnyvale has tapped Robert Miller, senior vice-president at **Data General Corp** and widely regarded as effective strategy Number Two to Ed de Castro to be its chairman and chief executive; it also laid off 15 people, 10% of its workforce, after changing its mind about bringing assembly of board-level RISCs in-house.

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Micro Focus Plc , already the resident supplier of Cobol compilers for the top-selling NCR Tower line of Unix super-micros, has added its new Level II Cobol/ET compiler to the range it supplies for marketing by NCR: ET Cobol is designed to enable mainframe and mini applications written in ANSI 74 Cobol to be migrated onto Unix systems - particularly important in the NCR context since ANSI 74 Cobol was the unifying factor that linked NCR's disparate 8100, 8200 and 8300 small business computers in the 1970s.

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And **Micro Focus** has also released VS Cobol Version 1.2 specifically for Xenix/Unix running on Intel 80286 and 386 processors: the company says that it adheres to the latest ANSi 85 and 74 standards, including the ANSI 85 structured programming facilities and is also X/Open conformant - available now, VS Cobol 1.2 is priced at £1,495.

Minigrams

Prime UK is unhappy at the speculation in last week's story on the new 6530 and 6550 over the manner in which its new Unix workstation and other unannounced possible Unix products may fit into its evolving product line (UX No 124): the company stresses that its proprietary Primos operating system is and will continue to play a very much more important role in its product offerings than Unix.

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Meantime Computervision Ltd is unhappy at a statement put out by **Prime UK** this week and has reacted angrily to Prime's decision to end the OEM agreement under which Computervision sold Medusa on Prime kit: in a terse statement the company says Prime's move comes as a surprise since the two organisations had a meeting about extending the agreement only on Wednesday last week; Computervision claims that it is Prime's largest CAD/CAM OEM in the UK with $12m sales in the last 12 months; Prime will now go it alone on its Prime Medusa version of the CAD package which has been jointly owned by Prime and Computervision since the latter acquired the originator of Medusa, **Cambridge Interactive Systems Ltd**, based in Cambridge, UK, in 1983.

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Thorn EMI Software Sciences has beaten the **ICL** consortium to the £15m pilot contract to implement a branch automation network for the **Post Office** a network of **Nixdorf** terminals in 250 post offices in the Thames Valley to central **Tandem Computer** NonStop minis via a switching system to be implemented by **Plessey.**

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Design and building contractors, **JT Group** , of Bristol has replaced its NCR system with a **Pyramid Technology** WorkCentre to handle accounting, word processing, database, communications and computer-aided estimating and structural engineering operations: the 600Mb WorkCentre running Unix will be linked via Ethernet to a MicroVAX.

Convergent Technologies now has definitive agreement to acquire the 60% of **Baron Data Systems** , San Leandro, California, for $31.8m.

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Systime Computers of Leeds has received an order to provide systems for a further eight sites from the Business Supplies Division of Norcros Plc, which represents the second phase of a multi-million pound project to provide a stand-alone system in each of the 92 Norcros distribution building supplies branches: the systems being installed is the Systime Intel 80286-based IT/400 which runs Systime's own Tran-Basic product which allows RSTS-based Basic plus programs to run under Xenix.

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Integrated Solutions Inc of San Jose, California has signed an agreement with the Irvine Compiler Corporation to market that company's Ada Compiler on Integrated Solutions Unix-based workstations and multi-user computer systems.

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Living Software Ltd of Milton Keynes, Bucks which specialises in programming tools for the C language has launched its American subsidiary in Boston, Massachusetts.

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Newly formed software house, Sector 7 of Luton, Bedfordshire, has iontroduced a Basic to C translator/portable compiler, B- Tran: the company boasts that B- tran has already been used to move the Pegasus and Omicron accountancy packages from MS-DOS to Unix.

- o -

Access Technology is rubbing its hands in glee following the X/Open demonstration of portability in Luxembourg (UX No 120) saying that as a direct result it has received major enquiries from "many of Europe's biggest organisations" and has meant that the company will bring forward its plans to open its third European sales office in Germany - the company adds that the launch of an X/Open standard version of 20/20 is a logical step for the company to make - but is not being any more definite than that.

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X/OPEN PLANS FOR PORTABILITY CENTRE - BACK TO THE DRAWING BOARD

The X/Open group has abandoned its plans for the porting centre that was to be set up duing this year near Heathrow (UX No 105). This decision was reached after Sphinx Ltd carried out a feasibility study on setting up a centre and Marketing Dynamics and Research International, owners of Marplan, carried out a survey of around 500 independent software vendors to determine how X/Open could help them with porting services. According to X/Open the survey showed that ISVs were interested in a centre similar to the one originally proposed but required it at a more local level, predictably ISV's other than those in the UK were not wild about leaping on a plane to port software. The Sphinx feasibility study showed that setting up one centre like the one proposed was viable but setting up a number in different countries would use up all of X/Open's budget for the next two years. Consequently the project has now been put back on the drawing board and a working group has been commissioned to come up with an answer. Possible solutions could be to set up franchises or to use the facilities of X/Open member companies in each of the different countries. Encouragingly the report produced by Marplan shows that almost two thirds of ISVs in Europe and the US believe that there will be a large user base of X/Open compliant systems in the next two years and a similar number think that t there will be a large user base of X/Open compliant systems in the next two years and a similar number think that be to set up franchises or to use the facilities of X/Open member companies in each of the different countries.

SUN JOINS THE CROWD TO SUPPORT X WINDOW

Sun Microsystems has bowed to the inevitable and changed its windows strategy coming out strongly in favour of X Window. The Mountain View, California company intends to bring out a merged Window management system in the first quarter of 1988, combining its NeWS product with X Window from the Massachusetts Institute of Technology. The merged product will use the not yet available version of X, X.11, which is reportedly significantly different from the current X.10 that the majority of manufacturers have standardised on (UX No 112).

SYSTIME WOOS DEC PDP-11 USERS WITH V.3 BASED 80386

Control Data UK's Systime Computers Ltd, Leeds, yesterday leaped into the 80386 world with its own new machine, and nailed its colours even more firmly to the Unix mast by adding the Power6-32S from Computer Consoles Inc to its line. The 16MHz 3-30 80386 machine and the 3-100 Power6 machine form Systime's Series 3 range, the 3-30 taking up to 32 users and up to 16Mb memory; the 3-100 bit-slice mini supporting up 96 users. Unix System V.3 is the operating system on the 3-30 but the 3-100 uses V.2 - V.3 will be available when Computer Consoles gets it; both versions are System V Interface Definition 2-compliant. Both support X25, SNA, Ethernet and IBM 3270 communications protocols. As well as an upgrade path for Systime's 1,000 unit base of 80286 Series 2 machines, the new machines will be promoted with its proprietary Trans-Basic translator, which converts DEC Basic+ from RSTS into Unix Basic. Prices for the 3- 100 range between £130,000 to £200,000 and the 3-30 has an entry- level price of £36,000 and a fully configured price of £80,000.

PRIME TO LAUNCH 80386 UNIX BOX

Prime Computer Inc, Natick, Massachusetts, is expected to unveil its 80386-based multi-user Unix system this week. The machine, called the EXL 816, has a base price of $23,900.

MATRA TO MANUFACTURE, MARKET ENCORE's MULTIMAX

Following its manufacturing and marketing pacts with Norsk Data for 32-bit superminis and Sun Microsystems for Unix workstations, Matra Datasysteme has signed a similar agreement with Encore Computer Corp, Marlborough, Massachusetts for the Multimax line of NS32000-based parallel Unix multiprocessors. Under the agreement, valued by Encore at $30m over five years, Matra will initially take Multimaxes OEM - ships have already begun - engage in joint product development, and move on to French manufacture. Matra also gets exclusive to Encore machines and technology in France, Belgium, southern Europe, parts of Switzerland, the Middle East and French-speaking North Africa. Joint development will include data communications, concurrent processing, and parallelising software and applications. Matra also gets warrants for 600,000 Encore shares, exercisable over the next 30 months. Encore has similar pacts with Rikei in Japan, and WBM in South Korea.

PYRAMID ADDS COMMON LISP FOR UNIX RISCS

Pyramid Technology Corp, Mountain View, California, has added an implementation of Common Lisp for its Unix RISCs. PyrLisp consists of interpreter, compiler and debugger and runs under the dualPort OSx implemnentation of Unix System V plus Berkeley 4.2; unlike most implementations of Common Lisp, which require a dedicated workstation for development, PyrLisp enables the same CPU to be used for both development and delivery. PyrLisp is available now for $6,000; $3,000 to colleges.

RESEARCHERS TACKLE THE PROBLEM OF REDUCING APPLICATION DEVELOPMENT COSTS FOR NEW PROCESSORS

Geoff Conrad examines the problems associated with marrying new computer architectures with old and new langauges and making applications a practical proposition for ordinary users.

Now that multiprocessor systems are falling in price and becoming more generally available, users are finding that it is not easy to write applications to take advantage of the parallel architecture.

The idea of doubling processing power by doubling the number of processors is very attractive - especially for the salesman, who sells one extra processor for the first doubling, two for the second, four for the third, eight for the fourth, 16 for the fifth.....

But unless the multiprocessor is just used to simultanmeously run different jobs on each processor, true parallel processing must be used: the restructuring of the existing code of a single job to spread it over a number of co- operating processors.

And just about everyone seems to be taking advantage of the benefits of multiple processors, from cheap entry-level "Crayettes" to full-blown supercomputers - even the forthcoming ETA-10 7-10 gigaflopper from ETA Systems Inc (90% owned by Control Data) has 10 processors. And to take better advantage of these latest supercomputers, users are having to write increasingly intricate programs that are fine tuned to details of the system hardware. So one of then most pressing questions associated with the powerful new processors is how to reduce application development costs, to make them a practical proposition for ordinary users.

They may all run Unix so that there is no shortage of applications, but why buy a multi-million pound supercomputer if they will run just as fast on a mini? Researchers at the Center for Supercomputing Research and Development at the University of Illinois have been working on the problem for the past 12 years and have come up with five crucial objectives that need to be tackled:

1) Programs: the ability to use old programs using sequential algorithms in old languages while at the same time running new programs using parallel algorithms in old or new languages.

2) Languages: new languages need to be developed that allow one to express, in a wheel-structured form, algorithms that are amenable to parallel processing.

3) Compilers: have to be developed that can be tailored to each machine to exploit effectively all the available architectural features, to develop and compile programs in both old and new languages.

4) Algorithm libraries: libraries of standard, reusable application packages and routines using parallel algorithms for standard problems that can be easily incorporated in new applications.

5) Environments: A profitable, effective programing environment for using the above software interactively, debugging programs and displaying results graphically in real time.

The first of the five objectives would allow users to approach new machines without having to rewrite their programs in a new style or a new language.

The ability to use old languages makes for an easy transition from an old machine to a new machine and will hopefully reduce the trauma to a level that will increase the acceptance of the machines. There second and third objectives, taken together, would allow users to learn and exploit a new language, especially if the program development system could translate the old language to the new. Language evolution would occur as the user moved from familiar old programs to new high- performance programs that would be easier to understand.

New language features alone are not enough to make a user accept a new machine: the new languages should permity the user to make assertions about the program that allow faster execution, or preferably the development environment should query the user for such assertions. Packages and library routines are nothing new, but when intregrated with program restructuring techniques they would play an important part in the new and powerful program development systems mentioned in the fifth objective.

Everyone has their own idea as to which language to use and the fruitless debate has gone on for years and shows no sign of ever stopping - most people supporting the language they grew up with or are the most familiar with. As it takes a considerable expenditure of time and effort just to be able to make a comparison any change is going to be slow in coming.

At the University of Illinois they have obtained spectacular results restructuring Fortran code to run on multiple processors - a language with the widest range of scientific applications and one particaularly difficult to restructure automatically. For this reason, and others, they are mounting a major effort to develop powerful restructuring tools to work with a wide range of languages, even those with explicit parallelism, as the latter feature is rarely exploited to the full.

CONVALSCENT SYSTIME TAKES ITS WAR WITH DEC TO THE HELLENES AND ANATOLIA

Systime Computers Ltd, an uneasy fit in the Control Data UK camp, and likely to be floated on the Stock Exchange or sold as soon as it is in a fit condition, hit an all-time-low in February a year ago when DEC took its D-series customer service business in settlement of outstanding claims, leaving the one-time £60m-a-year company with 400 employees and annual sales of just £14m. It has since cut its staff to 250 but is currently recruiting sales staff to deal with the new series of 32-bit Unix machines launched last week (see front). Systime has not strayed too far from the old enemy, and its new strategy is to go after what it sees as DEC's Achilles heel, business users of the PDP-11 16-bit mini. It will seek to convert them to Unix on its Series 3 line. Systime is also confident that the larger 3-100 will give it a wider appeal to third parties and looks for around 20 value-added resellers by the end of this year. Systime is also hoping to make its mark in the less developed European markets such as Turkey and Greece that have in the past been saddled with unsupported early model PDP-11s; it says that Trans-Basic has already won it a major share in these countries. As well as DEC Systime will also be going after the Data General market by providing Austec's Ace Cobol on its 3-30 machine. Ace allows users to migrate their Cobol applications from proprietary operating system environments to Unix and Data General Cobol programs have been converted at a rate of 10-20 programs per day. Systime say that it has already used Ace Cobol for its parent company, which had Data General machines and wanted the applications moved to Unix systems. Systime hopes to be at near break-even by the end of the current quarter, and is pinning its hopes for full recovery on the new machines: it claims two definite orders and one in the pipeline for the 3- 100 and half a dozen for the 3-30. The 3-100 will be available in June and the 3-30 in July. And what of the fault-tolerant Parallel Computers machines that marked its first entrance onto the Unix scene? Seems that the best estimate is that it only ever sold three of them, and that the agreement has been allowed to lapse. Parallel is of course now a subsidiary of General Automation.

SUN RECEIVES ENDORSEMENT FROM INDUSTRY FOR MERGED WINDOW PRODUCT

Sun Microsystems has been driven by customer demand to provide an implementation of X Window, conceding that an emulation of X under its Network/extensible Window System (NeWS) is not enough. The company will be using X.11, which is expected to be shipped some time this summer. Previously Sun had supported an X.10 emulation which is significantly different from X.11 in that X.10 does not support alternative windowing styles but X.11 does and X.11 allows manufacturers to add commands to the standard 100 most commonly desired for windowing systems using exposed data structures. X.11 differs to NeWS in that the Sun product is based on the Postscript language and in theory an unlimited number of commands can be developed by the apllications builder. Using Postscript, which is device and resolution independent, also saves the programmer changing the application when ported to different machines. Sun concedes that there probably will not be one windowing system standard but believes that windowing systems will follow the example of operating systems so that a couple will emerge as the leaders, like DOS and Unix have done in the operating systems fray, and then even these few will converge so that they can be used together - comparable to DOS having more Unix-like features and Unix becoming easier to use and the current trend enabling Unix and DOS environments to co-exist. Sun intends that applications builders will not suffer through using Sun's windowing systems as those using the current version of NeWS will be able to port to the merged version and devlopers writing for X.11 will also be kept happy. The losers in all this will be applications developers using the X.10 version as shifting their applications will entail extensive re-writes, says Sun and adds that there is currently no solution for them. The architectures of both X and NeWS despite the mentioned differences are very similar in that both are server-based and allow window applications to run across a network allowing tasks to be allocated to machines that will most efficiently handle the function. Sun has also announced additional NeWS licensees including Alliant Computer Systems, Data General, EDS, Intel, Interactive Systems, Toshiba and Unicad. Sun's move to merge the two windowing systems has brought a favourable reaction from a number of companies including Whitechapel Workstations in this country which says that it will be following the same path; Visual Engineering consider X to be the Unix de facto windowing standard and is pleased that it can support standards but also make use of the useful new features of NeWS; Interactive and Lucid also echoed the Visual Engineering comments; other supporters of the merge include Alliant, Applix, Culler Scientific; Floating Point Systems; Franz Inc; Teknowledge Inc. The Massachussetts Institute of Technology is also predictably pleased that Sun has adopted X and adds that Sun technical staff have helped in the specification of X.11.

SPERROUGHS MERGER GOING EVEN BETTER THAN EXPECTED AT UNISYS - BLUMENTHAL

Unisys Corp chief executive W Michael Blumenthal talked to the Dow Jones news service just before the company's figures came out, showing earnings of $1.71 a share and surpassing both internal expectations and Wall Street estimates. Blumenthal commented that his company's return on equity will be between 13% and 14% this year, which is "quite a bit better than either of the two companies has been able to do in recent memory". Blumenthal did admit that the increases were partially attributable to the weakness of the dollar abroad. Echoing the philosophy that drove Honeywell in the mid-1970s, Blumenthal believes that Unisys' success stems from the fact that the company has reached a "critical mass" after the Burroughs-Sperry merger. He cited as one example of the combined companies' new joint abilities the signing of a major agreement with the Hong Kong & Shanghai Bank: according to Blumenthal, Burroughs' service unit would have been too small to win the bid on its own. Blumenthal also commented on design sharing between the two units; he said that Burroughs cooling technology is used in some Sperry mainframes. Job reductions are also going as planned; employment was cut by 7,000 by the end of the quarter and 12,000 could be gone by the end of the year. Blumenthal did however add a word of caution. Although he expects large increases in turnover by the end of 1988, he commented "just because we had a good first quarter doesn't mean things will continue to improve as we go along."

COMPUTERVISION CREATES NEW FEDERAL SYSTEMS DIVISION

Computervision Corp, Bedford, Massachusetts, has formed a new Federal Systems Division to consolidate several sales and marketing operations into one division. The company hopes nthat by combining its Federal Systems organisation with separate efforts to sell to the National Aeronautics & Space Administration and to the US Navy, it will increase the effectiveness of its CAD/CAM marketing effort. The Federal Systems Division is headed by Bob Gothie who was previously Computervision's vice- president and general manager for international sales.

BULL ADDS DPS 6/950ED, NEW RELEASE OF GCOS 6 MOD 400

Compagnie des Machines Bull this week added a new 32-bit model at the top of the DPS 6 minicomputer line. The DPS 6/950ED is a dual-processor mini that supports up to 16Mb main memory, up to 6.6Gb on disk, and 160 communications lines. Rated at 3 MIPS, the machine runs under the new 4.0E release of the GCOS 6 MOD 400 operating system, and supports Oracle Corp's Oracle relational database management system, which is already offered on the Bull DPS 7 and 7000 mainframes.

LSI LOGIC TO FORM VENTURE WITH ADVANCED COMPUTER

Advanced Computer Techniques Corp, New York, is tossing its software division business and staff into a new joint venture company in which it will retain a one-third stake while LSI Logic Corp, Milpitas, Ca-lifornia takes the rest. The two companies signed a joint development and marketing pact on turnkey embedded chip design systems last October and it seems that Advanced Computer was strapped for cash to develop the agreement to its full potential. The new company will design, develop and market turnkey integrated hardware+software design systems for the Mil-STD- 1750 embedded microprocessor systems market using LSI's Modular Design Environment and applications- specific circuits. LSI Logic and the new company, to be based in New York, will market the systems. LSI Logic will contribute software technology and funding. LSI Logic notes that it is particularly keen to expand its software interests and to play a major role in the software arena.

CONTROL DATA FINALLY READY TO TAKE WRAPS OFF ETA-10

Formal unveiling of the ETA-10 scientific supercomputer from Control Data Corp's 90%+-owned ETA Systems Inc has been an oft-postponed moveable feast, CDC is threatening to do the deed this week. Although the CMOS machine, which was to have delivered a peak 10Gflops, has been temporarily scaled down to 7Gflops, CDC is still claiming it to be the fastest supercomputer anywhere. The celebration comes at a time when the prospects for the Minneapolis company have improved dramatically: the company just turned its first profit after 10 consecutive quarters of losses, some of which ran into hundreds of millions of dollars. The profit does not include any contribution from Commercial Credit either: the financial services business was spun off in November, although CDC retains a 17.8% shareholding in it.

FAULT-TOLERANT TOLERANT CLOSES $15m OF EQUITY FUNDING

Tolerant Systems Inc, privately held San Jose fault-tolerant Unix systems exponent, has closed a new round of equity financing totalling $15m, underwritten by Montgomery Securities of San Francisco. Lead investor was Matrix Partners of San Jose. The company says that proceeds will be used to pay down debt and fund planned expansion. Tolerant also announced that Joseph Rizzi, general partner of Matrix Partners, will become a director; he was a founder of both Intersil and Elxsi, and was Elxsi's first chief executive, and is currently vice-chairman. Other new Tolerant investors in this round were Dougery, Jones & Wilder and Weiss, Peck & Greer; New York Life Insurance Co.; First Interstate Equities Corp.; BankAmerica Ventures; and A T Venture Investments, a division of Ameritrust Corp. Existing Tolerant investors that came back for more were Adler & Co, Helix Investments Ltd, Accel Capital, GeoCapital Ventures, General Instrument, and BancBoston Ventures.

MICAWBER MICRO FOCUS LOOKS TO IBM PS/2 TO MAKE UP FOR ITS LOSSES IN JAPAN

At 143 pence, down from the dizzy 1985 heights of 970p, Micro Focus Plc shares should be in for a good run later this year if chairman Paul O'Grady's claim that a "revitalisation of Cobol" is about to take place proves to be true. O'Grady's optimism is based on the recent announcements by IBM of Personal System/2 and Systems Applications Architecture, and last year's adoption by the US Federal Government of the new Cobol standard, ANSI 1985.

Micro Focus's hope must be that programmers will increasingly use Personals and PS/2s to develop Cobol applications that can then be run locally or ported to System 36s, 38s or 370-type mainframes, rather than do their development directly on the larger machines. The company is also looking to the Federal announcement to increase demand for its products from US vendors. And, judging by its full year results, published last week, Micro Focus is still in real need of a lift. Pre-tax losses were £329,000 on turnover that measured in sterling drooped by a similar amount to £13.1m. Expressed in dollars - 53% of the company's business is in the US - turnover was up, albeit by a still unimpressive 4.5%, at $19.7m. The US business was stagnant but the real disaster was Japan - 10% of turnover - where sales revenue was almost exactly halved. According to managing director Colin West, this was due to all the leading manufacturers finding they were "not in a position to talk new business during 1986". He says that discussions are now under way and the margins from Japan should be on a par with those in the US and in Europe. Despite the problems in the US and Japan, Europe, with the remaining 37% of business, had an excellent year with turnover up 42%. West says that Micro Focus will continue to emphasise direct sales which for the first time passed OEM sales in 1986. Breaking down the products, he says that 27% of revenue came from VS Cobol Workbench, 22% from Cobol level II and 20% from VS Cobol with the other 21% spread through various smaller products.

On the operating systems side, he says that products under Unix and PC/MS-DOS are running neck-and-neck with around 45% with proprietary operating systems accounting for the other 10%. He promises new ANSI 1985 offerings throughout 1987, believing these will be particularly attractive in the US, and additional productivity tools for Workbench. Over the last two years, Micro Focus has sharply trimmed its cost base. In 1986, this led to a net cash inflow of £1.2m against a £4.1m outflow in 1985, and help reduce borrowings from £3.7m to £2.5m. The impact of PS/2 and SAA is unlikely to be felt in 1987 due to IBM's slothfull introduction schedule but with the second half of 1986 showing a small profit - £200,000 - and hopes for an improvement in Japan, Micro Focus should be comfortably back in profit this year and, if IBM's strategy starts to work, 1988 could see high flying again.

UCL ACQUISITIONS MAKE THE PICK AND UNIX COMPANY TOUGH TO CALL

Fresh from three recent acquisitions that by the end of the year will account for more than 50% of its turnover, UCL Group Plc is coming to the Unlisted Securities Market on April 30 by way of a placing by Capel-Cure Myers of 12.5% of its equity. The placing at 125p per share values the Pick and Unix systems company at £9.98m and will raise £1.1m net of expenses, all for the business. The company's core, and indeed before October 1986, only business is Universal Computers Ltd which in the year to December 1986 made £827,000 pre-tax on turnover of £6.3m. It is the largest value added reseller of Ultimate Corp's Honeywell DPS 6-based Pick products outside the US and also markets Pick on Altos and Tandem Computers boxes. Since October, Universal has included Datec, the former software subsidiary of Debenhams, acquired from Burton Group Plc. Datec brought with it Minder, a debt collection and litigation package for which the UCL management has high hopes. In the same month, South London-based UCL also acquired Copyplan Reprographic Ltd of Oxford, an office equipment company that sells NEC facsimile machines, Sharp photocopiers and IBM electronic typewriters. And, in January this year, UCL paid £1.3m in a mixture of cash and shares for Nexel, the last surviving part of Nexos, the National Enterprise Board's disastrous office automation experiment. Nexel made a loss of £115,000 - £112,000 due to an extraordinary item - for the nine months ended December 31 1986 on turnover of £3.1m. In the full 12 months to March 31, it lost £6,000 on revenue of £3.2m and its profit record over the last five years is patchy to say the least. To UCL managing director Alan Wilson, this is one of its attractions. He and finance director Ian Walker say it will turn round easily and will definitely make a healthy positive contribution this year. Four sales staff have been taken on to sell Fortune Systems Corp kit, to which UCL has just acquired exclusive UK distribution rights, to Nexel's existing Unix products maintenance base. The breakdown of revenues so far in 1987 shows that maintenance - spread equally between Pick and Unix - accounts for 41% revenue, hardware and bundled software accounts for 48%, office equipment 6% and separate software, including Ambdev, an ambulance booking and control system; U-Care, a children in care package for local authorities; and FMS, a financial management system bought in from Price Waterhouse, a growing 4%. Half of Universal's sales last year were to the financial sector with approximately one third of that to software houses, like Consultants (Computer and Financial) Plc which it supplies with its hardware needs, that specialise in that area. As if the company's prospects are not difficult enough to assess as things stand with all the new businesses being brought into the fold, UCL is considering further acquisitions and is still involved in legal action with Datamedia Corp over the Datamedia 932 which ICL sells as one of its Clan range.

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/usr/group has produced a summary booklet that describes the Posix trial-use standard; its aims and achievements; and /usr/group's involvement in the product: the pamphlet is available for $1 from /usr/group, 4655 Old Ironsides Drive, 200, Santa Clara, California, 95054.

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Redwood International Ltd's distributor in Brisbane, Australia, **US Connection Pty Ltd,** has won a $1m contract with Australian Airlines to install Uniplex-11 Plus throughout its Australian offices.

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And another of Redwood's dealers **Intercon Computers** in London has announced a family of multi-lingual character sets for use with Uniplex-II Plus: seven modules are currently available for French, German, Italian, Spanish, Dutch, Portuguese and the four Scandinavian languages - each Dialex module costs £195 with a 25% discount for orders of four or more.

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benchMark Technologies Ltd has made the Rootmap suite of office automation packages from **Root Computers** available on all processor versions of the benchmark 32.

- o -

Sanderson Computers Ltd is boasting sales of 130 C-Itoh systems during 1986 in the UK valued at £2.5m: although the C-Itoh machines run Pick, Unix and RM/COS the company says that the greatest demand is for Pick in the UK.

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Microsoft Corp says that while its fiscal fourth quarter figures should be "OK", it likely would not see growth in turnover for the fifth straight quarter: in the third quarter to March, the company saw net profit up 80% at $19.1m on turnover up 95% to $98.4m.

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Fairchild Semiconductor is putting its showpiece Nagasaki, Japan, and its Wasserburg, West Germany wafer fabrication chip plants on the market: the company is itself in process of arranging a management buyout from Schlumberger Ltd - chip plants are a glut on the market.

Minigrams

Tandem Computers UK Ltd last week held the UK launches of the NonStop CLX and the LXN, the re-engineered Altos 3086 box that forms the fault-tolerant hardware supplier's first foray into the Unix market; single CLXs start at £52,848 with the LXN, the first product in a line "that will be extended within the next few months", at £21,188 and the Laser-LX printer is £2,320; the company says it did not consider a fault-tolerant Unix such as that sold by Parallel as it wanted to adhere to the industry standards that are emerging and to benefit from the existing raft of software.

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Convergent Technologies just added two new models to its S series of 68020 Unix machines, but they're nothing to get too excited about: they are the S/221 and S/222, vari- ations on the theme of the S/220 22-user 12.5MHz 68020 model that comes between the S/120 and the S/320; the S/221 takes up to 420Mb against the 280Mb maximum of the 220, and starts at the same $14,000 price, while the S/222 takes up to 1.4Gb of disk, has five slots in stead of three, and includes VMEbus option; it starts at $15,500.

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Sun Microsystems and Inference Corp have entered a joint marketing agreement to promote sales of the Automated Reasoning Tool (ART) and Sun's technical workstations - ART is an expert system tool used in business-critical environments.

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Torch Computers of Cambridge has entered the desktop publishing market with SoftQuad publishing software supplied by **Unixsys (UK) Ltd** of Warrington, Cheshire: Torch's publishing system comprises a Torch Triple X workstation, SoftQuad and the CrystalWriter Plus word processing package - prices start at around £11,500 for the software and 68010-based Triple X with 2Mb RAM, 40Mb Winchester and a high resolution monitor.

Thomson Microsystems has added an intelligent graphics controller card to its VME range based on the TS68483 graphics controller chip operating at 17MHz which allows ten memory planes of 1024 by 1024 bits to be used as eight video planes plus to masking planes, 256 colours are available from 256,000: graphics primitives and Unix drivers are available with the board.

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Autodesk Ltd with offices in London has acquired Cadetron Inc and with it a set of design tools, 'The Engineer Works', based on PADL-2 - a solid modelling system - the tools run on the IBM PC AT or compatible under Xenix.

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State of the Art Inc of Costa Mesa, California has entered distribution agreements with: the **Santa Cruz Operation** of Santa Cruz, California; **Arnet Corp** of Nashville, Tennessee; and **Basis Inc** of Albuquerque, New Mexico; to provide turnkey Xenix multi-user hardware and software packages to its M*A*S 90 Master Accounting Series software users and resellers.

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Masscomp, of Westford, Massachusetts, has announced that its 14MFlop VA-1 Vector Accelerator can be used with its entry-level member of the 5000 family - the MC5400: the VA-1 is priced at £10,500 and was previously limited to Masscomp's mid-range and high-end systems.

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Drive Computer Services of Wakefield, Yorkshire has introduced a production management system, Bliss, which the company claims is the only available software that avoids the common 'bill of materials' approach to provide a solution to process percentages of materials rather than the specific number of components: the software was originally written for Total Oil's Lubricants Division and will run on machines supporting RM Cobol and Unix.

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The **EUUG** Spring 1987 conference and exhibition which will be held at sea on board the M/S Mariella (UX No 120) will be supported by tutorials in Helsinki, Finland covering topics such as windowing, NFS, C++, and streams: enquiries should be directed to the EUUG Secretariat on 0763 73039.

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PYRAMID TECHNOLOGY ADDS THREE, FOUR PROCESSOR MODELS OF ITS 9000 UNIX RISC

Pyramid Technology Inc, Mountain View, California has gone ahead and completed the recasting of its processor line with launch of three and four processor configurations of its new 9000 RISC - and added an entry level model consisting of the older 98x CPU in the new housing and with the new co-processors. The four processor 9840 is rated by the company at 25 MIPS, and to support up to 512 users. In standard configuration of 32Mb CPU, 470Mb disk, half-inch streaming tape drive, Ethernet, Unix System V+4.2 licence, 32 ports and console, it costs £467,700. The three processor 9830, rated at 19 MIPS, in the same configuration is £385,800. Main memory on the new models and on the dual processor 9820 and single processor 9810 goes to 128Mb, disk capacity goes to 32Gb. The baby of the family is now the new 9805, which adds the memory manager and the floating point unit of the 9000 series to the 98x processor to create a machine claimed to deliver 3.5 MIPS, which costs £117,345 with 4Mb, 470Mb disk and 16 ports. All are available as is a new 1.1Gb disk drive, the company's own ANSI 85 Cobol compiler, and SNA/3270 emulation software from System Strategies Inc. Pyramid says that following its new policy, over half UK business is now database-related.

MULTIFLOW LAUNCHES "WIDE INSTRUCTION WORD" FORTRAN CPU

The flowering of new computer architectures continues apace, and after the reduced instruction set computer comes the wide instruction word computer, courtesy of Multiflow Computer Inc of Branford, Connecticut. The start-up company, which was only prepared to drop teasing hints of its plans last autumn (Ux No 103), has spent three years and $17.6m of venture capital developing its 64-bit Trace machine, the key feature of which is that it uses instruction words that are at least 256 bits wide, rising to 1,024 bits on the top model. Use of the wide instruction word means that each word in the set accomplishes seven, 14 or 28 operations, depending on the model. Use of very long instruction words - also called horizontal microcode, can lead to a very fast machine because it greatly reduces instruction decode time, but the set tends to be highly redundant. The Trace machine, which runs under enhanced Berkeley 4.3 Unix, is designed for compute-intensive Fortran and C applications, and the name derives from use of Trace Scheduling Compilers, where the compiler compensates for conditional jumps by trying to second-guess the program on where to jump. The entry Trace 7/200 model, available now, is claimed to run at 6Mflops using the Linpack benchmark, and to execute 14.195 Dhrystone MIPS; peak performance is rated at 30 Mflops. Priced at $300,000, it includes 16Mb memory expandable to 512Mb, and comes with VME input-ouput processor and disk controller with 512Mb drive, tape drive, terminal, and Fortran and Unix. Upgrading to the 14/200 model, which has a 512-bit instruction word, 14 operations per instruction, requires addition of two boards, and to the 28/200, with a 1,024-bit instruction word and 28 operations per instruction, four boards. The top two models are set for shipment this autumn. Trace machines are in beta test at Sikorski, Grumman and the US Supercomputing Research Laboratory.

SYSTIME 3-30 DELAYED DUE TO FAULTY 386 - 386 SHORTAGES ANTICIPATED

Systime's launch of its Series 3-30 386-based machine (UX No 126) was delayed due to a fault encountered with the Intel 80386. The company said that it had problems with the 386 mainly because it was implementing Unix System V.3, a full 32- bit version of Unix. The Intel 80386 has a faulty arithmetic logic unit that occasionally produces errors when 32-bit numbers are multiplied. Systime added that PC manufacturers using the chip to improve processing time would not be affected as most are using 16-bit operating systems. Intel says that the errors only occur in a few of the chips and add that OEMs can return faulty chips to Intel and have bug-free ones returned. As a result Intel expects the 80386 to be in short supply over the next few months but adds that it has started production with a new mask and is adding two more production lines for the chip. Intel expects to ship around 750,000 386s this year. Intel also reports that construction will begin soon on the first production module of a new wafer fabrication facility in Rio Rancho, New Mexico, and the plant will make 80386 microprocessors and other CHMOS parts using 6" wafers, The company recalls that its 600,000 square foot Fab 9 was begun in 1984, and structurally completed in mid-1986, but left unoccupied and unequipped awaiting increased demand. Intel plans to complete the first of four 25,000 square foot clean room modules and begin production in the second quarter of 1988. Administrative space required for the fabs will also be completed. Projected cost for the first phase is $50m. Fab 9 will be Intel's second wafer fab in Rio Rancho, a suburb of Alburquerque; Fab 7 opened in 1983.

NATSEMI STRESSES COMMITMENT TO NS32000 AT IN-STAT'S SEMICONDUCTOR FORUM

Endorsing the In-Stat forecast that by 1990 there would be just four microprocessors in the 32-bit game, Randy Parker, vice president and general manager of microcomputer systems for National Semiconductor Corp took the opportunity to bang the drum for his company at In-Stat's third annual Semiconductor Forum in Phoenix, Arizona this week.

Microprocessor suppliers must be increasingly committed and consistent in their strategies as the 32-bit generation comes of age, Parker told the forum. "A decade ago, some suppliers used to joke that all their microprocessor customers really needed was thinking less in terms only of hardware performance and the cost to buy the hardware, and more in terms of the cost to use the product," he stated. To meet the ever- increasing needs of their customers, and to protect their customers' investments, microprocessor suppliers must concentrate on software compatibility and the upgradeability of their product generations, Parker said. They also must recognise the complexity their customers face in designing-in a high- performance, 32-bit microprocessor.

Processor Strategy - Not Enough

NatSemi estimates that its customers' investment in the Series 32000 family is more than $1,000m. "Customers are often nervous about committing to one CPU when someone else might be coming out with something better very soon. We're finding, though, that customers are now placing more weight on the real issues such as the availability of software, peripherals, memory, a company's past microprocessor experience and its commitment to future microprocessor development." A microprocessor strategy alone was not enough, he said, companies needed to have a consistent long-term company strategy that includes microprocessors - he cited wide flexibility through cell libraries. As well as hardware and software, Parker said, the top suppliers of 32-bit microprocessor technology must offer world-class marketing, sales, technical support and field application engineering staffs".

In-Stat projects that by 1990 the US 32-bit market will be dominated by just four firms, Intel, Motorola, NatSemi and Fairchild, sharing about 80% of the market. Declaring that microprocessor and application specific circuits were NatSemi's two top priorities, Parker suggested that the big winners in the 32-bit world would be the few that could do it all: forge the right strategies, make the necessary massive commitments of both financial and human resources, come up with the right ways of differentiating themselves, and, of utmost importance, remain committed to their long-term microprocessor goals and consistent in their methods of meeting them.

JAPAN's TRON HAS LITTLE CHANCE AT HOME, NO CHANCE ABROAD, SAYS ASCII's NISHI

Japanese guru of the computer industry and inventor of the home computer MSX operating system, Kay Nishi, has naught for the comfort of his countrymen who hope to make their mark on the world systems software stage with Tokyo University's brainchild, the Tron operating system. He reckons that the operating system, which is conceptually akin to Unix, has no hope at all outside Japan, and only the possibility of a winning a 15% market share within Japan. He reckons that Unix will take 20% to 30% of the Japanese market for 32-bit microprocessor operating systems, with the rest going to MS-DOS and OS/2. He does believe, however, that Japan will have some success in the worldwide market for telecommunications software, including that for local area networks, where input-output mechanisms are clearly defined: as a result, the C-Tron communications variant of the Tron operating system may well turn out to be most successful.

USERS NEED MORE POWER THAN INFORMIX AND TURN TO INGRES

Users of Celerity Computing's Unix-based minis have demanded larger and more powerful database systems than the current offering, Informix, on the 32-bit machines can offer. Consequently the San Diego, California company has added Ingres from RTI to meet the demand espescially from its scientific, engineering and government customers. Ingres will be available on Celerity equipment at the end of this quarter and will cost $10,000.

PRIME ON THE LOOK OUT FOR A MAJOR ACQUISITION

Prime Computer Inc recognises that in an industry dominated by IBM - $50,000m a year, Unisys - $10,000m, DEC - $9,000m, and Honeywell Bull - $7,000m, not to mention the Japanese, it's no good being a $1,000m a year company any more. At the beginning of the year the company charged its war chest with an issue of $350m of convertible debentures, and is now actively seeking acquisitions that would double its size. One name that has been actively canvassed is Data General Corp, but such a move would make little sense since the most expensive aspect of the minicomputer business is supporting a proprietary operating system and even if it did acquire Data General, it would make no sense to abandon either Primos or AOS. Data General anyway would resist, and a hostile bid would quickly become messy and likely drive the target into the arms of a white knight. In terms of both size and fit, companies like ComputerVision, Silicon Graphics and Daisy Systems would seem to make much more sense.

MS MOVE INTO RELATIONAL DATABASES - LEGAL ROW WITH TETRA CONTINUES

Basic translator specialist MS Associates is diversifying into a hotly contested area with the development of a SQL-compatible relational database built round its own ISAM file handling package. The database is a result of a development commissioned by an existing customer and managing director Keith Maskell claimed that it would appeal to software houses developing their own packages - MS will probably take the approach of a large one-time cost and no run-time licence fees. Maskell stresses the performance of the ISAM and said that a key point in future developments will be flexibility in being able to tailor the appearance of the product. It is built on a server process/message passing architecture which is also said to make it a natural fit for future developments in the distributed database area. Maskell admitted that MS is unlikely to be able to compete with the resources and established position of the major vendors but said that the level of interest was promising. MS, having sold "several hundred" copies of its various Basic-to-C translators, has now picked up a couple of customers for its DEC Basic+ product and interestingly, Maskell said that 60% of DEC Basic sales leads are from DEC users wanting to move to VMS, not Unix, but unable to do so because of DEC's policy of not providing Basic+ on the VAX. Meanwhile the challenge from Tetra Business Systems over MS's rights to C-Gen - Maskell was originally employed as a freelance programmer at Tetra before MS was founded - continues in the background. Despite all the publicity generated by the claims and counterclaims of the two companies, neither side has apparently issued a writ.

HONEYWELL-NEC ENHANCES THE NEC SX 2 SUPERCOMPUTER LINE

Honeywell-NEC Supercomputers Inc yesterday wound up the clock to 6nS on the low-end models of its SX 2 supercomputers, increasing performance of the smallest two by 16%, so that users can upgrade from bottom to top of the line, and expanded extended memory fourfold to a maximum 8Gb. All models are now fully field upgradable to the SX 2-400 (formerly the SX-2), rated at 1.3Gflops to make it the most powerful uniprocessor around.

PRIME MAKES BIG PITCH INTO UNIX MARKET WITH OWN 386 BOX, LOCUS MERGE 386

Prime Computer Inc last week took the plunge into the mainstream Unix systems market with its own 80386-based machine - it has hitherto bought such products from Convergent Technologies - and the Merge 386 implementation of Unix System V.3 from Locus Computing Corp that supports multiple MS-DOS partitions as tasks. Called the EXL 316, the 16MHz 32-bit micro supports up to 58 asynchronous lines, and communicates with Prime 50 Series minis and other vendors' systems via Ethernet and the TCP/IP protocol. Prime is also developing SNA links betweeen the EXL 316 and IBM systems. The machine comes with Prime's own V.3 implementation as standard and Merge 386, from Locus in Santa Monica, California, is offered as an option; Prime also offers the Locus PC-Interface, which enables IBM Personalikes used as terminals to an EXL 316 to move back and forth freely between MS-DOS and Unix applications. Development software offered includes Thoroughbred Basic, RM-Cobol-85, Prime Oracle and Ten/Plus, and C, Fortran 77 and Pascal. The base $23,900 price includes the 25" cabinet with 2Mb CPU, 90Mb disk, 60Mb tape streamer and 10 lines, plus System V.3. Main memory goes to 8Mb and disk to 1Gb. Merge 386 is $1,800, PC Interface is $1,500 on the host micro plus $150 for each Personal. Ships start worldwide in June. Prime says it is looking for a business split of 60% through resellers, 40% through its direct sales force.

X/OPEN HAS PLANS FOR NETWORKING, TRANSACTION PROCESSING AND SECURITY

The X/Open Group plans announcements in the key areas of networking, transaction processing and security this year, technical manager Mike Lambert said last week. Speaking at The Instruction Set Unix Directions conference, he said that the effort in the networking area - where the Group had to back off on early optimism to wait for standards definition work to catch up - would result in he publication of two "trial use" definitions during 1987. He refused to elaborate, but the Group has been working with others to arrive at protocol- independent interfaces at the level of the ISO CASE services and IBM's SNA LU 6.2. X/Open has adopted the trial use idea - comparable to the IEEE trial use standards - to publish definitions not ready for inclusion in the Portability Guide. The first of the promised announcements, however, is likely to be at Comunix this month about the work in the transaction processing area, where X/Open contracted Data Logic to do a study. Lambert indicated that the general state of the market - little coherence and no dominant product - meant that it was early days yet. And in the security area, X/Open is involved in an effort to produce a commercial version of the US DoD "Orange Book" defining security levels. While definitions are expected to map onto the US levels, he said that the jump between C2 and the much more rigorous B1 may mean that there is a place for further levels in between for commercial systems. Windowing is another area due for announcements "before the summer". Finally the X/Open verification suite is in a late beta test phase.

COMPUTER FACTORS TAKES IBM PS/2, RT, BUT PICK-POPPING IS STILL TOPS

Pick systems house Computer Factors Ltd of Coventry has racked up a 70% increase in turnover and a 600% jump in profits, which suggests that there's life in the ol' Pick market yet. Factors hit £4.4m in sales, and reaped £180,000 pretax for 1986 after figures of just £2.6m and £30,000 for 1985. Although Computer Factors has taken a bit of a sideways move into Unix and IBM Personals, over 65% of its business still came from Pick installations on Honeywell, ADDS and Ultimate machines. Most of the rest came from Personals, but Factors is starting to move some of IBM's RT Personal RISC machines and is taking on board the whole Personal System/2 range during 1987. IBM is likely to be courting companies with a track record of handling multi-user, multi-tasking environments and Computer Factors boss Chris Creighton-Thomas was more than keen to make a point that yes, companies like his would take on the IBM range, but no, it won't stop them making even more money out of Pick systems. "We treat the IBM systems as worth selling into horizontal environments, while we have strong vertical applications for Pick based machines." Which is another way of saying that all the IBM machines are sold with software off the shelf. IBM is believed to be making PS/2 particularly attractive to companies like Computer Factors, offering discounts in the 40% region where business is up around the £1m a year mark. IBM has also changed the way it allocates discount, by basing it on quarterly orders rather than each single order. This may go a long way to reduce unhealthy overstocking by micro suppliers and the resultant mass discount houses that just warehouse the machines. Creighton-Thomas sees over £5m turnover for Computer Factors for 1987 and has already done £1.3m in the first quarter.

TANDEM COMPUTERS OFFERS VENTURE CAPITAL TO EUROPEAN COMPUTER START-UPS

Fault-tolerant systems manufacturer Tandem Computers Inc is branching out into the European venture capital field. The Cupertino, California company has appointed David Sims, joint founder and former head of venture capital outfit Simtech, to search out and invest in start-up computer companies that could eventually lead to Tandem increasing its share of the market. Already Sims, who has the title director of new ventures, Europe, has agreed terms with two European software houses, details of which will be released early next month, and he is looking at other investments. Sims says he is interested in both hardware - "perhaps someone will invent a new terminal that boosts the performance of our machines" - and software ventures, and will offer funds on a long-term basis in return for a minority stake in the targets. Tandem will be happy to invest alongside other venture capitalists.

UNIVATION ADDS TCP/IP PROTOCOLS FOR PCs AND ANNOUNCES NEW DISTRIBUTORS

Networking software supplier Univation Inc of Milpitas, California has introduced UPC/TCP software that repotedly integrates TCP/IP protocols with Ethernet local area networks. UPC/TCP is installed with Univation's Ethernet network interface card, LifeLink, and provides communication between workstations, local area networks, and minicomputer and mainframe systems.

Univation anticipates that IBM's endorsement of TCP/IP and Ethernet will mean increased demand for this type of software. The company adds that because TCP/IP protocols are included with most Unix-based systems Ethernet local area networks with UPC/TCP will communicate with a wide range of machines from different vendors. One of the features that Univation considers important is that UPC/TCP allows users to access the minicomputer without ever logging off the network. UPC/TCP and LifeLink let PCs function as independent workstations, part of a local area network, or as terminals to a mainframe or minicomputer. For single-user computing, users can work at individual PCs. For multi-user operations requiring PC software, the local area network is more efficient. For high-volume data processing and storage, users select a network menu option and log in as a terminal to the minicomputer or mainframe. UPC/TCP and LifeLink need no extra interface cards, duplicate cables, or a dedicated gateway computer. Additionally, UPC/TCP ensures that TCP/IP resides at the workstation, in compliance with federal ULANA specifications.

Adds Greece and Israel

Separately Univation has signed four new distributors for its local area network and desktop publishing products, bringing the total number of international distributors to 15 and adding Greece and Israel to the list of 12 countries already covered by Univation distributors. Univation expects the agreements to bring in around $12 million of revenue over the next two years. Under the terms of the agreements, the new distributors will market Univation's entire product line, including: LifeNet local area network software; LifeLink Ethernet network interface card; LifeServer network servers; Turbo Ventura Publisher desktop publisher; and various peripheral products. SMM Hellas EPE is the new Greek distributor which currently is involved in education, product development, hardware service and consulting. Five year old IPT of Nuernberg is Univation's third distributor in West Germany. Bitmore Computer & Peripheral Services Ltd will sell Univation products in Israel.

Univation will hold its first international technical training session is scheduled for the end of May at Univation's headquarters in Milpitas.

SOUTH KOREANS SIGN TECHNOLOGY PACTS TO FIND THEIR FEET IN SUPERMICRO MARKET

If often turbulent national politics allow, South Korea is shaping up to become the next Japan - but don't run away with the idea that the Koreans are much like Japan. Where the Japanese are trained and educated to think alike and to work towards consensus, so that it pays to cultivate people at all levels of a Japanese company in order to get one's point across, with Korean companies, the boss is expected to be something of an autocrat, and if you want a decision, go straight to the top.

And all the signs are that we will be doing more and more business with Korea as the trail-blazing of the industrial conglomerates is followed by the creation of a string of thrusting young newcomers, often led by US-educated Koreans, who are anxious to prove their worth, make their mark and put into practice what they have learned in the US. The preferred approach is to start out by buying a licence to US technology, either by giving an established company an outlet that would otherwise be closed in the Korean market, or by laying hands on some cash that can be used as venture capital to help a US start-up to get on its feet, in return for rights to the product in development, and perhaps a contract to be the sole manufacturing source for it. Typical is the Korean 32-bit supermicro market. Korean Computerworld reports that following the lead of major vendors such as Gold Star Co and Samsung Semiconductor & Telecommunications Co, smaller manufacturers have entered the domestic 32-bit supermicro arena here with entries of their own. As demand heats up for 32-bit performance, firms such as Zeus Computer Co, KIPS and APC have jumped on the bandwaggon by hooking up with foreign computer firms.

Own designing

Zeus Computer, in conjunction with Zeltec since last year, has developed the 32UX 32- bit supermicro using, needless to say, Unix System V and built around two National Semiconductor NS32016s and supports four to 16 users. KIPS has gone to Motorola for the wherewithal to produce the 68010-based Series 200-290 supermicro, which is claimed to support up to 18 users under Unix System V. APC, with IBC as its technology partner, is one of the earliest companies anywhere to offer a Xenix machine, the APC-32, built around the Intel 80386; the machine is claimed to support up to 100 users. The majors have found their main market for their 32-bit supermicros in public offices and corporate research institutions. Gold Star is currently promoting the GSM-2068 and the GSM-3068, based on the Altos Computer Systems machines with the same numbers. Samsung Semiconductor & Telecommunications is advertising the SSM-32, developed in co- operation with the Korean Electronics & Telecommunications Research Institute. And Samsung Hewlett-Packard is soon expected to adapt versions of its new HP 9000/840 RISC workstation for the Korean market. Having learned the rules of the game from their technology partners, the Korean companies will no doubt be pushing out onto the world market in two or three years' time with low- cost successor products of their own designing.

HEWLETT-PACKARD UK LIFTS NETWORK PRODUCTS, SERVICES ONTO NEW PLANE

Hewlett-Packard Ltd has enhanced and simplified its AdvanceNet network strategy by configuring five applications-specific network solutions based on 10 new products, including a company-wide private X25 network. The other four new networks are a regional sales and service network using dial-up, leased, point-to-point and X25 public and private networks; a business-office network based on Hewlett-Packard Starlan; a computer- integrated manufacturing network using MAP and IEEE 802.4; and an engineering network linking Unix and non-Unix workstations. The 10 new products are the HP X25 private packet network, a family of switching nodes and a network management system; the HP 2334A Plus X25 multiplexer, providing 25% better performance than the 2334A; the HP 18264A statistics package fo rthe HP 4952A protocol analyser; the HP 18300A X25 network performance analyser; the Net/One Buffered Repeater from Ungermann-Bass Inc to link subnetworks to a broadband net; HP Network Services for the DEC VAX, for enhanced communications between DEC and Hewlett- Packard minis; HP Network Planning & Design Service; HP Network Prepare scheduling and planning service; HP Network Startup service to co-ordinate network installation and verification; and HP NetAssure contract maintenance service.

ALTOS SETS 80386 XENIX MACHINE FOR MAY LAUNCH

Maintaining its policy of keeping a firm foot in both the Motorola and Intel camps, Altos Computer Systems will top off its Intel-based line of Xenix systems with an 80386-based machine, for launch on May 28.

THOMSON SUES MOTOROLA FOR $525m OVER 68020 MASKS

Having given up hope of ever seeing the masks for the 32-bit 68020 promised to it by Motorola Inc under a September 1984 agreement, Thomson-CSF of France has resorted to legal action through the French courts, and is after the Schaumberg, Illinois chipmaker for some $525m in compensation and damages. Motorola has asked for talks to settle the complaint out of court, and the two are now in a huddle according to Electronic News. It is thought unlikely that Motorola will want to transfer the 68020 masks to the French firm - its European second source on other 68000 parts, because of its technology pact with Toshiba, which includes the 68020.

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Minigrams

Convergent Technologies Inc has reported a first quarter net loss of $11.0m against a profit last time of $2.1m, on turnover down 17.8% to $73.6m.

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Sequent Computer Systems Inc got its initial public offering of 1.5m shares away at $17 apiece; Goldman Sachs & Co was the lead underwriter to the issue.

- o -

Following **Pyramid Technology's** financial results announcements (UX No 125) David Thornley has said that the company now has a strong order book in the US and the UK and hopes to continue steady growth.

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I A Data Systems of Hitchin, Hertfordshire is offering a £1,000 trade-in for users of single-user accounting and stock control systems who wish to use its multi-user, Unix/Xenix-based Mosaic accounting software system.

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Whitechapel Workstations has opened its first European office in Brussels which will act as a co- ordinating centre for the East London based nine European distributors: the company intends to increase its European VARs and push up the current 25% of sales to Europe to 50% by mid 1988.

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Professional Computer Solutions of Ilford, Essex has signed up to become a VAR for Star Computers Ltd to supply the complete range of Convergent Technologies machines to end users through its own dealer network: the company anticipates that the contract will be worth around £500,000 in the first year - at a later stage Summit Computers Ltd, one of PCS's dealers, may take on the third party maintenance which will initially be done by Star itself.

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Steam Radio could not find a Unix-based spreadsheet that read and wrote ASCII files and so devloped one of its own, Matrix, which will be available within the next two months for a price of around £200.

Laticorp Inc, Unix software developers, will be opening its European office in London in time for European Unix User Show and the San Francisco, California company will also announce three European distributors at the show: Sphinx Ltd of Maidenhead, Berkshire in the UK; Panifco of Zurich in Switzerland; and Oriane of Paris in France - the company says that it will be opening a European sales and support office in July.

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Action Instruments of San Diego, California has said that it will "shortly" have a real-time implementation of Unix for the Intel 80386 processor.

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Tokai Create found Adam Osborne's budget software company by approaching the US Embassy in its quest for foreign partners - and is still looking for overseas partners who have products in the field of Unix development tools and office automation applications.

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MiniScribe Corp, VLSI Technology Inc, Apollo Computer Inc, Seagate Technology Inc and Convergent Technologies in that order top Electronic magazine's list of the fastest growing high-technology companies since 1981: to qualify for inclusion companies, must be five years old and have 1986 sales in excess of $100m, so **Sun Micro systems Inc** will be eligible for inclusion next year and at present rates of growth promises to come out at or near the top of the pile.

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Intergraph Corp has assured customers that the shortage of **Fairchild** Clipper processors is at an end: the number of Clipp- er chip sets coming into stores at Intergraph every month is now up at around the 500 mark.

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Inmos International Ltd reports that **Matsushita Electric Trading** has found over 100 potential customers for the Transputer in Japan, and that 30 are planning to incorporate them into products this year.

Tandem Computers Inc is teaming up with **Coopers & Lybrand** to attack the computer integrated manufacturing market, with Tandem supplying the systems and the New York accounting firm's integrated manufacturing team offering consultancy.

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And **Tandem** has a 10-year contract worth $15m over the first five years for an enhanced command and control system for the Royal Hong Kong Police Force; after that it presumably ceases to be Royal.

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Having set the industry standard for page description languages with its PostScript product, **Adobe Systems Inc,** Palo Alto, California has turned its hand to graphics with the introduction of Adobe Illustra-tor for Apple's Macintosh: the product, which is based on Post-Script, and illustrations created with it can be printed on any Post-Script printer - the company says it will be available from dealers from next month, but gave no price.

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Up to now, the **CIE Systems** arm of **C Itoh** has used processors imported from Hitachi as the basis of its Pick machines, but we hear that US-Japanese trade friction has persua-ded it to look to a US supplier, and Convergent Technologies is the favourite: it would tailor one of the models from its new 68020-based S-series to run Pick efficiently.

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Not too surprisingly, **Tandy Corp** will launch an 80386-based Personalike this year: the Fort Worth, Texas company is also planning to introduce its first laser printer.

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Access Technology has followed the opening of its sales office in Paris, France with one in Dusseldorf, Germany which will be headed by Jurgen Kuhnhold from **Tandem Computers.**

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Prime Computer's recently announced Intel 80386-based product the EXL 316 gets the numeric part of its name by taking the 3 from the 386 chip and 16 from the clock speed of the machine.

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HONEYWELL BULL PUTS WEIGHT BEHIND UNIX - ANNOUNCES XPS 100

Honeywell Bull has announced in the UK the XPS 100 series that Honeywell launched last autumn in the US (UX No 97). Three Unix System V.2-based models are included in the line: the 68010- based X10, the 68020-based X20 and the dual processeor X40. The X10 supports up to 16 users, the X20 up to 24 and the X40 - 64. Honeywell Bull insists that these new Unix machines will not replace the GCOS operating system range, DPS, but will fill a market need. Indeed the company has attempted to integrate the machines with the proprietary GCOS systems allowing users to transfer files between the two and by using Honeywell terminals or PCs log in from Unix machines to GCOS-based mainframes. In addition the newly formed company has Unix offerings from Bull and NEC. Bull in France has the RISC-based SPS9 and the multiprocessor SPS7 as well as a Unix co-processor for the DPS 4 Plus mini - the company is considering selling these elsewhere. NEC has Unix-based multi-user systems and an engineering workstation to offer. Honeywell Bull in the UK is currently concentrating on the XPS 100 and adds that Unix is becoming increasingly important and backs this up by saying that there are around 700 staff involved in Unix throughout Europe. The X100 prices range from an X10 at £9,850 to an X40 with 8Mb RAM, 360Mb Winchester disks, 64 ports and streaming tape at around £62,000.

CYDROME SHOWS OFF CYDRA 5 DATAFLOW MACHINE

Cydrome Inc is giving its data-flow architecture-based Cydra 5 its first viewing this week at the International Conferenve in Supercomputing in Santa Clara, California. The Cydra uses an intelligent compiler, Cydome's implementation of ANSI Fortran 77 with DEC VMS and IBM Fortran extensions, to schedule operations rather than the hardware. The machine uses two types of system memory, controlled by the Motorola 68000 processor, one is set for rapid parallel access and the other for serial access but both are 1Mbit dynamic RAMs and can handle data and instructions. The former has been interleaved so that the numeric processor can access it in parallel over a 200Mb per second bus but the latter is accessed serially by the general processor over the system bus, which maintains longer access times but requires a greater bandwidth. The Cydra has 256Kb of 16 or 32Mb 'serial memory'. The numeric processor was specifically designed to make the Cydra 5 a number cruncher as well as a general purpose machine. It uses a 64-bit bus, rated at 100Mb per second and standard ECL and some Motorola gate arrays. Unlike other minisupercomputers the numeric processor in the Cydra has the same priority as general purpose processors. The numeric processor includes a 32Kb instruction cache but no data cache because Cydrome believes that it can degrade performance. Initially only one numeric processor will be included in the Cydra 5 but it is designed for multiple processors. The operating system is Unix System V.3 modified to run across multiple processors. The I/O processor is a 16MHz 68020 that can control up to three VMEbus interfaces. The Cydra 5 is said to be data-flow like because unlike traditional data- flow machines it does sustain large overheads in scheduling data available for operations - normally data-flow hardware senses when inputs are available, tags them and performs two associative searches for each operation. The Cydra is aimed at owners of general purpose machines such as the DEC VAX that want more power for computationally intensive tasks. The Cydra 5 is expected to be avialable this summer for $600,000 to $900,000 from Cydrome and its 10% shareholders, Prime Computers.

SUN SETS RISC FOR AUTUMN

Sun Microsystems is due to launch the first products based on its own RISC microprocessor this autumn. A new workstation, compute server and a multi-user Unix box are expected.

X/OPEN GETTING TO GRIPS WITH TP USING UNIX

The X/Open Group presents a white paper on transaction processing next week at Comunix following the completion of a feasibility study to define an architectural model, set of protocol boundaries and necessary Unix modifications for transaction processing systems, and a key feature is expected to be a high level protocol based on SNA LU6.2 but independent of the underlying networking regime. The study, carried out by UK systems house Data Logic, has encouraging conclusions on the feasibility of using Unix as a basis for TP systems, and the White Paper is intended to form the basis of discussion leading eventually to a complete definition of a standard architecture and interfaces. The new XPPC protocol definition will provide capabilities similar to the Advanced Program to Program Communications (APPC) protocol defined in LU6.2.

UNIQ OFFERS V.3 ON VAX WITH NO HELP FROM DEC OR AT&T

Depsite DEC's firm refusal to put Unix System V.3 onto the VAX and AT&T's decision to only supply 3B licences Uniq of Batavia, Illinois has announced that it is supplying V.3 with streams for the VAX line. The company anticipates problems in selling to the end user because of DEC's practice of bundling its operating system software with the hardware so users wanting V.3 will be forced to buy an Ultrix licence and then disgard it, buying the Uniq product as well. Despite this however the company is confident that there will be sufficient demand for the product from its existing 522 customers and new VAX purchasers and as an added attraction Uniq is offering to swap Ultrix for V.3 on the MicroVAX II but users will have to take the company's maintenance agreement. Prices range between $3,600 for an eight user MicroVAX II and $30,000 for a 65+ user VAX 8600.

MERGED NEWS AND X.11 TO BECOME A STANDARD?

Following Sun's announcement of a merged NeWS and X.11 window management system (UX No 126) members of the industry have expressed thoughts that this may become the standard. The president of Applix Corp said that his company whole-heartedly supported "the merge towards a standard". EDS thinks that Sun may have another winner, following the success of NFS with the merged system saying that "Sun is following the tradition of NFS with this announcement of a strategy to unify window system platforms across workstation vendors." Intel Corp considers that NeWS alone is sufficient and considers that NeWS will be the chosen OEM windowing system for the Unix-based 386 products. London-based Whitechapel Workstations see Sun's way forward as the best way to support the valuable but less sophisticated X standard.

X/Open technical manager Hans Strack Zimmerman of Siemens at a recent conference, Unix Directions, organised by The Instruction Set, descibed his views on the windowing problem with a discussion of window managers designed to stir up opinion, in comparing of X Windows and NeWS. And probably summed up much of the industry's thoughts and fears concerning the issue. He described X as taking a "very traditional approach" that lacked the sophistication and facilities available with NeWS - a view made rather more controversial by the fact that the X/Open Group is looking to standardise on X.11. This version, he pointed out, is on alpha release and he claimed that MIT is not allowed to release it because other standards bodies are also looking to adopt it.

As an example of the X approach, he noted that X "thinks in terms of pixels" - different fonts are handled by being precomputed into a pattern of pixels and loaded into the display station. This immediately restricts the ability of the workstation to manipulate the result. Saying that the Xlib library of window management routines were "too low level" and a higher level set of "Widgets" - PRESUMABLY THE TOOLS BEING DEVELOPED BY THE X CONSORTIUM - which would appear "maybe next year". But higher level toolsets would "probably never be standardised" - most companies would have their own proprietary toolsets that fitted their own product strategy.

With X.11 comes an extensible set of facilities, with some opcodes unassigned to allow for definition of extra functions - but he was worried about the result potentially being a set of non- standard extensions. In contrast, the highlights of the PostScript-based NeWS, he said, incuded being able to "express complicated thoughts - but the language is also not so easy to use".

While extolling the power of a system that uses a programming language, interpreted in the display styation, as a protocol, he pointed out that the "technology is not all proven for workstations". "I Think it's a little early in time", he added. And unlike the well understood X, Postscript functions are not easy to speed up by implementing them in silicon.

But he described an example of thge flexibility of NeWS by the way fonts are handled - stored not as a bitmap but as an outline, passed to the workstation that can then enlarge or tilt the result as required. But hope of combining some of the benefits of NeWS with X is at hand - he said that "some of the PostScript model will turn up in the display areas of the first X standard" - and displaying PostScript information in X windows could come close to providing the required flexibility with a standard.

When a member of the audience dared to ask about the possibility of windowing systemns for non- graphics tyerminals, Zimmerman said that all attempts at one scheme that deals with both bitmap and alphanumeric terminalks have failed. If X/Open had been formed five years previously, perhaps it would have looked at a standard for character-based terminals - but he felt that the days of the character based terminal were numbered. That's a common view which seems to be inevitable in the long run, and when you can get a PC for £500, the future of the dumb terminal looks distinctly perilous - but perhaps its just myopia, but the resellers and manufacturers supporting the Unix market simply don't see it like that - last year they were selling small boxes with dumb terminals, next year they'll be selling bigger boxes with the same dumb terminals.

NOW LOCUS WINS MICOM, HONEYWELL BULL FOR PC INTERFACE

Hot on the heels of its pact with Prime Computer Inc, Locus Computing Corp, Santa Monica, California has announced a major licence agreement with Honeywell Bull Inc, and a development agreement with Micom Systems Inc for its PC-Interface software, which enables MS-DOS and PC-DOS based computers to share peripherals, file space and processing power transparently with a Unix or Xenix host computer. The pact with Honeywell Bull grants the mainframer a non-exclusive, three-year worldwide licence to integrate PC-Interface with its systems. The Micom agreement calls for Locus to develop software enabling integration of PC- Interface with the NI5010 controller board for local area networks. As well as Prime and AT&T, Locus numbers Sun Microsystems, Ridge Computers, Celerity Computing, Arete Systems and UniSoft Corp among its PC Interface customers.

APOLLO LAUNCHES ITS MOST POWERFUL 3-D GRAPHICS WORKSTATIONS - ADDS NETWORK SERVERS

Apollo Computer Inc yesterday duly launched its most powerful three-dimensional graphics workstation yet, the DN590 Turbo and a new line of high-performance network servers. In addition, Apollo introduced enhanced versions of its DN580 Turbo and DN570 Turbo at lower prices. The new DN590 Turbo workstation, Apollo's answer to the likes of the new Prime and Silicon Graphics 3D workstations, designed for 3-D solids modeling and other compute-intensive applications requiring 3-D shaded graphics. It combines the MC68020 CPU and 68881 floating points unit with a new graphics accelerator, and the result is claimed to display 16.7m colours simultaneously, provide 24 colour planes and perform 130,000 3D floating point transform and clipping operations per second. The DN590 Turbo is aimed at graphics-intensive 3-D solids modeling applications, such as image processing, product styling, visual simulation, computer animation, mechanical computer-aided engineering, molecular modeling, fluid dynamics, high-energy physics and robotics applications. Apollo's new DSP500 family of network servers; used to off-load a wide variety of compute-intensive tasks, such as large compilations, simulation programs or other, remote-processing operations; act as communications or peripheral equipment servers. The new versions of the DN580 Turbo and DN570 Turbo workstations have new ESDI disk technology and advanced graphics software. The new DN590 Turbo workstation is available in a 3-D solids modeling packaged system specially configured with advanced graphics software and expanded memory. The DN580 Turbo is offered in a packaged system for 3-D wireframe and another for high-performance electronic design and 2-D mechanical design. The DN570 Turbo comes in a packaged system configured artificial intelligence and electronic design. The DSP500 servers can be configured for extensive file storage or demanding distributed computing across large networks. Prices for the DN590 start at $57,900. Prices for The DSP500 have an entry-level price of $29,900 and the starting price for the enhanced DN580 Turbo workstation has been reduced by $4,000 to $49,900. Apollo claims that the new DN570 Turbo and DN580 Turbo packaged systems prices result in customer savings of up to 10 percent.

SYBASE INTRODUCES RELATIONAL DBMS FOR ON-LINE APPLICATIONS

Sybase Inc has announced a relational database management system specifically designed for on-line applications. The Berkeley, California company say that the system is the first SQL-based RDBMS for VMS-based VAXes and Sun Microsystems' workstations running Unix to provide the capabilities required for on-line applications: high-volume performance, DBMS enforced data integrity, high availability, distributed database management and window-based application development tools. It is claimed that Sybase provides users and developers of on-line applications with the performance of a transaction- based file system and the ease of use, flexibility and maintainability of a SQL-based relational database management system. The Sybase system is based on a requestor/server architecture where the application functions can be handled separately from the data management functions. The DataServer and the DataToolset are the basis of Sybase. The DataServer handles data management functions for all users on the system. The DataToolset provides a set of window-based tools for building and running applications on either character terminals or bit-mapped workstations. Sybase has users in government and defense, banking and finance, and telecommunications. Sybase sees applications for its product in: computer integrated manufacturing; order entry; customer service/support; automated portfolio management; loan management; just-in-time inventory control; telemarketing; and directory assistance. Current customers include Chemical Bank, Johns Hopkins Hospital, Pacific Bell and TRW. The Sybase DataServer and DataToolset combined are priced from $15,000 to $150,000 for supermini computers and from $1,000 to $10,000 for supermicro workstations. The price variation is dependent on CPU cost.

NATSEMI's DATACHECKER TAKES UNIX INTO THE SUPERMARKET

It begins to look as if it soon won't be possible to go on a shopping expedition without interfacing to Unix. Following NCR Corp's introduction of a new line of point-of-sale systems based on adaptations of the Tower and Unix earlier this year, the other major US player in the electronic point of sale systems market, National Semicond uctor Corp's Datachecker Systems Inc this week announced a string of new products at the Food Marketing Institute in Chicago, most notably the Epoch Series, a four-model family of 32-bit Unix supermicros for point-of-sale applications, spread sheets and word processing. The company also announced its Portal/X system software which integrates the Epoch machine with Datachecker's 1600 or 1700 controller. The program acts as a focal point for other in-store applications such as direct store deliver, pharmacy management and price verification. The firm also added systems for electronic funds transfer debit, coupon validation and security cheque card scanning. Other new hardware includes the 2200 KeyScan Terminal for small grocers and drugstores, and a sidebar acquisition barcode reader and MS-260 Compact Scanner.

NEURAL NETWORKS HASTEN THE ERA OF THE COMPUTER THAT CAN TEACH ITSELF

A trio of smart memory chips to bring a gleam to a systems designer's eye and eventually lead to computers with more than room temperature IQ have been announced recently, together with a pair of developments available here and now to boost the performance of current processors.

The only one of the first three that is actually available as a product now is the 95C85 content addressable memory (CAM) from AMD. With CAM data is stored in the memory in the normal way, but accessed by inputting a word or phrase and the chip returns the addresses of all the files containing the input data string.

Up to now there has only been two ways to provide this facility. One is the method used by systems like ICL's CAFS - content addressable file store - which has an array of minicomputers to rapidly search through the stored data and match it with the requested data. But these are large and expensive and tend to be part of large mainframe systems.

The other way is to use software algorithms, but these are very slow - AMD's 95C85 - content addressable data manager finds files 500 times faster than the alternative software sorting routines. Three other companies are working to bring out similar devices: Fairchild Semiconductor, Integrated Device Technology and Vitelic.

Fifth Generation

If the Japanese Fifth Generation project is to lead to any quantum breakthroughs in computer science, the likelihood is that neural networks will lie at the heart of development. The basic neural networks that have already been constructed in the US and Japan come much closer to the imitating the learning process in humans than any earlier type of computer system, and, with much less publicity, as many first are being achieved around the world as in the much touted superconducting technologies. Animal nervous systems are marked by a very high degree of connectivity, with each nerve linked to hundreds or thousands of other ones, and by the presence of both excitory and inhibitory impulses, and a neural network computer seeks to imitate this relationship, creating a complex network of electronic neurons and synapses.

AT&T and NEC have each described chips they have developed as building blocks for neural network computers, AT&T researchers simulating the connectivity of a nervous system by building a crossbar switch on a chip: the grid-like switch - actually an associative memory chip with each neuron representing one bit - enables all the signals in the circuit to interact with all other signals. Amplifiers act as exciters and resistors function as inhibitors.

The chip is programmed by forming resistors at the appropriate points with electron- beam lithography. By using resistors rather than transistors as the inhibitors, the circuit can be made much smaller, and AT&T claims it can get 256 neurons onto a single chip. The idea is to program the computer with a basic framework which can be altered by "experience" as it begins to learn.

A learning system must be able to generalise its experience to unencountered events, so that when the computer receives input it has not previously been taught, it has to work out how to respond, by following a set of learning rules provided by the programmer. The learning occurs through the modification of the connections between processing units - analogous to the synapses between human nerve cells.

Read text aloud

A working example is the US NETtalk system, which learns to read text aloud. The system begins with no knowledge of word pronunciation, but gradually learns to read words of text verbally through exposure to speech and words in a dictionary, with connections between neurons reinforced as it gets closer to the correct pronunciation. The system was developed by a biophysicist at Johns Hopkins University collaborating with a psychologist from Princeton.

Most work is being done with simple systems in which a single layer of parallel processing units serves as both input and output; while these permit only simpler models, the models are easier to build and understand. But at the University of Urbana-Champaign, researchers are working on complex multi-layered systems in which input and output are separated. This gives the computer the ability to respond in a variety of ways to instructions. These neural units respond selectively to the presence of stimuli in ways suggestive of self satisfaction!

Neural networks have an almost unimaginable number of practical applications, of which complex pattern recognition, "reading" obscure details from fuzzy satellite photographs and enhancing them to a much greater extent - and much more quickly than is possible now - being one of the obvious ones. But they clearly hold out the certainty that in a decade or two, a robot controlled by a neural network will, for example, be a safer and more reliable truck or train driver than a human could ever become.

EASTMAN-STUART STICKS WITH NCR BUT ADAMANTLY DENIES BEING A VAR

Eastman-Stuart Ltd started life as a one man software house but ten years on the self-financing company has grown to 47 staff with a turnover of around £2.4m. The company has stuck limpet-like to NCR despite its initial poor profile as a lack lustre cash register company. Eastman-Stuart initially developed software based on NCR's interactive systems minicomputers for NCR itself as well as a sub-contractor for NCR's customers. During the late 1970s Eastman-Stuart's strategy was to develop packaged software based around NCR hardware having decided that it would not survive as a software house alone. Meanwhile the arrangement with NCR ran aground because customers wanted a single source for both hardware and software and also resented the fact that NCR wanted its margin for hardware and Eastman-Stuart wanted a good margin for its software. During this period Eastman-Stuart flirted with Honeywell but nothing came of this as NCR then appointed the Watford company as one of its five official VARs but to Eastman-Stuart's delight NCR allowed this to fizzle out. Eastman- Stuart say that this was good for them, despite its past loyalty, because as an NCR VAR it would be tied to the company in a way it did not want to be tied. The arrangement then became more informal but as NCR brought out the Tower series Eastman- Stuart once again became attached to the American corporation. At this point Eastman-Stuart made a decision to concentrate on the Unix operating system and invested heavily in Unix training. Although Eastman-Stuart realises that the likes of NCR will takes the lions share of business it is hoping to continue carving out a niche in the smaller markets. Over the last four years Eastman- Stuart have concentrated on vertical markets using Unix and predominantly the NCR Tower series and is strong in the air fright, education and charity markets. Eastman-Stuart have set themselves the goal of devloping one new product a year and will be bringing out a print management system and around the second quarter next year the compnay will bring out a retail system. As well as NCR equipment Eastman-Stuart is also a VAR for the AT&T/Olivetti 3B line and has recently become an approved dealer for the IBM 6150. IBM's tentative move into the Unix market is seen as encouraging by Eastman-Stuart which believes that IBM is no longer playing lip-service to Unix. Eastman-Stuart thinks that users will increasingly specify Unix but will still want to opt for the safety of buying IBM. Currently Eastman-Stuart uses RM Cobol but is looking at C to tailor its own programs to interface with a database such as Informix or Unify. Earlier this year the company brought out its first Unix software package, E-S Accounting, in response to a demand for a Unix accounting suite that had all the facilities of an IBM mainframe- type package but with the friedliness of the packages found on PCs. The company does not expect to do wonders with this package mainly because it has not got the money to market it. Despite the company's own reluctance to be classed as a VAR it is still rated as NCR's number one VAR for the Tower series in the UK. NCR itself reportedly had a 42% share worldwide in 1986 of Unix-based 32-bit machines. Eastman-Stuart claims 188 companies on its client list, of which about 55 are Unix turnkey system based.

ICL PROVIDES UNIX APPLICATIONS AS THE BAIT FOR POTENTIAL CLAN CUSTOMERS

ICL is basing its Clan Unix product line around the applications ported for it at its porting centre out in Slough. The company thinks that the 100 or so applications ported to its Unix-based range at the SIDC and other centres around the world will attract customers. The other centres are in France, Germany, Holland, New Zealand, the US and Ireland and appliactions ported include Informix, Ingres, Today, U-Backup and other general purpose applications. ICL says that around half the porting done at the SIDC is Unix based. ICL's Unix efforts have been encouraged by its 6,000 System 25 user base which prompted the move to port Unix to the system.

MANNESMAN KIENZLE WILL COMMIT TO UNIX WHEN THE PRICE IS RIGHT

Mannesman Kienzle which recently bought into Unix by acquiring PCS Cadmus says that by the mid-1990s all its systems will be Unix based but at the moment the machines do not reach the standard of its 9000 series and its proprietary MTOS operating system. The company believes that Unix needs more horsepower than the average operating system and adds that as soon as a price/performance competitive Unix machine rated at around 10 MIPS comes out Kienzle will go for it. In the mean time Kienzle has glued a number of its software products together, put them onto its MTOS-based 9000 series of minis and is presenting it as Kiman - its CIM offering. Kiman consists of: a shop floor data collection system - Kifis; Manumark - a production planning and scheduling system; Impact II financial management system; and an office automation package - Kioffice.

UNIX USER SHOW GOES ON THE MOVE - ALEXANDRA PALACE PROVIDES MORE SPACE

Organisers of next week's European Unix User show, EMAP, say that exhibiting space sold out as far back as March 20th. Consequently the show will have a different venue in 1988 to cope with the demand. Conveniently situated Olympia will be replaced by the out of the way Alexandra Palace in North London.

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FORTUNE GOES TO SCI - CITICORP GROUP TAKE OPTION ON FRENCH STAKE

The agreement under which SCI Systems Corp, Huntsville, Alabama, plans to buy all Fortune Systems Corp's operations bar the company's small Tigera software business, is now definitive. The price, between $15m and $17m, will leave Fortune with some $35m cash, plus $63m tax credits; completion of the sale, which is conditional on several approvals, is expected for the end of June. The 19% French stake in Fortune Systems Corp, originally acquired back in 1981 by Thomson SA when Fortune was a start-up, which has since passed from hand to hand in various reorganisations of the French computer industry, is now to be sold by the current owner, Compagnie Generale d'Electricite's Alcatel USA Corp. A group led by CitiCorp Capital Investors Ltd has paid $100,000 for an option on the 3.947m shares, which was bought on April 24 and expires on May 26. The group says it acquired the option for investment purposes, and may decide to exercise it collectively or individually. If the former, they may seek to influence the management and future policies of the Belmont, California company.

GENE AMDAHL TOUTS ECL AS PRIME SUPERCONDUCTING TECHNOLOGY

At the International Conference on Supercomputing (See Front) Gene Amdahl, now Elxsi president, stated that when it comes to integrated circuit fabrication, Gallium Arsenide may not hold all the aces over Silicon after all. "Gallium Arsenide has been the great hope of the future for a long time, but Silicon Emitter-Coupled Logic isn't quite dead yet. He pointed out that 1K-bit memory chips made using Silicon ECL have an 0.85nS access time, faster than either the 2.4nS for GaAs direct-coupled logic and 0.9nS for GaAs high electron mobility transistors. Amdahl suggested that what this may prove is that GaAs is actually "slower than silicon at room temperature and may require as much, or more power than ECL".

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Fairchild buyout from **Schlumberger** is snagged on the latter's stake.

Minigrams

Word processing software specialist **Samna Corp**, Atlanta, sees the market for 80386-based Unix systems as a potential humdinger and is hard at work on a version of its Word software for the new generation boxes.

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And **Samna Corp** is going public with an initial offer of 1m shares, 600,000 of them new, at between $8 and $10 a share, and plans to use the net proceeds of some $5.2m or so for working capital and other general purposes including enhancement of existing products and development or acquisition of new text, data and graphics software products: the offering, which will value the word processing software specialist at between $20m and $25m, will leave it with 2.4m shares out after the issue - Samna moved into profit in 1986 with net of $1.36m or 70 cents a share against a loss in 1985 of $1.0m, on turnover up 25% at $7.4m - the lead underwriter for the company which customers include not only the National Westminster Bank here, and units of AT&T Co in the US, but the United Nations, the CIA and the US Secret Service is the Robinson-Humphrey Co arm of American Express.

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Alliant Computer Systems Corp is offering $50m of 25 year convertibles through Morgan Stanley & Co.

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Symbolics Inc has reported a third quarter net loss of $2.0m, against a profit last time of $3.5m, struck after a tax credit of $348,000, on turnover that fell 20.2% at $24.6m; at the nine-month mark, the company made a net loss of $24.0m after a $13.1m pre-tax restructuring charge, against a profit last time of $9.0m that included a tax credit of $2.9m, on turnover that fell 9.5% at $74.6m.

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Siemens AG has reported group profit for the six months ending March 31 up 4% to the equivalent of $374.1m, on turnover that rose 18% to $14,648m.

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Control Data Corp is looking to mix it with **Cray Research** at the bottom end of the supercomputing market: Cray is trying to seduce indigent users with cheapo single processor X/MP models, so CDC has slashed the charges for its Cybernet super- computing timesharing services.

Palladian Software Inc, yet another company from the Cambridge Massachusetts home of the artificial intelligentsia, has implemented its The Palladian Management Advisor artificial intelligence package on **Apollo Computer Inc's** Domain network-based workstations, and agreed joint marketing with the Chelmsford, Massachusetts manufacturer: the product is an expert system designed to help managers across industries and throughout a company assess the "bottom line" of their business decisions; Palladian reckons that this is the first time a general business expert system has been made available on professional workstations and notes that its conversion of the Management Advisor to Common Lisp will enable many more companies to take advantage of artificial intelligence technology; no prices were given for the pack.

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Unisys chairman and chief executive officer W Michael Blumenthal has outlined a five point strategy at the combined **Burroughs'** and **Sperry** company's first annual meeting; the former US Treasury Secretary again promised to maintain Burroughs and Sperry mainframe architectures, to enhance the low-end offerings especially "Unix-based products", to "press our already substantial competitive advantages in ease of use and low cost of ownership", to grow software and support services and to concentrate "our sales resources and our proprietary solutions in the fast growing segments where Unisys can secure substantial market shares".

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Sceptics are having to reconsider their positions one year after **Thinking Machines Inc** of Cambridge, Massachusetts launched its massively parallel Connection Machine, reports the New York Times: the paper reports that in addition to selling 10 of the $1m- plus 64-processor computers in Year One, the company is sitting on seven orders for the new version, which adds a mathematics co- processor to each CPU - and the Connection Machine has won a plaudit from a source that potentially makes the praise worth a fortune - Dr Gordon Bell, designer of the VAX-11 and keeper of DEC's technical and engineering soul for nigh on 20 years, now at the US National Science Foundation describes the Connection Machine as an "incredibly elegant way to build an incredibly fast computer".

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STRATUS, SUN TO COMBINE FAULT-TOLERANCE WITH WORKSTATIONS

In a bid to gain more market share Stratus Computer and Sun Microsystems have signed a marketing and joint development agreement that will allow Stratus machines to act as file servers to Sun workstations. Stratus says that the agreement will help them to compete in areas where the market requires the facilities of the workstation and Sun has found that the financial services market segment, that it has recently become involved with, increasingly requires fault-tolerance. Stratus say that this will not be the last strategic agreement it makes; and on the Sun side this forms part of Sun's Strategic Industry Partnership Program which also includes: Sequent, Convex and Culler Scientific. Stratus is a manufacturer of fault-tolerant supermicros dealing with the on-line transaction processing market which Stratus values at around $18 billion for 1986. Stratus also sees this agreement as a means of entering the fast- expanding workstation market: according to the Gartner Group the workstation market was worth around $735m in 1985 and predicts that in 1989 it will be around $2.5 billion. Sun says that this is not a change of course for them but a market that it has been exploiting for some time but without much publicity attached to it, because most of its customers are still in the experimental stages. Sun adds that a great deal of financial-type applications are already available on Sun workstations including an AI-based portfolio management and foreign exchange system from the Athena Group and a real-time financial analysis package from Quotron which has a $5m OEM contract with Sun. Stratus cites one example where the tie up would be useful in a securities and banking concern where the Stratus machine would be used for price quotations and to process transactionsfor a network of Sun workstations which would display market data at a trader's or broker's desk.

SEQUENT SWITCHES TO INTEL FROM NATSEMI FOR SYMMETRY FAMILY

Sequent Computer Systems this week announced its plans to switch from the National Semiconductor microprocessor family line to the Intel 80386 for future products. The Intel-based Symmetry systems boast four times the performance and eight times the physical memory of Sequent's existing NatSemi based Balance range. The Symmetry S27 is rated at between 6 to 27 MIPS using 2 to 10 processors and the top end S81 ranges from 6 to 81 MIPS using up to 31 processors. Each processor board in a Symmetry system contains two independent processor subsystems each with a 16MHz 80386, an 80387 Floating Point Unit, 64Kb two set-associative cache and 64-bit bus interface logic. An optional floating point processor based on the Weitek 1167 chip set can also be added to each processor. The 80386 contains an integrated memory management unit which supports 32-bit physical and virtual addressing. The cache memory and bus interface controllers use the 1.2 micron gate array technology from Thompson-Mostek. Sequent has also announced enhancements to its implementation of Unix System V, Dynix, which includes Sequent's version of Sun Microsystem's NFS and is now SVID compliant. 80386 versions of C, Pascal, Fortran and Ada are available on the Symmetry machines and Sequent claims that Oracle, RTI, Unify, Access Technologies, Syntactics and Ryan McFarland will make their software available on the new systems. An entry level price for the S27 is £68,000 and a fully configured S81 will cost £61,000. The new machines will go into beta test in July and will be available in volume in September. (See Page 2).

DANISH PTT GOES FOR UNIX - SPENDS £5m

The Danish Post Office will be spending around £5m on Unix systems from Dansk Data Elektronik A/S. Dansk Data will provide the Supermax 32-bit multi-cpu system in 130 Post Offices throughout Denmark. This order represents the largest single computer order ever placed by the public sector in Denmark and was tendered for by around 30 computer manufacturers. Dansk Data was particularly pleased to get the order as an EEC call for tender means that indigenous companies are no longer favoured - the PTT said that Supermax was chosen because of its flexibility and expandability. The fact that Dansk Data's software conformed to international standards also helped its tender. As well as the Supermax the order also includes 800 terminals, 400 printers and communications and standard Supermax software.

FUJITSU TO DO UNIX STATION, ENGINEERING SOFTWARE IN US

Fujitsu America Inc has decided to avoid conflict with IBM by concentrating on scientific and engineering systems and applications in the US. It plans to manufacture Unix workstations and will also form the first major Japanese software development operation in San Jose. The first product will be a civil and mechanical engineering package and it also plans to target engineering database, product simulation and technical publishing markets.

AND SONY TO LAUNCH 32-BIT NEWS WORKSTATION IN US NEXT YEAR

Sony Corp is to looking to build a network of value-added resellers in the US over the next few months in readyness for the launch there next year of its 32-bit News Unix work station. Sony claims that the News outperforms Sun Microsystems' Sun-3 station, and at $6,700 base price, rising to $19,500, is significantly cheaper, although that seems to be before the big price cut last month on the low-end Suns. Sony has taken 1,500 News orders since October, for software development.

TEXAS INSTRUMENTS ADDRESSES THE INTERCONNECTION PROBLEM WITH THE 16-PORT CROSSBAR INTEGRATED CIRCUIT

Over the past few years, tying lots of processors together to work in parallel has become an accepted way of getting super-computer performance for a relatively modest outlay, and one of the major growth areas for Unix.

There are many possible ways to connect the processors to each other and to memory, i/o and peripherals. The cpus can talk directly to each other; to a number of neighbours in an array; communicate via a region of shared memory; or via a control processor that also loads instructions and data into each processor.

However, as the number of processors and devices to be connected grows, the problem of interconnecting them grows too.

The perfect solution has always been the crossbar switch, which bidirectionally links every port with every other port (it was developed for telephone exchanges, which is why any phone can connect to any other phone in the world - crossbar switches in every exchange) but they have always been too expensive for anything except a few expensive mainframe computers.

But Texas instruments has now bought out a 16-port crossbar integrated circuit that acts as a dynamically reconfigurable, non-blocking interconnecting network for parallel computing systems. It allows multiple microprocessors; or ther processors such as array processors, accumulators, co-processors, or multipliers; to work simultaneously in small systems with full bidirectionality.

Each of the chips 16 input/output ports can be independently controlled to allow any two processors or peripherals to exchange data or instructions without interfering with any of the other data paths, thanks to an internal 64- bit data bus (each port handles 4 bits at a time). The ports can be ganged together to handle 16 4-bit, eight 8-bit, four 16-bit or two 32-bit data paths, and several of the chips (called the AS8840) can be operated in parallel by connecting their control units in parallel.

Each port can be set in one of two ways; when the control signal is high, data is passed directly to the internal 64-bit data bus and on to another port; when the control signal is low, the data can be sent to either or both parts of a two-part 64- bit memory built up to two groups of eight 4-bit register latches. The buffereed data from either or both parts of the memory can be stored and forwarded to any port, even the one it came from. Users can control this and any other operation either with control signals from a master supervisor or with control signals embedded in the processor data flow.

Loop-Back Functions

The circuit is divided into two parts around the 16-by-4-bit data bus, with eight ports on each side. This allows a processor sending out data to receive it again when it has passed through the network to ensure that no errors have crept in - and automatic rerouting on fault detection would allow a relatively simple fault-tolerant system to be designed. Also, the ability to select externally between two different data sets in the two parts of the memory allows the same data to undergo two different permutations without reloading - useful for operations such as fast Fourier transforms. And the two-part register latch memory allows loop-back functions - data can either enter or by-pass the registers and loop back to the input - very useful for sorting operations.

The 8840 crossbars can be linked together to provide a number of different topologies: for example, just two are needed to provide the switching for a ring topology. One switch or ring connects a number of processors to a bank of shared memories, which the other ring links printers, terminals, hard disk units and back-up memory. When the two rings are connected by two 4-bit expasion line, all the processors, memories and peripherals and directly connected to each other. And by using larger buses, even more crossbar chips can be connected together to link more and more units together.

HEWLETT-PACKARD TO ANNOUNCE UNIX RISC THIS WEEK

Hewlett-Packard Co has a major announcement inked in for this week, according to Computer Systems News. The US weekly looks for new high-end RISC models in the 8XX Unix line, and a new high-performance graphics display terminal.

NS32532 TOO LATE FOR SEQUENT - BUT COULD DO THE JOB

Sequent claims that the the new Symmetry products are 100% source and data compatible with the existing Balance series and add that customers can move Balance versions of their software to the Symmetry products without source level changes. Balance customers can upgrade to Symmetry with a processor and memory swap. Sequent says that producing the 386-based system proves the "processor-independent nature of its system architecture" which will allow Sequent to take advantage of future improvements in microprocessor technology, and sees itself having a 100 MIPS system in the not too distant future. The Portland, Oregon company agrees that the forthcoming NS32532 will have roughly the same level of performance as the Intel 80386 but say that the reason for chosing the Intel product was simply because of its earlier delivery date. The new machines with the floating point accelerator are expected to do well in the simulation, AI, financial modelling, manufacturing automation and CAD/CAE markets. A new entry level Balance machine has also been added to replace the Balance 8000. The new B8 has up to three 150Mb SCSI disks and supports up to 32 users. The Balance 21000 has had its name changed to B21 and both the B8 and B21 have an eight inch 540Mb SMD disk option added. The B8 has an entry level price of £38,000. The latest release of Dynix is also available on the Balance series.

BULL PUTS DOROFILE ON SPS FOR OPTICAL DISK DRIVE DATA

Bull has added Dorotech's Dorofile program that handles all kinds of data stored on optical disk drives attached to multi-user Unix systems, to the Solutions Bull SPS catalogue of applications for its SPS 7 and SPS 9 Unix processor families.

TEXAS INSTRUMENTS PICKS 80386 FOR SYSTEM 1300

As late as March, Texas Instruments Data Systems reportedly still had not made up its mind whether the mid-range model, code-named Road Runner, in its Business Systems 1000 family of Unix systems would use the 80386 chip or the 68020 (UX No 121), but the firm has now definitely elected to go with the Intel 32-bit part, putting it into a new Business System 1300 that slots between the 80286-based 1100 and the multiple 68020-based 1500. The new 1300 will support up to 32 users, and has a base price of $27,490. Ships begin in the fourth quarter.

ROOT'S TRANSACTION CONTROL SYSTEM FOR UNIX IS LAUNCHED

Root Business Systems last week duly launched its IBM mainframe to Unix applications migration product (UX No 122). The Transaction Environment Control System Under Unix, or Unitecs, is a software product developed from the work done with Hoskyns to convert its IBM mainframe-based Modular Applications Software to a Unix environment. The bulk of the work involved emulating the facilities of an IBM CICS Translation Processing Monitor. This work has now been bundled together and allows development work to be done on Unix systems and then returned to the IBM mainframe - cutting the mainframe work by about 40%, claims Root. The source code for Unitecs is available for £400,000 from Root and licenses, depending on the processor, will cost between £2,000 and £10,000 a year.

MITSUBISHI JOINS HITACHI, FUJITSU ON TRON CPU CHIP

Rather than start work on a rival design of its own, Mitsubishi Electric has decided to join forces with Hitachi and Fujitsu on their joint development of a 32-bit microprocessor family, and the partners will share costs equally. Although designed to support other operating systems such as Unix, the part will be optimised for Tron, The Real-time Operating Nucleus, which is Japan's contender for the protable operating system market of the 1990s. Although this has never been spelled out, it seems likely that the basic design of the micro-processor will be based on the 32-bit chip Hitachi designed to be upwards-compatible with the Motorola 68020. The Japanese have observed the way Intel and Motorola are dominating the US market, and clearly reckon that there is room for no more than two Japanese families - NEC's V-series and this new one.

APOLLO WINS REDAC FOR ITS NETWORK COMPUTING SYSTEM IN THE UK

Apollo Computer has launched its Network Computing System in the UK and announced general availability for July (UX Nos 116 & 117). The Chelmsford, Massachusetts company claim that this is the first commercially available set of distributed computing products for developing and running applications across networks of incompatible computers from multiple vendors. It can distribute modules or parts, of an application program to the specialised computers on the network that will best fulfill the needs of that part of the appliaction - artificial intelligence machines; graphics workstations, database engines, number crunchers. The system is based on industry standard networking protocols such as the UDP protocol in TCP/IP, level 3 of the ISO protocols, and the Xerox XNS protocol. NCS lies on top of Sun Microsystems' NFS product. The company acknowledges that without industry support, particularly that of software houses and system builders, the product will go nowhere and to prevent this Apollo instigated the formation of the Network Computing Forum which includes: hardware manufacturers such as Alliant, Celerity, Concurrent, Convex, Texas Instruments; users - Boeing, Caterpillar, Westinghouse; software houses like Oracle, Mentor Graphics, Software Productivity Consortium; and academic institutions incorporating MIT Project Athena, University of Iowa and University of Michigan. Apollo says that all of the 30 or so members of the Forum are experimenting with NCS and Racal Redac in this country is a beta test site for the product. Apollo is also trying to get more software houses and research establishments interested in the product in this country. Initially the product will be available under VMS and Unix but the company plans to port to other environments. Apollo anticipates that the first users of this product will come from the elctrical and mechanical engineering worlds as these usually take up new technologies more quickly, as they did with time sharing and workstations.

MICROSOFT GRANTS LOCUS LICENCE TO SELL MS-DOS WITH MERGE

Microsoft Corp has awarded Locus Computing Corp, Santa Monica, California a licence to bundle and sell MS-DOS 3.2 with its Merge 386 operating environment, which enables multiple MS-DOS tasks to run under Unix System V.3 on an 80386 machine. The licence, similar to one already awarded to Interactive Systems Corp and Phoenix Technologies Inc for their VM/ix product that offers comparable facilities, allows Locus to distribute MS-DOS with Merge 386 to OEM customers, distributors, value-added resellers and end users, and avoids the need for them to go to Microsoft for separate licences. MS-DOS licences to be offered by Locus will be for two users (or one and a network connection), or for multiple users.

BULLISH CUNNINGHAM BELIEVES THAT HE HAS COMPUTER CONSOLES BACK ON TRACK

After a couple of very trying years since he jumped ship at Wang to take the helm at Computer Consoles Inc, Waltham, Massachusetts, chairman John Cunningham was in jaunty mood at the annual meeting in Boston last week. He reported that the telephone directory enquiries and Unix office systems company had successfully instituted a new marketing strategy, broadened its product line and implemented "next generation" research and development projects. Cunningham said the firm's 1986 financial performance was "substantially better" than the years before and that the restructuring program initiated in 1985 was completed. "We believe these results verify that Computer Consoles has reversed the downward trend of the last two years and has regained the path to healthy and profitable growth." Cunningham said the company's strategic focus on indirect distribution permitted the company to grow while concentrating its direct sales efforts on large law firms, government agencies and select end-users. OEM customers had made commitments to the firm's products for 1987, and were responsible for a significant percentage of new orders for the company's Computer Products Division in the first quarter of this year. He noted that in order to penetrate foreign markets, sales offices had been established in Canada, the UK and Hong Kong. Worldwide, more than 73 office equipment and value- added resellers were now marketing the company's Unix systems product line.

Traditional side

The traditional side of Computer Consoles' business, now called the Communications Systems Division, also showed progress in 1986. Cunningham cited installations at MCI Communications and British Telecom - installed by STC Plc - and the delivery of a LIFE-911 emergency services system to Bell of Pennsylvania for the city of Philadelphia, as three significant projects in 1986. There had been regular additions to the minicomputer and supermicro product line throughout 1986, and developments of new products for introduction this year had been completed "even in a year when cost containment was our corporate watchword". He said several of the company's new computer products developed in 1986 and introduced last month, including Basic-K, a Unix-compatible compiler for users of the Wang 2200 System, offer "a real alternative to users who have been locked into a closed system architecture." Against DEC, he claimed that the top-end Unix minis offered "dramatic price/performance benefits" compared with DEC's VAX 8000 and IBM's 9370 products. "We now have a product line - hardware, software, communications capabilities - that competes strongly against the leading vendors in this industry. We believe our current products, ranging from a compact 1.2 MIPS processor to a 15 MIPS superminicomputer, and the most integrated office automation software available, will allow us to compete very effectively well into the next decade." For 1987, the company is looking to manage expenses very carefully and to work to strengthen all its different distribution channels, as well as continuing to enhance the product lines. The "financial results in the first quarter of 1987 were substantially better than for the same period a year ago, and we expect to achieve continued growth in profits throughout the year," he concluded.

APPLE COMPUTER APPEALS TO THIRD PARTIES TO AID ITS ENGINEERING PUSH

Apple Computer Inc has been outlining its future product strategy and encouraging third party vendors to develop cards for the Macintosh range. Microbytes Daily reports chairman and chief executive John Sculley saying that Apple's "next big push is the engineering workstation market" which he predicted was ready to "explode". Sculley thinks Apple's recent Unix implementation - AUX - will lead to a significant development of Mac-based engineering software aimed at "the four million engineers out there". However, Microbytes found several engineers ready to question Apple's prospects in its new found direction. One developer pointed out that there is still no standard Fortran compiler for the Mac II and also that there is little in the way of engineering analysis software currently available on the Apple products. Another said that Apple still has not developed a marketing strategy for the engineering market and does not have in-house marketing personnel with experience in engineering. Despite the attack with Unix, Version 4.1 of Mac-DOS, which will ship in June with the Mac II, will be the standard operating system for the entire Mac product line. Version 4.1 includes new Textedit capabilities, the ScriptManager, a new control panel, sound and menu managers, and has printing calls built into ROM. Apart from engineering and Apple's existing desktop publishing market, Sculley also believes that there are major opportunities for his company's ScriptManager and Interfile file transfer products to DEC VAX and IBM mainframe environments and suggests that developers could also cash in by including hooks in their software that allow easier data transfers between operating systems. He promises that company will become a "lot more aggressive in the market place" especially at the high end. One of his targets will be IBM, which he claims is offering users only a complicated transition to the new Personal System/2 unlike Apple which, he says, offers compatibility throughout the Macintosh line.

MARI MAJORS ON MICRO MANUFACTURING TO PLUG THE SHORTFALL IN RESEARCH FUNDS

With funds for independent research becoming progressively more difficult to obtain in the UK as the government puts the bite on college budgets, Universities, Polytechnics and other organisations are having to find new ways of obtaining finance. Instead of sitting about and moaning, the people of Newcastle have come up with an imaginative solution. The route chosen by the Newcastle-upon-Tyne-based Microelectronics Applications Research Institute, founded in 1979 by the Tyne and Wear County Council, in conjunction with Newcastle University, Newcastle Poly and CAP Group Plc, is to set up manufacturing, commercial research and high technology training companies limited by guarantee with the intention of ploughing any profits from the operations back into research. MARI is of course famous for its Newcastle Connection, the transparent file transfer facility for heterogeneous networks of Unix systems that was developed at Newcastle University and was all the rage until Sun Microsystems stole the market with its Network File System. Following the launch of a 68020-Unix supermicro back in January, MARI Advanced Systems Ltd, the manufacturing arm, introduced an IBM Personalike last week. The Tyneware System 5 features an 8086 processor - with an 8087 coprocessor option - 640Kb RAM, one 360Kb 5.25" half-height floppy drive, a 20Mb hard disk, serial and parallel ports, and five full-sized expansion slots. It will be sold by a recently-recruited sales forces at prices from £1,150.

BORLAND TO LICENSE TURBO C SOURCE CODE - CLAIMS 35,000 ORDERS

Borland International president Philippe Kahn claimed last week that the company had more than 35,000 advance orders for its $99 Turbo C, and said it would license source code for the Turbo C run-time library later this year. Speaking at a seminar for US government officials, Kahn said that the run-time library source code for Turbo C is being provided at the demand of "serious C developers". Borland claims that Turbo C compiles at 10,000 lines of code per minute, implements Kernighan and Ritchie C, and supports the forthcoming American National Standards Institute (ANSI) C standard. The run-time library source will be available to registered Turbo C users in the third quarter; the library includes more than 300 functions and macros that end users can call from within their Turbo C programs. Turbo C supports the 8087 math co-processor and emulates the 8087 math co-processor if there is not one.

DATAVISION UPGRADES UNIVERSE BASIC TO TAKE SYSTIME USER-BASE

Blackpool software house Datavision is attacking the beleagured Systime user base with an upgraded version of its Universe Basic that emulates Systime's proprietary file handling system. Universe Basic from Datavision and Systime's Trans-Basic, RSTS to Unix, Basic-Plus translators are both aimed at the DEC PDP 11 market. Datavision says the new version will liberate Systime users, and that the Systime translator, while it also incorporates the proprietary file handling system, still restricts users to Systime Unix hardware. In response to a specific request from a customer Datavision has enhanced its Universe Basic product to emulate the Access file handling system. Wasp Computers of London has taken the product and Datavision hopes to make a killing in the rest of the 2,000-Systime user base.

NEW ISSUES

Gould Inc has pulled its planned $100m issue of 2m convertible debentures, for which it filed in March, saying the interest rate outlook has deteriorated. The issue is postponed sine die.

National Semiconductor Corp got its issue of 9m units of one share and a warrant for a second one away at $20 a time through Goldman Sachs & Co.

Philips NV sold its issue of 20m new shares at $24.10 apiece to raise $482m for the company. The issue, on stock exchanges around the world, was arranged by the Amsterdam Rotterdam Bank.

"OS/2, 80386 SPELL NEW FRAGMENTATION IN SOFTWARE MARKET" - ASHTON-TATE GURU

The homogeneous software market of the past few years, dominated by the Microsoft-Lotus- Ashton-Tate triumvirate, will soon be a thing of the past, according to one of the Big three. Robert Carr, chief scientist at Ashton-Tate, believes that IBM's launch of the Personal System/2, and the nature of the new generation Intel chips, mean that the market will return to a state of fragmentation, reports Microbytes Daily. Carr believes that the protected mode on the 80286 and 80386, and the OS/2 operating system are creating a "fork between the high- and low-end markets." Carr shares our belief that the emergence of large numbers of 80386 machines will be a major fillip for Unix, because there is as yet no operating system designed specifically for the 80386. He points out that OS/2 and Windows 2.0 do not take advantage of the capabilities of the 80386 and were developed for the 80286. It has taken Microsoft so long to develop OS/2 because of all the bugs in the 80286, he claims. On the other hand he reckons that Intel got the 80386 "pretty much right" and expects greatly improved software and operating systems to be developed specifically for that chip. The result of the new market fragmentation, according to Carr, is that software developers will be "picking and choosing among these markets. Portability rather than speed will be the new challenge and the route that gets software developers ahead." As an example, he cites Aldus's PageMaker, which was written originally for the Macintosh but was ported to the IBM Personal family, with only 30% of the code requiring changes.

UNGERMANN-BASS OFFERS SOFTWARE FOR DISPARATE FILE FORMATS

Ungermann-Bass introduced a software package which it claims will support file access and management functions for PCs, minis and mainframes from different manufacturers. The Universal File Manager, developed by Ungermann-Bass subsidiary Linkware Corp of Waltham, Massachusetts, will reconcile different file formats on systems made by IBM, DEC, Hewlett-Packard, Apple, Wang and Convergent Technologies supporting MVS, VM, VMS, Ultrix, Unix System III and V, as well as Berkeley 4.1 operating systems. Ungermann-Bass is selling the software direct to end-users for a price of $225 for PCs; $1,500 on minis and $7,000 for mainframes.

HEWLETT-PACKARD HAS OEM, SILICON FOUNDRY PACT WITH WEITEK

Rather than design its own floating point co- processor for its Precision Architecture and other high-performance scientific machines, Hewlett-Packard Co has decided to adopt the Weitek 2264 and 2265 chip set - and has agreed to manufacture the parts for Weitek in its 1.2 micron CMOS process. The chip set has claimed peak performance of 40Mflops, and the wafer-manufacturing agreement, which is initially for three years, calls for Hewlett- Packard to make the 2264/65 set in packaged form for Weitek, and also to make future products for the Sunnyvale company.

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Minigrams

SCI Systems Inc , Huntsville, Alabama, says that after the transaction is completed, it intends to integrate the assets of Fortune Systems Corp's computer operations and the related and ongoing business with its own computer division: SCI said it wanted Fortune's "excellent office automation hardware and software, its established customer base and its outstanding reseller network;" it intends to continue the development of Fortune 68020 line and to supplement it with SCI's own 8086/80386 multi-user systems and workstations - which also run Unix - and over the longer term, the two product lines will be combined by building on the strengths of each.

- o -

Convergent Technologies has been getting some boards for its systems manufactured in Japan by Ricoh Co , but Ricoh is expected to end the pact because the soarway yen means that it can't make money out of it.

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Fortran compilers for the OS/2 operating system and IBM,s Personal System/2 are in development at both Ryan-McFarland and Microsoft itself according to Microbytes Daily new Fortran/2 compiler will be available from Ryan-MacFarland when OS/2 is released in the first quarter of 1988, and it will support both OS/2 and MS-DOS by providing a switch in the linker for selecting the appropriate operating system; Microsoft uses the same code generator for its C and Fortran compilers and enhancements will therefore progress in parallel on the two; both use the Codeview debugger.

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Motorola Corp and Toshiba Corp are planning to invest $120m apiece in their equally-owned semiconductor manufacturing joint venture in Izumi City: the key product line at the new venture will be the Motorola 68000 microprocessor family and the new company rejoices in the name Tohuku Semiconductor Corp.

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Rabbit Software , Malvern, Pennsylvania developer of IBM SNA and Document Architecture software for multi-user micros, has agreement in principle to acquire Micro Plus II Inc, which makes hardware to link IBM Personals to SNA, bi-sync and X25 nets in Boca Raton, Florida.

Fujitsu Ltd's answer to IBM's Systems Applications Architecture will be a development workstation, promised for next month, which the company says will enable developers to program "in Japanese, without the need to know a programming language or operating system": the facility - on the Facom G 32-bit workstations - is called Systems Integrated Architecture, and Fujitsu claims it reduces development time by half.

- o -

Unix graphics software house, Willow Ltd of Wimbourne, Dorset, has announced its first sale of its Business Alpha Numeric Graphics software package to Northern Telecom for use with Northern Telecoms Vienna office automation software.

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priorKnowledge of Romsey, Hampshire has appointed Micro Products Inc, Washington to be its US distributor for its Clipper-based Kestrel machine - due for delivery in June.

- o -

Paris-based Aeni Informatique has been appointed the Micro Focus distributor in France and is expected to be Micro Focus' major distributor in the Unix/Xenix environment.

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The real time operating system pSOS and Unix have been put into one machine by Thomson Microsystems of Basingstoke, Hampshire - one or more processors will use pSOS and Unix will reside on one other in the TSVME 791 machine.

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Sphinx Ltd is boasting around 2,000 orders for its Xenix Tutor package developed jointly with Education Technology Ltd both in the US and Europe: in the US the Santa Cruz Operation will act as distributors and in Europe Philips has placed an order for 500 copies.

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London-based Digitus has won an order valued at £557,000 from the Trent Regional Health Authority to implement a computer system at the Blood Transfusion Centre in Sheffield: a Pyramid 98xe will be the basis of the system with sic Compaq 286 portables and one Compaq 386.

The Santa Cruz Operation is moving into Finland with the recent announcement that Rotabyte of Helsinki has become the primary distributor of SCO Xenix in Finland: Rotabyte say that it has installed around half of the Xenix systems currently in Finland which amounts to about 600 systems.

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Dutch bank, Rabobank Netherland, has signed a site licence with Access Technology Ltd for 20/20 to be installed on its 400 or so DEC Professional machines.

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Convergent Technologies with its UK base in Bracknell, Berkshire has announced PC Exchange/Vines which allows DOS-based PCs to interconnect with its Unix-based machines: the software is installed on both types of machine with the PC software providing redirection facilities and communications with the CT server and the CT software gives resource sharing, transparent networking and the Unix environment.

- o -

Air couriers, DHL , has switched its computer system from IBM System 36 to Pyramid Technology's 98x systems - two systems are installed in the UK and DHL in the US has four and more are promised for the rest of DHL's offices over the next few months: Unify and Accell from Unify Corp will run on the Pyramid machines.

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Latlcorp Inc of San Francisco, California - developers of Unix- based applications software has announced that it will be setting up its European office in London this week.

- o -

TIS Ltd has announced that it has sold another five Convergent Technologies S/320 systems in to the Stock Exchange: the Bourne End, Buckinghamshire company says that this bring the total to nine.

- o -

Armstrong Micro Electronics has announced that the Archive 600Mb 5.25" WORM drive will be used with Unix on its Cavalier 32 machines by the end of this quarter: the West Midlands company says that this facility will provide permanent and secure data archives.

- o -

Sequent Computer Systems Inc of Portland, Oregon has announced the formation of a Canadian subsidiary and signed a contract with Sigma Data of Sydney, Australia to be a distributor and it has also opened salers offices in Detroit and Tampa.

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AUSTEC ACQUIRES RYAN-McFARLAND -MAINLY FOR THE NAME

Cobol Kings, Austec and Ryan McFarland have announced a one year merger that will result in Austec acquiring Ryan McFarland at the end of that year. The Ace and RM products will be merged and will all be under the RM banner. Although Austec is the one spending the money it sees the Ryan McFarland name as being the most important part of the acquisition and the proposed name for the new company is 'Austec incorporating Ryan McFarland'. The two product lines are seen as being complementary, traditionally RM Cobol is run on DOS or small Unix/Xenix-based machines whereas Ace Cobol is usually found on the larger Unix boxes. RM Cobol users have been able to migrate to larger machines through the Ace environment and the two companies say that they will begin to market this feature.

ALTOS UNVEILS ITS 80386 XENIX BOX AS THE SERIES 2000

Altos Computer Systems this week duly announced its promised 80386-based Xenix System V machine as the 386 Series 2000, offering it to support up to 64 users. The processor runs at 16MHz, but performance is enhan-ced with a 32Kb cache memory and 80387 floating point co-processor - when it is available. The machines come configured with an intelligent file processor subsystem, communications processor, 1.6Mb floppy, 60Mb streaming tape drive, one display and 65Mb or 142Mb ESD interface disk drive. Four models are off-ered, the 2408S serving 20 users with 4Mb memory, 65Mb disk, and the 2417S variant with 142Mb disk. The 64-user models are the 2417S with 4Mb CPU and 142Mb disk, with Multidrop cabling and transmission system; and the 2817M with 8Mb and 142Mb disk. A field-upgrade kit is also offered to enable any Altos floorstanding system to be upgraded with the new CPU. Fully upwards compatible with existing Xenix machines, the Series 2000 offers C, Cobol, RPG II, Basic, Fortran and Pas-cal. Communications include async, 3270 bisync and SNA, X25 and 3780, with Ethernet interface planned for the fourth quarter. An optional uninterruptible power supply is offered for graceful degradation in case there is a return to winters of discontent after the General Election. The machines are announced in the UK today: no firm US prices were given, but systems start at $25,000 to $30,000.

UK GOVERNMENT ENDORSES POSIX, X/OPEN PORTABILITY

The UK government's Central Computer & Telecommunications Agency is inexorably moving towards recommendation that government departments standardise on Unix. The latest move, announced on the first day of last week's Unix User Show at Olympia, is a recommendation that wherever portability is desirable, government departments should ask vendors about their present position and future plans on the emerging Posix portable Unix standard. It has also endorsed the X/Open group Portability Guide as the basis for portable software procurement. This Statement of Intent forms part of a move by the CCTA towards standards that will lead to establishing a Common Applications Environment for the UK Government. The CCTA says that it issued the Statement after consultation with various Government Departmants and is currently being issued to actual and potential suppliers of computer systems to the Government.

TECHNOLOGY LICENSING AND SECURE UNIX AT GOULD

Gould has quietly set up a US office to step up efforts to licence its hardware and software technology including the UTX/32S secure Unix. UTX/32S remains the only Unix implementation certified by the US Department of Defence to C2 level, and Gould is working on progressively upgrading it to the much more stringent B levels and above. With security likely to be a key requirement not only in US, UK and other Government procurements but also in commercial organisations, the Gould developments could have potential for manufacturers whose plans are not already set - although most of the major suppliers already have some efforts in place. Earlier this year, Gould and AT&T published a joint paper on secure Unix as an early contribution towards a standard definition before too many conflicting proprietary implementations emerge. Gould UK points out that the company has always been keen to licence its technology, and that negotiations with interested parties would be carried out by local Gould offices.

X/OPEN TP WHITE PAPER - AVAILABLE JULY

The X/Open Group finally took the wraps off its model for transaction processing at the Comunix conference last week, but the promised White Paper giving more detail and inviting feedback is not due for at least another month. The model defines functional layers, and semantics for a model capable of handling updates to multiple databases on one or more machines, and includes the concept of Transaction Manager responsible for coordinating the various local parts of a transaction into a coherent single entity. The Group commissioned Data Logic to come up with the model, which stops short of defining specific interfaces to the various layers.

USERS SPOTTED AT UNIX USER SHOW

Attendance at last week's European Unix Users Show may not have been as great as last year's but exhibitors were delighted to see at last actual Unix users present in numbers for the first time.

One of the major themes of last week's Unix show was networking, highlighted by the fact that 22 of the exhibiting companies were linked over a network set up by Spider Systems' subsidiary Spider Networks. Users of the network included DEC, Hewlett-Packard, Apollo, Sun Microsystems, High Level Hardware, Gould, Integrated Micro Products, Logic Replacement Technology, MIPS, Motorola, Relational Technology, Sequent, Torch and many others. Edinburgh-based Spider claim that this was the biggest networked interconnection in the world and adds that the Instruction Set's help was invaluable in contacting the companies and geting them to join in, but judging by the amount of use it had at the show the invited users were more than happy and companies not approached felt rather left out. Motorola used the network to demonstrate RFS working between itself and two of its VARS: Hi-Tek Solutiona and Semads Ltd. Relational Technology Inc used the network to give the first European viewing of its distributed relational database system, Ingres/Star, running on a Pyramid machine, MicroVAX II and IBM PC.

East London-based Whitechapel Workstations has adopted the new MIPS Computer RISC as a file server and is promising a RISC workstation based on its own design for delivery in the fourth quarter. Whitechapel claims that the new workstation will dewliver around twice the performance but is making no comparisons with the forthcoming RISC products from Sun due for launch this autumn (UX No 128). The Whitechapel workstation will be targetted for specific niche markets and the company is currently deciding which. The MIPS file server, called the M800 from MIPS and the MG-300S from Whitechapel, is intended for current users that have a number of MG-1 workstations and want to link them together. The MG-300S is rated at 8 MIPS and uses the MIPS' Umips operating system which is available as a Unix System V.3 or 4.3 BSD implementation.

Although one of National Semiconductor's best customers, Sequent, has left the fold Siemens is vowing to continue using Natsemi's processors. At first glance this may seem perfectly normal but when you realise that Siemens is in fact a Sequent OEM for the Balance machines and would probably be expected to take on the new Intel-based Symmetry machines. Siemens, has, however decided to stay with NatSemi and is currently evaluating the NS32532. Bob Ackerman, formerly president of Unisoft, is moving over to the X/Open Group to take up a newly created post as Chief Marketing Officer: the appointment is likely to be the first in a series accompanying X/Open's change in status to a limited company, due to be formalised over the next month or two. Current X/Open chairman Geoff Morris will become president and CEO of the new company. Ackerman, who will initially be splitting his time between London and San Francisco, has been brought in to strengthen marketing side and push X/Open's US presence. And Donal O'Shea, who joined Unisoft just a few months ago from Amdahl, becomes the new president of the US Unix systems software specialist - majority owned by London based Root.

London-based Instruction Set after acting as technical consultants since 1984 to the X/Open group has now been awarded a formal contract by the group. The contract is for twelve months and involves the Instruction Set helping to converge X/Open's Portabilility Guide and the IEEE Posix standard. The Instruction Set is the obvious choice because it has been heavily involved in the design, specification and production of both editions of the Portability Guide.

Scientific Computer Systems' SCS-40 Cray-compatible minisupercomputers are to get both a version of the COS Cray operating System and Unix System V, courtesy of Boeing Computer Services which has a software development, marketing and support agreement with the startup manufacturer. COS is close to beta test, to be followed by a port of System V to which Boeing plans to add COS features to emulate as closely as possible the Unicos Unix supplied by Cray for its own machines. The SCS-40s currently run the CTSS public domain software originally developed at Laurence Livermore Laboratories.

One of the more interesting developments at the show was software to turn a PC into a windowing Unix terminal using standard PC windowing packages. Shown in in its initial incarnation using Digital Research's Gem, the software comes from Task Force Group PLC, a company with offices in Stoke-on-Trent, Southend and Sheffield that covers everything from recruitment to consultancy, turned public in 1986 and has been quietly building up its Unix expertise. The product shown was still in an early stage, and so far allows a PC user to open up to six GEM windows, each showing all or part of an 80X24 character terminal screen to a Unix host. It also includes a GEM menu-driven facility for transferring data or binaries between the Unix and DOS systems. Task Force also plans versions supporting Microsoft Windows and X-Windows, and says that the forthcoming versions of GEM should allow suitable DOS applications to be run concurrently. Although the version shown used an 80286-based PC connected by an RS232 line similar host running Microport System V, the company claimed that the product had been written to support networks in future as well as hosts running Xenix or other Unix variants. Written in C, the software comes at a PC software price: £100 for the host end of the software and another £100 per PC.

Sphinx Ltd continues to spread its influence and in honour of the Unix User Show it announced an additional five members for its ICUS program, contracts with nine software authors and another contract with ICL. The five new ICUS members brings the total up to 16 and gives the organisation representation in West Berlin, Portugal, Sweden, Denmark, Finland and Abu Dhabi. Six of the software houses to be awarded Sphinx contracts come from the US and the complete line up comprises: Interactive Systems; Factindex; Laticorp; High Tech Business Graphics; Touchstone; Unipress; Ryan McFarland; Olympus; and Aim Technology. Following the announcement made with ICL in January to provide Unix software on the ICL Clan range Sphinx has now announced a similar contract for the ICL DRS 300 Unix range following close on the heels of a signing with Apricot. Apricot signed the contract with Sphinx, valued at around £200,000 in a year, to gain a significant share of the Xenix multi-user market. Sphinx is focusing ICUS expansion in Australasia and the Far East.

NEW HEWLETT-PACKARD 9000s USE NEW NMOS III RISC PROCESSOR

Hewlett-Packard duly unveiled its three new models in the HP9000 family yesterday - in the UK as well as the US. All three use a new implementation of the Hewlett-Packard Precision Architecture RISC in NMOS III technology, and the existing Model 840 with the original TTL RISC CPU has been enhanced as the 840S. The HP9000/825SRX workstation with the Renaissance three-dimensional solid modelling graphics co-processor, 19" colour display putting up 1,280 by 1,024 pixels, an eight plane frame buffer, 8Mb CPU and Ethernet interface, with a 16-user licence for HP-UX - "in case you want to hang another terminal off your workstation" - is £55,000. The 825S, which supports two to 24 active users and a maximum of 64 terminals, costs £38,000 with 8Mb processor, floating point co-processor, 16 channel multiplexer, five slots, and 16-user HP-UX. The 850S is claimed to support from 60 to 300 active terminals but at present has input-output support for only 96. With 16Mb processor, six channel multiplexer, 10 slots and 32-user HP-UX licence it is £175,000. The 825SRX is available in two months, the 825S in four months and the 850S in six months. The 840S, available now, supports 24 to 96 active users, takes up to 128 lines, and is £76,000 with 8Mb CPU, floating point co-processor, disk interface, six channel multiplexer and access port. Hewlett-Packard rates the 825SRX at 8 MIPS, the 825S at 5 MIPS, the 840S at 7.5 MIPS and the 850S at 12 MIPS - but RISC MIPS are misleading. The company claims the new machines offer 50% better price performance than comparable DEC offerings. HP-UX has been brought up to Unix System V.2 level, and includes Berkeley extensions for communications support.

ARETE PROPS UP UNIX LINE WITH ENTRY-LEVEL 800

Arete Systems Corp, in process of being acquired by Plexus Computers, yesterday added an entry model to its multiprocessor Unix line. The Arete 800 uses two 12MHz 68020s and is claimed to offer three times the performance of the NCR Tower 32/800 at half the price. With one CPU, the machine costs under $30,000 and supports 16 users; multiprocessors begin at $38,000. It grows to up to two Applications Processors, up to two Database Processors and up to five Data Communications Processors, supporting up to 128 users.

SUN TO ACQUIRE SOFTWARE ACCELERATOR TRANCEPT

Latest station on Sun Microsystems' whistle-stop acquisition tour is a privately held firm called Trancept Systems Inc, location not given, which develops and sells application accelerator products. Sun has a letter of intent to acquire the firm for Sun shares worth about $5m. Trancept's key product is the TAAC-1 graphics and applications accelerator, designed to increase performance of computation- and graphics-intensive applications such as geometric modelling, medical imaging and broadcast animation.

SEQUENT DISCLOSES JOINT DEVELOPMENT PACT WITH BASIC FOUR ON 80386 SYMMETRY MACHINE

The problem with share issue registration statements is that they have to disclose everything material about a company's business, and there are heavy penalties for not telling the truth and telling all. So although Basic Four UK told us briskly that it would "never do anything like that" when we checked on a suggestion that it planned to add a Sequent Computer machine to its product line, it turns out that the agreement between the two companies is there in black and white in the Sequent prospectus for its initial public offering of shares, so it must be true. The agreement covers a joint development project based on the new Sequent Symmetry 80386-based multiprocessor Unix transaction processing system, and grants MAI Basic Four rights to manufacture the machine if purchases from Sequent exceed a pre-set level.

ADVANCED MICRO SUES INTEL FOR ONE BILLION DOLLARS

Advanced Micro Devices is determined to get its pound of flesh on its second-source agreement with Intel on the iAPX-86 family, and has asked the court-appointed arbitrator in the dispute to impose $1,000m in punitive damages on the chipmaker for its failure to pass on masks for making the 80386 microprocessor. AMD wants either $1,000m in direct and consequential damages, or $100m and the masks. Intel counterclaims that AMD failed to contribute adequate support parts.

CALCOMP SYSTEMS DIVISION TO GO TO ISICAD OF GERMANY

Lockheed's CalComp unit is to sell its systems division to Isicad AG of Ellwangen, Federal Republic of Germany, for an as yet undisclosed amount. The computer-aided design systems business sells the Cadvance line of MS-DOS software and System 25 series of Unix-based interactive graphic design systems, and represents under 10% of total revenues. CalComp says it wants to concentrate its resources entirely on its computer graphics peripheral units.

COMPUTERVISION ADDS TURNKEY 80386 SYSTEMS - FROM WYSE

Computervision Corp has picked the new Wyse Technology 80386 machine to be the basis of its new CV/386 turnkey delivery system for its MS-DOS CAD/CAM software. The CV/386 will be packaged with the Personal Designer, Personal Machinist, Personal Engineer, or Personal Architect CAD/CAM applications packages. Each comes with 16MHz 1Mb CPU, 1.2Mb floppy, 40Mb Winchester and 80287 maths chip. Prices range from $11,495 to $21,995 with ships in July. Computervision will also offer Silvar Lisco's GARDS gate array design software, and HHB Systems Inc's Cadat 5 digital logic simulation pack, on the CADDStation family of Sun 3-based workstations.

BOLT BERANEK RAISES $32m TO DO NEXT GENERATION BUTTERFLY

Streaking ahead of the pack in the esoteric field of parallel processing - it already has more than 75 of its machines installed - Bolt Beranek and Newman Inc, Cambridge, has completed the raising of $32m for a tax-efficient research and development Limited Partnership to design a second generation of its Butterfly parallel processor, which presently consists of lots of Motorola 68020s running in tandem. The cash was raised by PaineWebber Development Corp, and will enable BBN Advanced Computers Inc, a wholly owned subsidiary of Bolt Beranek, to develop and market computers based on the Butterfly architecture - and, equally important, to develop native parallel software for the machines. The $32m will be spent over three years, and the stress will be on parallel computers for complex-system simulation, image understanding and real-time monitoring and control in industrial, engineering and technical markets. The new computer systems will include parallel programming development tools, but will also support major industry-standard software programs used in the target fields. The current Butterfly interconnects up to 256 microprocessors, expanding in single- processor increments; it is being used in artificial intelligence, parallel language development, signal processing and data communications by the likes of Du Pont, Martin Marietta, Rochester University, Hughes Aircraft, Rockwell International and RCA.

GIGAMOS LANDS LISP MACHINE

A $3.25m bid from Gigamos Holding Co Ltd of Montreal, Canada - to include receivables - topped those from Data General and Symbolics to land the assets of the Lowell, Massachusetts artificial intelligence systems company. Gigamos is one of the many artificial intelligence interests of Canada's artificial genius Guy Monpetit, who also has holdings in Lisp Machine Canada, Logo Computer Systems, and Silicart - the chip design house where he is applying artificial intelligence techniques to the design of innovative chips. Monpetit is also a co-developer of the Logo educational language, and says he has known the folks at Lisp "for years; "most" will be offered jobs.

SYMBOLICS ADDS IVORY LISP PROCESSOR ON A CHIP

Symbolics Inc of Cambridge, Massachusetts, last week announced its Ivory chip, a micro-processor implementation of its basic Lisp CPU, and controversially claimed it to be the industry's first single-chip implementation of a symbolic processor for commercial applications of artificial intelligence. Texas Instruments may well claim that distinction for its Explorer microprocessor. Symbolics says Ivory can be the basis of a single- board computer - and is claimed to offer three times the performance of current Symbolics 3600 CPUs, to rise to five times in future implementations. The two micron CMOS chip implements a 40-bit 40-bit tagged architecture. The firm says it will incorporate the chip into future products in the second half of next year, and as well as Lisp will be supporting Fortran-77, Ada, Prolog and Pascal on it. The chip is being offered OEM for designers who want to add a Lisp co-processor.

DEC JOINS CRAY TO BEAT OFF IBM SCIENTIFIC THREAT

Digital Equipment Corp has responded to the threat to its traditional scientific markets posed by IBM's major push into the supercomputing market with the Vector Facility on the 3090 by signing a collaboration agreement with the world Number One in scientific supercomputing, Cray Research Inc. Details are sketchy, but the two companies say they will announce a new product and joint marketing development agreement on June 3, AP Dow Jones reports from New York. The importance of the announcement is underlined by the fact that it will be made jointly by DEC chief executive Kenneth Ol sen and his counterpart at Cray, John Rollwagen. The expectation is that the two will initially simply announce a high-speed direct channel connection between DEC's VAX minis and Cray's supercomputers, enabling the two companies to prov ide a complete answer to IBM's new 3090/120E with Vector Facility as well as IBM's bigger 3090s with Vectors attached. The fact that DEC has nipped in and signed up Cray makes it unlikely that IBM will now sign a similar agreement with the Chippewa Falls company. Marc Shulman at Salomon Brothers suggests the announcement will be only the first step in an evolving relationship between DEC and Cray.

CRAY RESEARCH WARNS THAT GROWTH WILL SLOW THIS YEAR AS IT WOOS NEW BUSINESS

Cray Research Inc shares have been on the slide over the past week as analysts downgraded their forecasts for the company, but Cray is building for longterm growth. A key factor in the expectations that turnover growth will be down on that for recent years is that the company is stressing widening its customer base this year, which will tend to mean that the value of unit sales will be lower - the average unit price will be around $10m, a big fall from the $15m average last year. The company looks to take orders for 50 machines this year, up from 46 last year, but that more than half will come from new users - although of 17 orders so far placed, only seven are with customers new to the company; seven are also from non-US customers. As for installations, the company expects to put in 45 new machines and 10 second-hand ones, up from 35 and 10 last year. On the new models front, the company expects to demonstrate the Y-MP at the end of the year, and start deliveries next year. The Cray 3, being built in Gallium Arsenide, is set for 1990, with a further enhanced - Z-MP? - set for 1992. The company is also investing between some $10m in building an office, software development and supercomputer display complex on 116 acres in Eagan, Minnesota. Construction is due to start in August or September with completion a year later.

DEC FRANCE DOES FAULT-TOLERANT MICROVAX II CONFIGURATION

DEC has been tiptoeing towards fault-tolerance for a decade now, and the latest development is an effort of the European Centre for Special Systems at Annecy in France. Only announced in France so far, the system, dubbed Mira, consists of two MicroVAX II processors in a single box, linked together via Ethernet and controlled by a software switch. As soon as a malfunction is detected in the active processor, the workload is switched over to the standby machine. The system, with 5Mb on each CPU, 71Mb disk drive and 90Mb streaming tape drive, costs about $111,000.

TOKYOGRAMS

Rather surprisingly, **Omron Tateishi** has beaten the five majors to come out with the first commercial version of a standard Sigma project workstation: the SX9100 runs the Omronix implementation of the Sigma operating system, which is thinly-disguised Unix System V with Berkeley extensions, and is built around the 68020 with 4Mb expandable to 32Mb. Prices go from $13,800 for the low-end Model 10 to $28,000 for the Model 70 file server, and Omron looks to sell 1,000 in year one.

Fujitsu Ltd and **PFU**, the joint venture of Fujitsu, **Matsushita** and **Uchida Toko** created from the merger between **Panafacom** and **Ussac**, have released seven models of a 32-bit busin ess computer targeted at markets currently dominated in Japan by the **DEC** VAX line - design, scientific calculations, manufactur ing systems - the high-end models are the A300, A400, A500 and A600, the last costing about $850,000, and the low-end models are the A30, A40, A50, the A30 starting at $30,000; performance range bottom-to-top is 40 times and the machines are built in 300- gate-per-chip ECL, 20,000 gate-per-chip CMOS, and use 1Mb memory chips; there are interfaces to all kinds of instruments and machine tools and the operating systems, SX/UTS and SX/UR combine a Unix System V.2- compatible development environment with a real-time execution environment; they also run OVIS/S from the 4300-type end of Fujitsu's M-Series IBM-compatible mainframes.

ASR Corp, an equipment importer and systems house, has implemented VXWorks, **Wind River Systems'** real-time version of Unix, to the **Sony** News workstation: it costs from $25,000 and ASR is planning to put it onto the **Sun** Microsystems Sun-3 and **DEC** MicroVAX II too.

Sharp Corp has developed Chatran, a computer-aided applications development system that generates a program automatically from a flowchart: the program runs under Unix on 32-bit workstations and will be used in-house for microcomputer software development; once the flowchart has been drawn on the screen according to the system specification, it is run through an internal database and the software then produces in real time a Fortran, C or Assembler program, correcting syntax as it goes, and it is claimed to increase productivity by a factor of 10; a refined version for evaluation by a software house should be ready in about a year from now.

Elf Corp has developed Magic, which it says is the first personal computer-based three-dimensional magnetic field analysis package - other systems generally require a supercomputer or at least a mainframe: costing $14,000 it runs on the **NEC** 9800.

Computer Soft, the packaged software development and sales subsidiary of **CSK Ltd**, which is either the largest or second largest software house in Japan according to your definition has translated Style, the applications generator from **Footlight Research** into Japanese and launched it last month: Style, currently offered only for **IBM's** VM/370 operating system, is claimed to increase programmer productivity in a development environment by a factor of 10, and in maintenance by a factor of 20; the company looks to sell 55 to 60 copies in the first year at between $14,000 and $140,000 depending on CPU size; Japanese language versions of Style for **Data General** and **NCR** Tower Unix machines are planned.

The **Sigma Project** has announced its standard interface to connect In-Circuit Emulators to the standard Sigma workstation: the interface defines the link with the C language symbolic debugger currently under development and uses a high-speed GP-IB interface rather that RS- 232C betwen the Emulator and the workstation.

Nippon Univac Information Systems has announced the Series 8U family of 32-bit business computers - presumably derived from the **Unisys** System 80 OS/3 machines: the new models support a distributed relational database, and a remote operation function for multiple networked machines; they go for a monthly lease of $1,056 to $5,633, ships this month.

The **Ministry of International Trade & Industry** is studying the use of artificial intell-igence techniques in the database for the **Sigma** project to create a comprehensive software development framework, particularly for program retrieval and maintenance; the Sigma database machine has now been installed in the project centre in Harumi, and the process of data accumulation is underway in the second stage of the project, which is due to continue until March 1990; the connection of external data sources such as the database maintained by the Japan Information Centre for Science and Technology is also likely.

Nippon Telegraph & Telephone is to form a new artificial intelligence systems joint venture company with **Oki Electric**, which will particularly concentrate on marketing the Elis workstation, a popular knowledge engineering platform designed by NTT and manufactured for it by Oki - NTT is not permitted to manufacture itself; the joint company will be set up in June with capital of about $2m and will be 50% owned by NTT, 30% by Oki, with Tokyo banks holding the balance; Elis runs at 1 MIPS, supports Common Lisp and other artificial intelligence languages, with maximum main memory of 128Mb; it costs around $700,000 and is used for software development and machine translation.

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Minigrams

Sounds just the fillip Unix needs: informed industry gossip insists **Microsoft** and **IBM** don't have a prayer of getting OS/2 up to spec by first quarter 1988 and fourth quarter 1988 is nearer the mark.

- o -

Televideo Systems Inc is expected to come out with a line of 80386- based workstations running the implementation of Unix System V from its affiliate **Microport Inc,** and the **Locus** Merge 386 product that runs MS-DOS under Unix, to which Microport has sales rights.

- o -

The sudden arrival on the scene of the high temperature superconductor has put paid to the theory that we happened to be living in a short- lived period of explosive developments and change in microelectronics that would be followed from the late 1990s by a period of consolidation as chip design rules reached the limits imposed by atomic physics: clearly, the next 15 years are going to see if anything more rapid and fundamental changes in computing than the last 15 - and progress on high temperature superconduction is moving so rapidly that, reports the **Washington Post,** the scientific journals can't keep up and have been left in the dust while **Iowa State University** is publishing an online newsletter to keep researchers in the field up to date on the latest developments elsewhere.

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Star Computer Group Plc has sold its 5.9% holding in **Rolfe & Nolan Computer Services Plc,** whose shares shrugged off the move at 139 pence.

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And **Star** has also called off the proposed acquisition of **Orchard Management Services Ltd** and is instead entering into a marketing agreement with its former target; no-one at either company was available yesterday to comment.

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Leeds-based **Kernel Technology** has signed an agreement with **Counterpoint Computers** to provide software support for Counterpoint systems throughout Europe.

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Zilog Systems' UK Master VAR, **ABS Computers** of Portslade, Sussex has become an IBM authorised dealer for the 6150.

Fujitsu Ltd, which wanted 80%, is expected to end up with between 10% and 20% of **Fairchild Semiconductor** in the management buy-out from **Schlumberger,** expected to retain 20%: Fairchild management is tipped to get 40% and others the rest; **Fujitsu** has also confirmed that it has begun making Clipper microprocessors in Japan for Fairchild under a foundry agreement, and other such agreements for various parts are in place with **Seiko Epson, Goldstar** and another, unidentified, company.

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Oracle Corp, Belmont, California, is taking its relational database technology south of the border down Mexico way: **Or acle de Mexico** is its sixteenth wholly-owned subsidiary and will be based in Mexico City.

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Symbolics Inc points out that its claim for its new Ivory chip that it is the first single-chip implementation of a symbolic processor is based on the fact that it enables a complete computer to be implemented on a single board, where the **Texas Instruments** microprocessor requires two boards.

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Informix Corp has filed to issue 1.212m shares through Hambrecht & Quist Inc as underwriter.

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DEC took a giant gamble in 1977 when it kissed goodbye to its faithful PDP-11 architecture that had stood it in such good stead for 15 years, and moved over to the completely new VAX-11, which ran PDP-11 software only in a rather inefficient emulation mode: the gamble paid off triumphantly, and is the main reason why **IBM** is on the run today - and now we are hearing suggestions that in January 1989, the company will come out with another completely new architecture that will run old VAX programs only in an emulation mode, although new native VAXes will no doubt continue to be added right up to the year 2000 and beyond until there is insufficient demand.

EnMasse Computer Corp may not be quite as dead as people have assumed: gossips have acquisitive **Point 4 Data Corp,** Irvine, moving in to take the multi-CPU Unix firm over.

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After its strong recovery over the past couple of years, **Bull SA** has suffered something of a fall from grace in the first quarter of 1987 with consolidated turnover off 16.2% at $500m, due to sales crash- ing 32.3% to $220m and rentals up only 3% to $282m: the firms blames softness in French order rates towards the end of 1986 and uncertainty over its acquisition with NEC of **Honeywell Information Systems.**

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Convergent Technologies Inc is reincorporating in Delaware from California to gain the benefit of new Delaware legislation that restricts liability of the officers of a com- pany registered there; it is also forming a holding company for the group, to be called **Convergent Inc.**

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The agreement to be announced this time next week by **Cray Research** and **DEC** will involve development of faster links between Cray supercomputers and DEC VAXes.

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Trading in the ordinary and savings shares of **Ing C Olivetti SpA** is due to begin on the Vienna stock exchange today.

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First thing we said when we heard that the new name was to be **Unisys Corp** was "oh-oh, there's going to be endless confusion with the well- established French Unix systems company **Unixsys**" - but the message still doesn't seem to have filtered through to many of the folks at Sperroughs that there is such another company: to add to the fun, at last week's **Unix User Show** at Olympia, the Unisys and Unixsys stands were almost opposite one an- other, which led to the delightful scene of a lost Sperrough rushing onto the Unixsys stand and saying "right, then, where can I put my coat", pausing, then, covered with confusion, pulling his coat back on, making an excuse and leaving to dash off to look for the stand that he was meant to be manning.

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SUN CONTINUES PUSH INTO NETWORKING MARKET - IBM MAINFRAME CONNECTION, DISKLESS SUNS WITH NON-SUN SERVERS

In a string of networking announcements this week Sun Microsystems are offering Sun workstation to IBM mainframe links and the ability for diskless Suns to be supported by non-Sun servers. The IBM channel connect product is a hardware and software package based on a VME board that goes into the Sun workstation. Also part of Sun's announcement was the fact that IBM is adopting Sun's Remote Procedure Call and External Data Representation definitions which were originally defined by Sun as the basis of its NFS product. For its part Sun will support IBM's Advanced Program to Program Communications and Document Interchange Architecture protocols. LanDisk is a package that allows diskless Suns to be supported by servers other than those provided by Sun which will be licensed to any manufacturers that want it. Sun has also announced that it intends to converge TOPS, the product developed by Sun's recent acquisition Centram Systems West Inc, with Sun's own NFS and allow them to talk to each other. Within the announcement Sun stated that all its networking products will have the global term Open Systems Network. Sun's aims in this field are to make the network more and more invisible and to keep up with the increase in speed across networks and the power enhancements of machines. Sun will also be addressing network security and reliability. The IBM channel connect will join DECNet in Sun's SunLink offerings and the new facility will be available in August costing $20,000. The new version of TOPS will be available in the third quarter.

MANNESMANN GETS INTO UNIX FOR KIMAN CIM PRODUCT

Mannesman Kienzle has now demonstrated the purpose of its acquisition of Unix box developer PCS Cadmus by introducing the 32-bit Cadmus machine into its Kiman CIM offering. Mannesmann intends to integrate the workstation with the rest of the Kiman products by the end of this year. The Kiman product is currently based on Mannesmann's 9000 series running the MTOS operating system. Mannesmann sees a typical application involving the automatic production of a parts explosion list from a drawing, which is then passed through bill of materials processing and on into production planning and scheduling. Mannesmann is also looking for companies to act as partners in developing software for the machine in three main areas: mechanical engineering; electronic and electrical engineering; and product design and drafting. The Cadmus workstation is based on a Motorola 68020 processor running at 7MHz with a 68881 floating point co- processor and 68000 I/O processor, which the company claims will give it an overall performance of approximately 2.5 MIPS. The workstation is supplied with 16K cache memory, 4Mb RAM, 131Mb Winchester disk, 40Mb cartridge tape streamer, and SCSI and Ethernet interfaces. The workstation can display 16 colours from a palette of 16 million colours with a resolution of 2048 by 1024 pixels. Although no prices have been announced for the machine it should be fairly cost effective because at the launch of the Kiman range a month ago (UX No 128) the company said that it would only use Unix where the price/performance ratio matched that of its own machines.

WANG CHANGES UNIX HORSES IN MIDSTREAM AGAIN

Wang, which seems to have no luck at all in its attempts to corral Unix for its computer line, has changed Unix tack again on its 80286-based Advanced Professional Computer, and has abandoned IN/ix from Interactive Systems Corp - the new supplier of Unix for its VS machines - in favour of Xenix System V, saying the product from the Santa Monica company was not working to spec. A second multi- station controller costing $750 expands the number of Unix users on the machine to eight, and memory expands to 5Mb via a new $1,000 3Mb card. A 43Mb tape streamer is $2,500.

FUJITSU "TO LIMIT ITS OUTPUT OF IBMULATORS"

Fujitsu Ltd still has not made its mainframe policy clear, but all the signs are that the company is backing off from its policy of specialising in IBM MVS-compatible machines, with the only viable alternative appearing to be a switch to Unix. Siemens stopped selling Fujitsu machines because of the undeclared new policy. Now the Nippon Keizai Shimbun says Fujitsu will cut output of IBMulators in an effort to get IBM to back off from its MVS copyright infringement claims.

INTERGRAPH TIPPED TO TAKE 30% OF FAIRCHILD SEMICONDUCTOR

The first major commercial user of the Fairchild Clipper 32-bit chip set, Intergraph Corp of Huntsville, Alabama, is reportedly so concerned to ensure continuity of supply of the chip from the Schlumberger company that it is prepared to take up to 30% of Fairchild in the planned management buy-out. According to Electronic News, the addition of the engineering workstation builder would complete the line-up of investors for Fairchild Semiconductor. The others are the management itself, Fujitsu Ltd of Japan, now expected to take about 20%, and Schlumberger, which is expected to retain a minority holding in the chipmaker. A 30% stake is not likely to cost more than $50m, and may well come out at less, in which case Intergraph could well afford it.

NEW ARETE 800 INTENDED FOR TRANSCATION PROCESSING APPLICATIONS

The stop-gap Arete 800, announced last week is being targetted for a range of on-line commercial applications. Arete Systems claim that the 800 system is ideal for on-line applications like office automation, general business, and particularly transaction processing of five to 10 transactions per second. Areta is also claiming high reliability and high availability for the 800 and cites as proof previous systems' mean- time-between-failure (MTBF) rate of more than 13 months. The Arete 800 system offers a distributed architecture that includes up to two tightly-coupled Applications Processors, up to two Database Processors and up to five Data Communications Processors. The San Jose, California Arete Systems Corp calims that the entry-level system is fully compatible with the complete family of Arete products, including the 900, 1200, and 1600 systems. A typical Arete 800 configuration supports 16 to 128 users. Arete claims that the 800 with two 12.5 MHz MC68020 Applications Processors provides three times the performance at half the price of an NCR TowerR 32/800. An entry-level, single processor 800 system costs around $30,000, and the multi processor configuration begins at $38,000. The Arete 800 system distributed architecture can include: 12.5 MHz central processing units with floating point coprocessor; up to 16 megabytes of shared memory; 5-1/4- and 8-inch disk technology; up to 5.5 gigabytes of magnetic disk storage capacity; Up to 14 gigabytes of optical disk storage; Connectivity for 16 - 128 users; 60 megabytes of quarter-inch streaming cartridge tape storage; Support for a variety of nine-track magnetic tape devices The 800 system operates on version 4.0 of ARIX V.2, Arete's implementation of AT&T's UNIX System V, Release 2.2 with selected Release 3 enhancements. Arete Systems is a privately held company founded in 1982, manufacturer of UNIX based, multiprocessor systems for on-line commercial applications.

VITESSE SEMI SLASHES TAGS ON GaAs 2901 BIT-SLICES

Vitesse Semiconductor Corp, the Camarillo, California company making Gallium Arsenide versions of the top-selling AMD 2900 bit- slice familty, is on the up-and-up. Now that it is getting higher yields per wafer, it has been able to cut prices on the 29G00 parts by up to 80%: the 29G01 4-bit microprocessor slice is now $50; the 29G02 carry-look-ahead is now $20, and the 29G10 sequencer is now $90, all in volumes of 100 or more, and reckons the parts are now competitive with ECL. Almost every minicomputer in the business has done a basic 2901 design of its CPU, so it shouldn't be too long before we see the first top-end computer built in GaAs.

ADVANCED MICRO TEAMS WITH SONY ON FAST CMOS STATICS

US semiconductor firms are now actively seeking Japanese partners - Motorola and Toshiba, Fairchild and Fujitsu, and Advanced Micro Devices has picked non-threatening Sony as its partner, initially to use its process technology in the design of fast 1.2 micron 64K and 256K CMOS static RAMs for competitive marketing by each from early 1988. Other parts will follow under the pact.

SYMBOLICS TO ATTACK GENERAL-PURPOSE WORKSTATION MARKET WITH IVORY

At the UK launch of Symbolics Inc's Ivory single-chip Lisp CPU the company announced that NASA was its first customer for the processor. The contract with NASA is to design a space-born processor using Ivory. Various sub-contractors will be involved in the project including TRW which will produce the actual chip but with a smaller geometry. The Ivory chip is intended for military, CAD/CAE environments and as an embedded system. Within the UK Symbolics say that it is currently engaged in talks with two major Ministry of Defence suppliers which have expressed interest in Ivory. Symbolics says that one of the reasons for a single-chip implementation is to broaden the market in which it can effectively compete such as the markets currently dominated by Unix-based workstations because the machines using Ivory will give high reliability and price/performance capabilities better than that offered by the standard workstations. The Cambridge, Massachusetts-based company adds that no other workstation could effectively support the Symbolics software. In answer to the likes of the Carnegie Group which is translating its AI software to C to run on Unix workstations Symbolics says that this will produce large overheads in programing time as programmers will have to write garbage free code which will also require more memory. Embedded systems will be the main entry into the market currently held by traditional workstations and Symbolics intends to offer products that can be put on a PC. Products based on Ivory will be in beta test during the first half on 1988 and generally available by the second half with OEMs expected to deliver two or three quarters later. Prices are expected to be competitive with traditional workstations. This new technology, which the company says does for symbolic processing what the Intel 80386 or the Motorola 68030 does for traditional processing, is expected to lead the company into profitability. The company with a 4,000 strong installed base says that at the end of this quarter it expects to reach break-even point.

CASH RICH ALTOS CLAIMS 200 UK ORDERS ALREADY FOR ITS 80386 XENIX MACHINE

Although the lid has just been lifted on the new Altos Intel 80386-based Series 2000 the UK division is claiming 200 orders for the machine and that it has already filled 80 of those. By the end of June, the end of Altos' financial year, the company expects to have shipped between 600 and 800 of the new systems worldwide. The UK resellers: Logitek, MBS and in Ireland - Business Automation, have placed orders worth around £10m. The company with UK headqurters in Windsor, Berkshire says that it intends the new machines for: medium sized companies that would usually buy minicomputers; vertical markets, local and central government. Altos claims that the competition such as the IBM 6150, the MicroVAX II, the NCR 32/600, the AT&T 3B2 400, and Convergent Technologies S/320 are under half as powerful as its new box and bases this on benchmarks done for them by Neal Nelson of Chicago. The company then adds that this all "at prices you can afford". In the UK a 20 user system based on

the entry level system costs £1,900 per user; the 40 user system is over £1,700 per user; and the 64 user system is £1,600 per user. Altos say that it will continue with both its Intel and Motorola product lines and intends to release a 68030-based machine as soon as the processor becomes available: the two lines are of equal importance to the company. Altos started in 1977 and claims never to have made a loss in any one quarter and boasts a cash reserve of $50m and net assets of $135m.

TABS TURNS BACK TO SOFTWARE AFTER FAILURE OF DISTRIBUTION AND FRANCHISING

TABS has done an about face since it started in 1980 as a software house. After a brief foray into the world of distribution the company has returned to software and intends to include Unix in its future plans. The Salisbury, Wiltshire company is currently engaged in a C-based software development product at a cost of £0.75m, one third of which is being funded by the National Computing Centre. TABS sees Unix as becoming a major force in the future but not a dominant one and will be developing its accounting software to run under Unix in the corporate marketplace as it sees no need for Unix in an environment with less than 16 users. TABS III is the company's current offering which includes modules such as: mangaement information; order processing; bill of materials; sales ledger; and purchase ledger - costing £350 per module.

The company's return to life as a software house started two years ago after it realised that its hardware distribution and franchising operations were losing money. One of the side affects of this action has just become evident in TABS buying back Olivetti's interest in the company, dismantling Olivetti's dreams of a pan-European retail computer chain. TABS has bought back the 48% or so stake taken by Olivetti in 1984 with a view to making the firm the backbone of its UK network. The company has 26 dealers but is trying to increase the UK software dealer network to around 60 or 70. TABs also has distributors in New Zealand and Dubai and once the UK network is stable it intends to take on Europe.

WANG USES SUN TO ATTACK TOP-END PUBLISHING SYSTEMS

Wang Laboratories plans an assault on the high-end integrated electronic publishing market under its September 1986 OEM pact with Sun Microsystems that allows it to offer Sun- 3 workstations as part of a Wang publishing system. Wang intends to offer a package in which Sun-3s, supporting composition software from Texet Corp, will be linked over an Ethernet-work to a Wang VS computer serving as a host and communications server.

Fulfilling its commitment to offer a broad range of products for the desktop publishing market, Wang has also introduced the first two members of a new family of personal computers, along with a laser printer and Aldus Corp's PageMaker software operating under Microsoft Windows. The new Professional Computer line consists of two basic models, the 80286-based PC 280 and the 80386-based PC 380. The boxes run MS-DOS 3.2, which is bundled in with a system purchase, as well as AT-compatible multi-user operating systems. The 10MHz PC 280, switchable down to 6MHz or 8MHz, has six 16- bit and two 8-bit slots - one of each is taken up a standard colour/monochrome controller and a hard+floppy disk controller.

With one serial and one parallel port, 640Kb RAM expandable to 10.5Mb, AT-style keyboard, and 1.2Mb floppy the PC 280 goes for a daunting $3,850. Add a 34Mb hard drive to the line-up and it costs $4,875. The 16MHz PC 380 is switchable down to 8MHz; it offers two 32 bit, four 16 bit and two 8 bit slots, with one of each taken for the cards, including a 2Mb expanded memory drive with 2.5Mb RAM, the two ports, keyboard, and floppy drive, it is $6,495. That rises to $8,495 with a 68Mb hard disc drive. All models in the new Professional Computer line are available now. A complete Wang Desktop Publishing System is made up od Aldus' PageMaker publishing software under Windows, one of the new machines, a mouse, and a new wang laser printer. The LCS15 printer supports Adobe Systems PostScript page description language and prints 15 pages per minute. It costs a whopping $8,000.

THE PROBLEMS OF CLONING AND ADDING BOARDS TO IBM's PERSONAL SYSTEM/2

Now that the dust is beginning to settle after IBM's Personal System/2 announcement, the Microbytes Daily electronic newswire has been taking a look at the considered reaction of IBM's competitors and would-be parasites, and, not surprisingly, finds that cloning a PS/2 may not be quite as easy as cloning a standard Personal. The problem, say those who have delved into the machines, is that IBM has distributed logic among several different arrays and chips on the motherboard instead of confining it to a single one. Consequently, "it isn't clear where the individual functions are - in the firmware, software, hardware, or eventually maybe in add-in cards," one industry source commented. Morris Jones, vice-president of technology for Chips & Technologies in Milpitas, California concurs, saying that "there is a lot of logic in the chips that isn't talked about in technical manuals." Jones believes that "in order to implement a fully compatible PS/2 system, you are going to have to fully understand that system," stating bluntly that "you can't just blindly reverse- engineer a PS/2 and copy it." He finds that what IBM has in mind for some of the PS/2 functions is not yet clear - "we haven't seen the big picture yet." As an example, he singles out the Microchannel Architecture bus that, unlike that of the IBM Personal bus, allows a co-processor to talk directly to all the peripherals.

Future products

This indicates, he speculates, that "IBM has put a lot of emphasis on future products" and that hardware manufacturers haven't been told what those products might be or how they might work. Another specialist comments that "You have to look at the system as a whole - the DMA, the graphics chip, even the hard disk controller - and know where every gate is and what it does." If a manufacturer finds DMA-related code in two chips, for instance, and does not continue looking elsewhere for additional DMA information, something can be missed, with the result being that the system you design may not work at all. "Anybody who doesn't get down to the last gate is probably missing something," he warns. The implication of this is that IBM has gone to fiendish lengths to make the thing tricky to emulate. How about those who simply want to accept IBM's open invitation to produce add-ons for the machines? The company insists that it is still committed to open architecture, after all. Well according to Microbytes, makers of add-in boards are also discovering that when it comes to designing products for the PS/2s, all the rules have changed. Not only are input- output ports built directly into the motherboard, raising, in many cases, a question about the need for add-ins at all, but the design of the system itself is making the job more difficult than it has been to build boards for existing PC-DOS boxes. Some add-on board designers say major issues to be dealt with include mastering the bus, the prevalence of shared interrupts, and how signals are interrupted by boards and the bus. "The challenge," according to Richard Rohlf of AST Research in Irvine, California, "is having to learn the bus all over again." Matt Zuckerman, president of Advanced Transducer Devices in Sunnyvale, finds the PS/2 systems "very sophisticated in the way they integrate the BIOS in the architecture." When the system is turned on, he says, calls are made to the BIOS so that diagnostics can be performed on the various input-output ports. This makes it very difficult, if not impossible, he believes, for standard add-in multifunctional boards to be diagnosed in the same way that the PS/2 performs diagnostics. He also sees the powerful bidirectional parallel port on the PS/2 as another difficult issue for add-in board companies to contend with. Nevertheless Advanced Transducer Devices is one of the handful of companies announcing or showing PS/2 add-ins at the Comdex/Spring show in Atlanta this week. It will offer memory expansion boards using the Expanded Memory System for the Model 30, capable of using 64K or 256K chips and capable of packing up to 2Mb at $109 plus the cost of the chips. It will also include RAM disk alternative, print spooler, diagnostic software, and Expanded Memory simulation software, which allows access to multitasking. For the Models 50 and 60, the company has an extended memory multifunction board with 512Kb to 2Mb memory and both serial and parallel ports. To get around the problem with start-up diagnostics, tests aren't automatically performed on the serial and parallel slots on startup, Zuckerman says. The naked board will be $379, with 500Kb it will be $500 and with a full 2Mb, $970. Both boards will be available late in June, ATD said. Also on the way from the company are a 1,200bps modem card and an AT- to-PS/2 format converter for the PS/2. AST Research has also indicated that it will be showing PS/2 add-in memory cards at the show, including the Advantage/2 for the 50 and 60, which will have optional input-output ports with extended memory from 512Kb to perhaps up to 4Mb although the company was saying last week that "the final configuration hasn't been announced." Microbytes notes that 4Mb would be a considerable accomplishment for AST since it is thought that a PS/2 slot recognises only 2Mb of memory, as evidenced by the 2Mb boards that are the only ones offered by IBM for the machines.

Virtual 386 snag

Meantime the 80386 continues to look a splendid chip for Unix systems, and something of a let-down for those who are addicted to MS-DOS programs. One of the major features of the chip, notes Microbytes, is the virtual 86 mode, which enables users to run several different 8086 programs, each in a different virtual machine, simultaneously on the same computer. A number of companies are working on operating systems that are intended to take advantage of the virtual mode - Locus, Interactive Systems, Alloy Computer Products - and Quarterdeck's DesqView coupled with its 386 QEMM memory manager software can already take advantage of the 386's virtual mode to allow multitasking on 386-based AT-alike systems. But benchmark checks of 386-based systems have reportedly revealed severe speed problems with most software written in higher-level languages whenever the computer is operated in the virtual 86 mode. This is because most compilers build code that uses soft interrupts. Although this produces compact code that runs fast on 80286-based machines, and on 80386s in non-virtual mode, the 386 in virtual mode must make a major state change to serve a soft interrupt. Consequently, operations that take a mere two clock cycles in non-virtual mode may require from 50 to 80 cycles in virtual mode. Computation-intensive benchmarks indicate that speed degradations can reach 50% or more for certain kinds of programs. As one player commented, "It looks like everyone's got to rewrite the code generators. I'm getting my people started this weekend."

US LEASING LIAISON: CONTINENTAL INFO MOVES IN FOR CMI UNDER FORCE-OUT CLAUSE

Taking advantage of a force-out clause in the relationship between lessor CMI and its largest shareholder, the Torchmark conglomerate, Continental Information Systems has moved to gain full control of former rival CMI. CMI, with headquarters in Bloomfield Hills, Michigan, is the second largest independent computer lessor in the US - best known outside the leasing world as the originator of the Serix implementation of Unix for the IBM Series 1 minicomputer; its parent Torchmark has kept its revenue and profit figures private. The deal is worth $105m. The purchase includes a $50m cash payment by CIS - as Continental is generally known - for all outstanding shares of CMI plus the assumption of $55m in CMI's obligations held by Torchmark. The payment for stock is presumed to be made as follows: $20m to Torchmark for its 40% holding; $15m to stockbroker Stevens & Co, which had paid $5 million for its 30% interest a year ago; and $15m to officers of CMI for the 30% of the lessor's stock that they collectively hold. The $55m of debt will be transferred to CIS by Torchmark for $20m in cash, $15m in one-year notes bearing 10% interest, and $20m in convertible debentures with a 9% coupon. CIS holds forth from Syracuse, New York. In the fiscal year ended February 28, 1986, CIS earned $11m on revenues of $220m. While CIS stock is traded on the New York Stock Exchange, most shares are held by insiders and institutions. And there are rumours that the new CIS, double its former size, may itself be taken over by year-end.

UCCEL AGREES TO MERGE WITH COMPUTER ASSOCIATES

Moving to create substantially the world's largest software company, Uccel Corp, Dallas, Texas, yesterday agreed to be acquired by Computer Associates International Inc, Garden City, New York for about $800m in shares. Terms of the agreement are 1.69m Computer Associates shares for each of the 17m Uccel shares outstanding. The companies expect to com plete their merger in August; the combined company will retain the Computer Associates name under its chairman and chief executive Charles Wang. The agreement, which is subject to shareholder and regulatory approvals, calls for the companies to merge on a pooling of interests basis. Both companies have grown big by acquisition of smaller companies; Uccel in addition has just completed a major restructuring that saw it divest a large number of applications and bureau businesses. For their most recent fiscal years, Computer Associates and Uccel respectively reported revenue of $309.3m and $141.6m, so the combined company will have annual sales approaching $500m. Uccel Corp shares opened $10 up at $42 on the news; Computer Associates opened $1.50 up at $26.50.

NEW ISSUES

Honeywell Inc is selling $100m of 9.875% sinking fund debentures due 2017 at $99,427% today through underwriters led by Dillon Read and Merrill Lynch.

Alliant Computer Systems Corp got its $50m of 7.25% convertible subordinated debentures due 2012 away at par, and has set a conversion rate of $39.75 a share. The Littleton, Massachusetts company says that the cash will go to expanding manufacturing capacity and to buying additional capital equipment. The issue was handled by Morgan Stanley.

VENTURE FUNDING

Multiflow Computer Inc, the Branford, Connecticut developer of the ingenious Trace family of low cost, general purpose very long instruction word minisupercomputers, has raised $18m in its third round of financing, bringing the total to $35.6m since its foundation in 1985. All previous major investors contributed to the new round, with Aeneas Venture Corp/Havard Management Co, EGC Limited Partnership, Inco Venture Capital Management, Investech LP, T Rowe Price Threshold Funds and Tessler and Cloherty Inc joining in as new backers. The company, which has three of its Trace machines in beta test - at Sikorsky Aircraft, Grumman Data Systems and the Supercomputing Research Center, and is celebrating the fact that the placing for the new round was oversubscribed, "demonstrating the excitement we have generated in the financial community". Multiflow's major pre-existing investors include Aetna Life & Casualty, Alan Patricof Associates, Alex Brown & Sons, Bessemer Venture Partners, Fairfield Venture Partners, General Electric Venture Capital Corp, John Hancock Venture Capital Management, L F Rothschild, Unterberg, Towbin, Morgan, Holland Venture Corp, Olivetti Partners, Paine Webber Ventures, Regional Financial Enterprises, and Technology Transitions Inc.

COMPANY RESULTS

Alpha Microsystems has reported a fourth quarter net loss of $7.0m, down from a loss last time of $1.5m, on turnover up 6.5% at $12.1m; net loss for the year to February 22 was $7.9m, up fro a loss last time of $3.5m on turnover down 2.3% to $47.0m.

Floating Point Systems Inc has reported a second quarter net loss of $2.1m, up from a loss last time of $1.5m, on turnover that rose 10.2% at $23.5m; the mid-term net loss was $1.9m, up from a loss of $260,000 last time, on turnover up 0.1% at $47.8m.

Fujitsu Ltd has reported unconsolidated net profits for the year to March 31 down 45% at the equivalent of $115.7m on turnover that rose 3.6% to $10,507m. Net earnings per share were down 50% at $0.07.

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Minigrams

Nixdorf Computer has just launched the single processor version of its Targon/32, the Targon/31, in the UK after being introduced onto the German market fifteen months ago.

- o -

There are no hard numbers, but Electronic News reports that lead times on the 80386 microprocessor are stretching out dramatically as **Intel** strives to catch up with the delay caused by the production halt which followed discovery of that bug in the arithmetic-logic unit: Intel reportedly had to turn away an order from IBM worth many tens of millions of dollars for the part because of the need to do new masks before restarting production, and all the forecasts are that the situation get worse in the third quarter - although Intel hopes to get lead times back under control by the end of September; **Compaq** says only that it has had no complaints from customers about the bug, which only shows up in protected mode, and only on some chips.

- o -

Compaq Computer UK is now offering the new 80387 mathematics co- processor for its Deskpro 386 machine, and is making the machine faster by adding a disk cacheing program as standard: all new Deskpro 386s will come with sockets for both the 80387 and 80287, and existing users who want to add the new chip can swap their system board for one with the 80387 already installed for £750 - the price of the chip on its own - until August 31; in the US, the firm, which already had cacheing on the 386, added it on all hard disk machines; the Portable II is also off 10% at $2,700 for the Model 2, 11% to $4,000.

- o -

Convergent Inc, as we must learn to call the San Jose company, has completed the acquisition of **Baron Data Systems** in San Leandro, California, which now becomes a wholly owned subsidiary of **Convergent Business Systems Inc** mopping up the rest has cost it about $33m cash.

Silicon Graphics Computer Systems Inc, Mountain View, California, now has joint marketing agreements for its high performance workstations with four super- and minisupercomputer makers - **Cydrome Inc, Cray Research Inc, Alliant Computer Systems Inc** and **Convex Computer Corp.**

- o -

Apollo Computer Inc has an OEM contract worth $2m to $4m from expert systems software specialist **Prophecy Development Corp** of Cambridge, Massachusetts, which wants to market the stations running its Contessa Resource Management Solution, which applies expert systems technology to help brokers to judge share trades, insurance underwriting quotations and arbitrage moves - with the facility to handle all three at the same time in different windows if they are getting bored.

- o -

The next **EUUG** Autumn Conference will be held in Trinity College, Dublin on 23rd September 1987 to 25th September with tutorial being held in the same place on the 21st and 22nd September - papers will be presented concerning graphics systems, user interfaces and software engineering - this conference will mark the EUUG's 10th birthday: all enquiries should be directed to the Secretariat on 0763 73039.

- o -

Alpha Microsystems is claiming that its legal office accounting system, AlphaLAW, has a £250,000 strong installed base after the first year of sales.

- o -

Officesmiths Inc of Ottawa, Canada, has released a new version of its database-based office automation package, The Officesmith, which has enhanced printing capabilities and a draw on/off facility allows tables to be drawn within an unformatted box: the new release is available for NCR, DEC, Sequent, Pyramid, AT&T and Integrated Solutions Unix-based machines.

Pyramid Technology in the UK is expanding and intends to take on new staff in the database, software support, training, sales and hardware engineering.

- o -

Spider Systems has announced a Spider TCP/PC package that will allow PCs running MS-DOS to be networked to computers running Unix: Spider carried out a survey which showed that 100% of sites running Unix-based networks also had PCs on-site few of which were networked.

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NCR has chosen the **Hoskyns** Root Manufacturing Control System to run on its Tower machines: the software will mainly be sold on NCR's recently announced Tower 32/800.

- o -

Hewlett-Packard and **P-CAD** have announced an agreement to develop a migration path linking HP workstations running HP's implementation of Unix, HP-UX, and P-CAD systems running under MS-DOS: Hewlett-packard intends to offer its customers a link to P-CAD's entry-level electronic design automation software and P-CAD's aim is to offer its PC-based CAE/CAD users the ability to access HP's high-end systems - to date netlists can be transferred from P-CAD's schematic data capture system to the HP printed Circuit Design System.

- o -

And **Hewlett-Packard** has also announced aventure with **Systems Designers** to allow HP's real-time development tools to be used in a DEC and Ada environment: the devlopment will allow users to compile programs with SD Ada Plus compilers on DEC VAX/VMS and then download the programs to the HP 64000-UX development environment.

- o -

Canada plans to move strongly against the software pirates under new legislation introduced into parliament in Ottawa: the new measures will classify computer programs as literary works, with full protection extending for 50 years after the death of the originator, and the $Can200 maximum fine for commercial piracy will be raised to as much as $1m, with the possibility of five years inside as well.

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SUN "PLANS LOW-END UNIX+MS-DOS WORKSTATIONS"

Sun Microsystems' East Coast operation in Billerica, Massachusetts is working on a line of low-end workstations that will run a new operating system, OS/4, that is expected to combine MS-DOS with Berkeley 4.X Unix, according to Computer Systems News. The US trade weekly suggests that the "technical personal computers", due out in the autumn, are likely to use the 80386 microprocessor. Sun will say only that it will continue to offer new workstations in the $5,000 and up market.

APOLLO WINS $100m 18 MONTH PACT FROM MENTOR GRAPHICS

Apollo Computer Inc, Chelmsford, Massachusetts, has won its biggest OEM contract yet - $100m over 18 months from Mentor Graphics Corp, of Beaverton, Oregon. Already Apollo's largest customer, Mentor, which builds electronic design automation systems, will be taking the Domain Series 3000 Personal Workstations and the high-end DN570 Turbo graphics workstations. And a Mentor Graphics subsidiary, Context Corp, already based its electronic technical publishing line of Context Documentation Workstations, on the Domain 3000 and will take some of the machines under the new contract. "There's little question that we would not be one of the seven leading CAE/CAD/CAM companies in the U.S. today without Apollo," avers a grateful Mentor Graphics.

MANAGEMENT BUYS FORTUNE SYSTEMS INTERNATIONAL FROM SCI

Half a loaf is a lot better than no bread, and Pete Taylor and Robert Davis, the two managers who wanted to organise a management buyout of the former Fortune Systems Corp have won themselves half a loaf with an agreement under which they will buy Fortune's international operations from SCI Systems Corp, Huntsville, Alabama - and add SCI's Intel-based Unix machines to the 68020-based Fortune product line. The move makes sense because although SCI has a contract assembly operation in Scotland it has no computer market presence outside the Americas. The international operations, headquartered in Monaco, become a new company, Fortune Systems International, with Robert Davis as president and Pete Taylor as chairman. The new company gets exclusive worldwide marketing rights to both the Fortune and SCI lines outside North and South America. The sale, on undisclosed terms, was made to provide Davis and Taylor with the "necessary entrepreneurial incentives to continue to make this segment of the business successful", and to provide SCI with an effective international distribution arm, according to SCI. Separately, what is left of Fortune Systems Corp has decided to seek to change its name to Tigera Group Inc, to avoid confusion with the new SCI operations. There has been a certain amount of hype about just how completely IBM is manufacturing the Personal System/2 family in- house, and it turns out that SCI Systems Corp has a short-run contract worth about $53m for manufacturing PS/2 boards.

NIXDORF JOINS AMDAHL ON UNIX COMMUNICATIONS PROJECT

Nixdorf Computer AG has joined forces with Amdahl Corp on a three-year project to develop communications software for the Unix operating system - presumably running on the IBM-compatible mainframes marketed by each; the collaboration includes a licence-sharing agreement.

STATE OF THE ART TURNS IBM AT INTO FOUR-USER XENIX SYSTEM

IBM may seek to emphasise its 80286-based Personal Computers as single-user systems, but the Intel chip is quite man enough to support a clutch of concurrent users, and a Unix applications developer with the irritatingly pretentious name of State of the Art Inc has been going around collecting all the bits to get Personal users started on the multi-terminal tack. The Costa Mesa, California company has picked up Xenix Syst em V from Santa Cruz Operation, a multi-user serial port expansion board from Arnet Corp, Nashville, Tennessee, and the Business Basic Extended interepretor developed by Basis Inc, Albuquerque, New Mexico, and is bundling the lot together as a starter kit with its own M*A*S 90 Master Accounting Series suite of applications. Price for the turnkey kit - Xenix V, BBx Basic interpreter and multi-user board and cables - starts at $1,195 for a four-user system, plus $795 for each of the nine modules in the Xenix version of M*A*S 90 - general ledger, accounts payable, accounts receivable, payroll, inventory management, sales order processing, purchase order processing, bank reconciliation and report master.

ALMOST LIKE OLD TIMES: BELL CANADA EYES BIG CONVERGENT PACT

It is four years now since what is now the Convergent Technologies arm of Convergent Inc was able to announce one of the monster OEM contracts with a blue chip customer that were its early speciality - the ill-fated one with AT&T was the last - but it is reported to be on the brink of an agreement on its S/Series of 68020-based Unix machines that would make Bell Canada one of its biggest OEM customers.

COROLLARY AND SCO SIGN TECHNOLOGY AGREEMENT FOR EARLY XENIX

Corollary Inc and The Santa Cruz Operation Inc have signed a technology agreement which Corollary hopes guarantees its customers ongoing compatibility with, what it considers, the industry-standard SCO Xenix operating system. Corollary of Irvine, California centres its product family around its ATtain system. The ATtain system is based on an IBM PC AT or compatible which normally supports four users, but Corollary claims that an ATtain system can support up to 32 users. Corollary's ATtain subsystem package consists of a single-slot 80286 processor with a full megabyte of onboard memory, special ATtain extensions to the Xenix kernel, and an optional terminal concentrator unit designed to support eight terminals. Up to four ATtain subsystems can be installed in a PC AT or compatible, to build a 32-user system. The first release of the ATtain kernel was based on source obtained under license from Microsoft but Corollary say that it "quickly discovered the market leader was actually SCO Xenix". With versions of ATtain based on SCO Xenix the company anticipates being in a better position to meet the needs of our OEMs and VARs. One of the critical conditions of the agreement is that SCO will provide Corollary with new releases early, say Corollary. The Santa Cruz Operation hopes to broaden its market with the agreement because, it says, the ATtain system provides super-mini performance, PC ATs or 386 machines running Xenix can now compete with high-end minicomputers. In addition to the technology agreement, SCO and Corollary plan to cooperate on a number of marketing efforts, such as trade show exhibitions and other events. SCO and Corollary are targetting VARs, OEMs and the government. The suggested end-user quantity one price is $1,950 for the ATtain 286 processor with 1Mb of RAM, $250 for the extended kernel and $750 for the optional ATtain terminal concentrator. OEM and VAR discounts are available.

AND SCO TO PRODUCE SPECIAL XENIX FOR SMS's OMTI 8620 ESDI DISK CONTROLLER

Scientific Microsystems and The Santa Cruz Operation have formed a strategic alliance whereby SCO will produce a version of SCO Xenix System V specifically configured to support SMS's OMTI 8620 high performance ESDI disk controller. The new version of the packaged SCO Xenix product, which will be available directly from SCO, will allow full Xenix functionality with vastly improved performance for PCs using ESDI hard disks attached to the OMTI 8620, claims SMS. The company adds Xenix will really perform in load and high-capacity situations with high- performance drives connected through the OMTI controller. The packaged SCO Xenix 286 and SCO Xenix 386 products will be installed in the IBM PC AT compatible and COMPAQ 386 compatible, respectively, where the standard disk controllers have been replaced with OMTI 8620 contollers. Both products will begin shipping during the third quarter of this year.

BENCHMARK USES CLIPPER FOR MULTI-USER UNIX TOWER

benchMark has introduced an enhanced version of its benchMark 32 to put into its new systems called the Tower, not tobe confused with that other well known Tower in the Unix world from NCR. The Tower is supplied with the 33MHz Fairchild Clipper as standard and the company claims that the system has been designed so that hardware and software work together and to this end the processors are arranged in a hierarchial structure. The Tower also has a secondary 80286 processor that allows MS-DOS 3.2 to run concurrently with Unix and also supervises I/O activity.

IMPATIENT 80386 USERS SET TO REACH FOR THEIR LAWYERS

Tempers are beginning to fray over the continuing shortage of Intel 80386 microprocessors to the point where one would- be user identified only as a "major company" told Microbytes Daily "If IBM and Compaq get chips and we don't, we'll sue." Intel has told customers there will be no large-scale deliveries of the 80386 until at least September according to industry sources, and is taking no new orders for the chips. Existing customers will be given first priority when chips become available, which is leading some to suggest that 18% shareholder IBM may be getting preference - IBM has brought forward first US deliveries of the 16MHz 80386-based Personal System/2 Model 80 041 and 071 by a month, starting ships this month. Some observers say as many as half the 80386s currently being made are defective, but Intel says that no further snags beyond the one that required remasking of the ALU portion of the chip have been found and still expects deliveries to be back on track in the fourth quarter.

JAPAN's POSI MEMBERS PLAY CATCH-UP ON OPEN SYSTEMS STANDARDS

In the preferred Japanese approach of sharing development costs and effort right up to the competitive starting gun, six of the top computer companies, Fujitsu, NEC, Hitachi, Toshiba, Oki and Mitsubishi Electric, have agreed to share the development of Japan's open systems interconnection standard functions. The results will be presented to the International Standards Organisation once they have been tested. Nippon Telegraph & Telephone will join the group with observer status, and the partners are aiming for public testing of the protocols this autumn. The development effort is being shared as follows: NEC will work on the FTAM file transfer management functions FTAM; Hitachi will handle the office document transfer management functions - Open Document Architecture, and a standardised message transmission format called ODIF; Fujitsu will look after remote database processing and retrieval al functions; which leaves Toshiba, Mitsubishi and Oki to pick up anything the others have forgotten. The effort is a crash program by Japan's POSI to catch up with the European SPAG group and the US Corporation for Open Systems.

SUN MOVES OFFICIAL BASE TO DELAWARE, RAISES AUTHORISED SHARES TO 125m

Sun Microsystems Inc, Mountain View, California has been growing so fast that it has outgrown its articles of association. A special shareholders meeting has approved an increase in the authorised shaer capital to 125m from 75m - Sun has been highly acquisitive of late. The company is also following the general exodus out of California and re-registering under Delaware's more friendly regulations. Scott McNealy, president and chief executive, also told the meeting that on May 29 Sun consummated its previously announced agreement to acquire Trancept Systems Inc for 117,647 shares of Sun stock and non- transferable warrants to for 14,671 Sun shares at $42.50 a throw. Trancept, a private company based in Raleigh, North Carolina, develops and sells application accelerators.

JAPANESE BANK TO PUT IN BUDGET REVISION ADMINISTRATION EXPERT SYSTEM

Penetration of expert systems into the core operations of major companies is progressing at a much faster rate in Japan than in the US or Europe, and the big Japanese Daiichi Kangyoo bank is to put in a budget revision administration expert system in 361 branches around Japan: the system was developed in conjunction with Hitachi using Hitachi's ES/Kernel expert system shell; this presently runs on the Hitachi 2050 Unix workstation but in future will also be installed on a mainframe to provide a larger inference base; the expert system will take over the work currently done by a roving staff member who visits each branch in turn to set its budget on the basis of changes in the number of customers and the turnover, and the population it serves; it will even handle assessment of loan applications, in trials getting through 200 in half a day.

MASSCOMP USING MORNING STAR TO COMMUNICATE WITH IBM MAINFRAMES

Masscomp has announced Morning Star Technologies' SNA 3270 and SNA 3770 software communications packages for the Masscomp MC5000 family of micro supercomputers allowing Masscomp users to communicate with an IBM mainframe in an IBM data communications network. With these new Morning Star products, the Masscomp MC5000 family of micro supercomputers emulates a 3274 cluster controller and supports up to 32 attached devices. Each device may be configured as a 3287 Model 2 printer, or a 3278 Model 2 display terminal. Morning Star's SNA 3770 package emulates an IBM 3776 Model 3 communications terminal as a Remote Job Entry (RJE) terminal. Horizon series communications boards will support multiple protocols simultaneously. A Masscomp computer can now run both 3270 and 3770 together, or either with X.25 or HASP. The complete package is priced at $5,795. The Horizon 800 series communications board is available from Masscomp and the SNA 3270 and 3770 software from Morning Star. Single-unit end-user pricing starts at $2,795 for the Horizon 800 and $2,995 for the SNA 3270 or 3770 software.

SUN WINS $15m OVER THREE YEARS FROM NIPPON STEEL

A much more modest $15m over three years has been won by Sun Microsystems Inc, Mountain View, California from Nippon Steel Corp of Tokyo. The steel company will market NSSUN workstations, based on the Sun-3 M with its won structural analysis, statistical analysis, computer-aided design, manufacturing and engineering, artificial intelligence and factory automation applications. Nippon Steel will also market Sun workstations with third party software, and additionally use them in-house for research and development.

FORTRAN FOR THE MAC, BUT NO C: AUSTEC-McFARLAND CONTINUES TO MAJOR ON COBOL

Now that Austec International Pty is pretty much home and dry in its proposed acquisition of Ryan-McFarland Inc, Rolling Hills Estates, California, the Melbourne, Australia company is reviewing the opportunities created by the expansion - not least beyond its previous specialisation in Cobol. Chief executive Les McNeill told Microbytes Daily that the company now "has plans" for Fortran on the Macintosh II. The combination of Austec and Ryan-McFarland creates a major new player in the language market, McNeill claims - but it does not intend to compete with Microsoft or Borland in the low-priced compiler market. "We don't consider C a major business language," says McNeill, suggesting that Cobol is still better than C for networked business applications since its data structures are entirely machine-independent and because Cobol has greater numerical precision. McNeill also says that a major focus of Austec is the integration of PC-DOS machines with mainframes in the Cobol business applications environment - where it will find itself in a head-to-head contest with Micro Focus Plc.

INTERNATIONAL ROBOMATION CLAIMS PRICE ADVANCES IN MACHINE VISION SYSTEMS

International Robomation Intelligence Inc, General Automation founder Larry Godhorn's new company in Carslbad, California, is claiming two "significant" new machine vision products. The company believes that the VM512 low cost OEM vision module and the SVP512 satellite vision processor for the IBM AT "represent significant advances" in its artificial vision technology. Both provide high-speed and high-resolution - up to 512 by 512 pixels - real-time machine vision processing. The correlator co-processor executes fast gray scale correlation algorithms at 100m operations per second. The units start at $9,600 in OEM quantities, and International Robomation also has a library of 300 vision on software functions available. The programs are written in C and run under the company's proprietary real-time operating system - and other programming environments are also available. The SVP512 satellite vision processor is a development workstation for use with the IBM AT computer and uses the same basic VM512 vision engine, augmented by a special AT gateway and software packages. Vision programs can be created on the AT under PC-DOS and are transferred automatically to the real-time vision system. Prices start at $18,000, with discounts for quantity.

McDONNELL TAKES 30 COPIES OF INTELLICORP's KNOWLEDGE ENVIRONMENT

IntelliCorp Inc, Mountain View, California has been awarded a volume purchase contract for its flagship product, the Knowledge Engineering Environment software development system, from the McDonnell Aircraft Co division of McDonnell Douglas Corp. McDonnell Aircraft Co wants 30 copies of the Environment as part of an extensive training and development effort. Fifteen copies of the KEE system will be retained for applications development at McDonnell Aircraft's headquarters in St Louis, Missouri while the remaining 15 copies are earmarked for an artificial intelligence training centre at Washington University, also in St Louis. All copies will be run on Sun Microsystems Sun-3 workstations. Washington University, in conjunction with McDonnell Aircraft, intends to offer a graduate-level certificate program in artificial intelligence and 100 McDonnell employees will attend a 13-week training programme on KEE - 25 per quarter.

FLOATING POINT SHEDS 400; SAVAGE CUTS IN IRELAND

The Irish manufacturing plant will bear the brunt of another swingeing round of job cuts at Floating Point Systems Corp that will reduce its worldwide workforce by 400 people, 33%. The company is consolidating eight departments into four, and says that it has serious overcapacity at the Irish plant. The good news for those who survive the cuts is that the 10% pay cut instituted last autumn is being restored. The company looks for only a slow turnaround from a horrendous fiscal 1986 that saw it report a net loss of $14.3m in the year to October on sales of $88.6m. The new round of cuts will lead to a charge with its third quarter figures to July 31 of "nearer $10m than $5m" for a period that will anyway be down on the $2m loss on sales of $20.8m this time last year. The Beaverton, Oregon company looks for the cuts to save it between $4m and $5m a quarter, but warns that it expects another loss for the full year to October.

HARRIS OFFERS EMBEDDED FORTH DEVELOPMENT ENVIRONMENT

Not too much has been heard of the 16-bit microprocessor optimised for the Forth programming language and operating environment since it was introduced by Novix Inc, Cupertino, California a couple of years ago, but now Harris Corp has come out with the Force - for Forth Optimised RISC Computing Engine, Toolbox, which includes the Harris implementation of the CMOS microprocessor, plus support macrocells, front-to-back computer-aided engineering support, and Harris and third party hardware and software tools. The microprocessor is rated at 10 to 15 MIPS sustained performance, 30 MIPS peak, and the toolbox is intended for creation of embedded silicon solutions for industrial and military real time control and signal processing; no prices given. Forth was conceived by Charles Moore on an IBM 1130 back in 1971 for radio telescope data acquisition.

DEC, CRAY UNVEIL VAX 8250-BASED SUPERCOMPUTER GATEWAY

Digital Equipment Corp and Cray Research Inc duly announced their VAX Supercomputer Gateway after we closed for press Wednesday: the Gateway is the first product offered under a new agreement for joint development and marketing of products that link DEC VAX systems to Cray supercomputers. The gateway, designed to link a Cray X-MP into a VAX-luster system, is based on VAX Bus Interface (BI) technology. According to the companies, it increases data throughput up to five times over various connection offerings from third parties; memory to memory transfer is put at 3Mbytes per second. The VAX Supercomputer Gateway is made up of a VAX 8250 processor, 20Mb of memory expandable to 32Mb, a 70Mbits per second VAXcluster interconnect, a 10Mbps Ethernet interconnect, a VAX/VMS licence, a Cray input-output adaptor, and DECnet network software. This package starts at $180,000, with first deliveries slated for this summer. In addition, Cray Station Software, costing $2,500 a month, is required to run the system; it allows remote users to send a batch job to the Cray input queue automatically and retrieve output later. Under the new development and marketing agreement, both companies will co-operatively develop hardware and software for customers who need both supercomputing and interactive computing capabilities. As examples of such users, a DEC spokesman cited scientists involved in molecular modelling, finite element analysis, computational fluid dynamics, complex seismic and geological modelling, and and VLSI circuit design. Under the venture, DEC will sell the VAX Supercomputer Gateway, VAX/VMS software, and related network products, while Cray Research will sell the Cray Station software, supercomputer, and related network products, Each company will service their own systems. A Cray spokesman at the New York debut of the gateway commented that the agreement with DEC is non-exclusive and does not necessarily preclude a similar one with IBM.

ERICSSON MAKES TEXAS MOST FAVOURED CHIP SUPPLIER

L M Ericsson Telefon AB has chosen Texas Instruments Inc to be its preferred supplier of advanced integrated circuits. Under a design and production agreement announced in Stockholm last week, the Swedish telecommunications and computer company gets access to the Dallas chipmaker's standard cell library and its computer-aided engineering systems to create custom parts that will then be made for it by Texas. The agreement won't preclude Ericsson buying from other manufacturers - indeed it has its own chip shop, Rifa - it is likely to generate hundreds of millions of dollars of business for Texas in the immediate future. Last year the Swede signed a similar pact with DEC and now specifies the VAX in all bids where it has no suitable CPU of its own.

NOVELL's ACQUISITIONS HELP IT TO ENHANCE ITS NETWARE OFFERINGS

Novell Inc is strengthening its ability to link NetWare-based local area networks to minicomputers and mainframes, and other manufacturers' workstations, such as those from Sun Microsystems and Apollo, to local networks with a series of new products, announced at Comdex in Atlanta this week. The new products have grown out of the company's recent acquisition of three companies in the field. Novell announced an asynchronous bridge and a new asynchronous gateway. The asynchronous gateway links NetWare-based networks to resources on minicomputers from DEC, Data General, Hewlett-Packard, Prime and Tandem; the asynchronous remote bridge connects multiple remote NetWare-based networks to a local network over telephone lines, using high-speed modems. Novell also announced a series of new IBM gateway products, which have been developed by CXI Inc, a wholly owned subsidiary of Novell since the end of January 1987. These new products include a 40-session coaxial gateway, various local area network workstation gateway software and new software for PCOX gateways that support the NetWare SPX interface, all designed for access to data on IBM mainframes. In addition to CXI, Novell acquired SoftCraft Inc, a developer of database access languages for networks, on February 24 and Santa Clara Systems Inc, which develops network hardware products, on November 3, 1986.

BANYAN SYSTEMS ADOPTS SUN-CENTRAM TOPS PRODUCT FOR ITS LOCAL NET LINE

Banyan Systems Inc of Westboro, Massachusetts announced support for Centram's TOPS networking product at Comdex in Atlanta this week. Banyan used the link from Centram at Comdex/Spring to demonstrate a connection between Apple Macintoshes and IBM Personalikes running on Banyan's Vines virtual networking system. A personal computer running both TOPS and Banyan software can act a "bridge" between the two networks, giving both Macintoshes and IBM Personalikes transparent access to files stored on a Banyan file server. The "bridge" personal computer can also do local processing at the same time. When a Macintosh user sees the directories available on the Banyan server, they appear as familar Mac icons. Similarly, Mac files appear in MS-DOS format to a Personalike user. The Vines/TOPS link is done over AppleTalk or compatible network cabling. Priced at $149, TOPS for the Macintosh provides the network software on disk. TOPS for the Personalike, priced at $389, includes TOPS software plus an expansion card that links the computer to a nine-pin AppleTalk connector. Vines integrates various communications technologies, including local and wide-area networks, mini and mainframe links. Banyan also sells multi-function servers that run the Vines network operating system as well as providing internetwork support for different local nets. Vines prices start at $1,895.

HP3000s "STILL ON SCHEDULE"

Responding to an analyst's report that sent its shares reeling last week by indicating that it would delay volume shipments of the Spectrum HP3000s until 1989, Hewlett-Packard Co yesterday declared firmly that first shipments of its HP 3000 Series 930 and 950 business computers remain on schedule for August and fourth quarter delivery, respectively, and confirmed earlier statements that volume shipments would begin early in 1988 for both.

NEC JOINS 80386 RUSH WITH POWERMATE 386 IN US

Despite the efforts it is putting behind its own V-series microprocessors and its battles in court with Intel Corp, NEC Corp is not too proud to join the rush to bring out a machine built around the 32-bit Intel 80386 microprocessor. NEC Information Systems in Boxboro, Massachusetts has launched the PowerMate 386 onto the US market, saying that it is pitching the machine at the desk-top publishing, financial and scientific modelling and CAD/CAM markets. The new machine will come with MS-DOS 3.2 and GW Basic 3.2, a 1Mb to 16Mb 16MHz version of the 80386 and up to five internal 5.25" disk drives - 1.2Mb floppies, and 40Mb, 66Mb and 130Mb Winchesters are offered with either AT or faster ESDI controllers. It has one 32- bit, five 16-bit and two 8-bit slots, one parallel and two RS232 ports and MultiSync 14" 800 by 500 pixel colour VDUs are supported by CGA-, EGA- and VGA-compatible boards. A 1Mb PowerMate 386 with 40Mb and floppy costs $5,100.

DIGITAL RESEARCH SHOWS OFF REAL-TIME FLEXOS 386

Digital Research chose the Intel Fair in London for the first public demonstration of its new FlexOS 386 real-time operating system for the flexible automation manufacturing, laboratory, retail and financial markets. Upwards-compatible with FlexOS 286, it supports the FlexOS 186 kernel version that is designed for remote 80186-based cell controllers linked to a FlexOS 386 or 286 host. The multi-tasking, multi-user operating system includes a windowing feature that enables MS-DOS and graphics programs to be run in a DOS Application Environment: this supports MS-DOS 3.2 functionality and the Digital Research GEM Graphics Environment Manager. FlexOS 386 is designed for very fast interrupt response and context switching. The operating system will be available in Europe, but in the in terim, a development kit including FlexOS 286, MS-DOS 2.1 Application Environment, Metaware High C compiler and GEM virtual device interface, to run on IBM Personal ATs and AT-alikes is available at £995.

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Minigrams

The Modula-2 compiler from **Masthaven** of Cambridge is now available on the Torch Triple X, Sun Microsystems workstations, Apollo workstations and the Stride machines.

- o -

Kalamazoo has announced a version of Appgen that runs under Unix that will co-exist with MS-DOS on an IBM PC AT or compatible: the company is claiming that it can upgrade IBM PC systems into full multi-user Unix environment using the Appgen accounting applications.

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BICC Power Cables part of the British Insulated Callendar Cables Group has ordered two Unix-based **Unisys** 5000/50 system for word processing, telex and export applications.

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MIPS Computer Systems has appointed the Instruction Set to provide Unix support to MIPS' customers.

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The financial modelling system Sun-Trend from **Systems Union** has been ported to Unix.

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Unisys Corp is to redeem its $200m of 7.25% convertibles due 2010 at $106.525% plus accrued interest, but expects holders to convert at the rate of 11.88 shares per $1,000 face amount - which would lead it to issuing 2.6m new shares to add to the 46.7m out.

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Convergent Inc of San Jose has completed acquisition of **Oakleaf Corp** of Chatsworth, California for an undisclosed sum: it will add its In*Sight back-office system to **Convergent Business Systems**

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Autodesk Inc sold its issue of 2.64m shares, 2.25m of them new and adding to the 20.6m already out, at $24 apiece, and will use the $50m or so net proceeds for working capital and to finance growth at the personal computer CAD/CAM software company; L F Rothschild & Co was sole underwriter to the issue.

Intergraph Inc of Huntsville, Alabama, has now confirmed that it has expressed an interest in joining the management consortium being put together to buy **Fairchild Semiconductor** from **Schlumberger Ltd** (UX No 131).

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Not too surprisingly, shortage of 80386 parts was a burning issue at Comdex, and Brad Fuller, software development manager at **Sigma Designs** , Fremont, California declared himself "very concerned" at the shortage of the **Intel** chip: "our understanding is that Intel is prorating the deliveries by the amount that you originally ordered," - its largest customers - IBM, Compaq - are getting the lion's share of available chips, while smaller firms bear the brunt of the shortage.

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Don Folland of the CCTA and Government Unix User Group has been elected to the board of **/usr/group/UK** along with Steve Goodwin of Lucas Micos and Mark Medley of Trafalgar House Group Services.

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Across the water the US-based **/usr/group** has expanded its Affiliate Group Program to include Unix Group Argentina and New Zealand Unix System User Group.

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John Menzies the newsagents has placed an order worth around £180,000 with **NCR** for 13 of the Unix-based NCR Towers: the new order brings John Menzies Tower total to 200.

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Setay Systems an Olivetti VAR donated an AT&T 3B1 to St Mary's Hospital Paddington to help with AIDS research and **Redwood International** has made its Uniplex- II Plus available: **British Olivetti** has supplied a C compiler and **NAG** is talking to the group to see which of its statistical software packages would be most suitable.

Perkin Elmer has installed $1.2m worth of **Intergraph** CAD/CAM systems and has already used them in designing and manufacturing parts.

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benchMark has signed a £1m OEM contract with **Ican** of Norway, part of the US Clark Corp: the agreement guarantees a minimum order of £500,000.

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Oracle has announced that it has recently installed the first Oracle relational database management system on **Sequent** hardware at **Liberty Life.**

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Specialix Systems has appointed Paris-based **Agix** as the French distributor for its Chase AT8intelligent multi-user controller boards and ARC Series of automatic tape back-up systems: Specialix has distributors in West Germany, Spain, Italy, Scanadinavia, the Middle East and the US.

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And **Specialix** has also announced an enhanced version of its multi-user Concurrent DOS software device driver for the Chase AT8 - this says Specialix will retain compatibility with Concurrent DOS XM and Unix/Xenix.

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Rolls Royce plc has installed a data acquisition and analysis system based on a **Masscomp** 5600 running Masscomp's Real-time Unix to monitor the transient performance of aero engines: the system is judged to be worth £110,000.

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A sports and leisure manufacturer, **DSR (Leisure) Ltd** has chosen Xenix-based software for sales, purchase and nominal ledgers, stock control and order entry from **SMB Business Software.**

- o -

Olivetti UK Ltd and **MS Associates** have entered into an agreement to make MS'Cgen-BP DEC Basic to C and Cgen-BB Data General Basic to C translators available to Olivetti OEMs, VARs, the Olivetti direct sales force in the UK, Europe and Far East.

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UK DEFENCE TECHNOLOGY FIRM LIBERATES WORDSTAR FOR UNIX

MicroPro International has given an embryonic UK firm permission to market and enhance Unix and DEC VAX versions of a WordStar command-compatible program developed by the UK Ministry of Defence's Royal Signals Research Establishment at Malvern, Worcestershire. The new firm, unnamed and unincorporated, is expected to emerge from talks between Milton Keynes-based Defence Technology Enterprises Ltd and Real Time Consultants Ltd of Leamington Spa, Warwickshire. The WordStar program is written in Coral 66 and will be sold under the name of Scribel. Defence Technology formed in 1985 to help transfer Ministry-developed technology to the commercial world.

UNIDATA PLANS DB2-, SQL-COMPATIBLE PICK-UNDER-UNIX

VMark Computer Corp is not going to have the Pick-under-Unix market to itself for much longer if UniData Inc of Denver, Colorado has its way. Acording to Computer Systems News, the company is working on an SQL-compatible relational database environment that will enable Pick applications to run under Unix and to access files from IBM's DB2. It is written in C and is claimed to have considerable enhancements over Pick, including the SQL, and a new applications generator. Set to be available in September, it will be offered to resellers of Pick machines. Pick Systems says darkly that it is watching UniData and is still investigating the product for possible copyright infringements.

DEC TURNS ON SUN AND APOLLO WITH $4,600 VAXSTATION

DEC as expected yesterday tired of the up-and-coming workstation builders snapping at its heels, and responded with a new configuration of the VAXstation at just $4,600. The single plane, monochrome VAXstation 2000 desktop unit comes with 15" monitor. It includes 20MHz CPU, 4Mb, Ethernet adaptor, mouse and software licences and is out in December. The four-plane colour VAXstation 2000 now comes with 15" 1,024 by 864 screen for $7,900 and with 19" screen for $11,900; hardware of both is as the mono version. The 19" mono VAXtstation 2000 is cut 48% to $5,400. A new VAXserver 100 for use in Local Area VAXcluster, DECnet or NFS/Ultrix environment costs $65,000 for the 20MHz MicroVAX II chipset, 16Mb, 456Mb Winchester, 95Mb tape streamer and operating system licence. It is available next month. Local area VAXcluster is extended to 28 nodes from 14, and a new RD54 159Mb disk is $6,900 for the VAXstations. Before the summer is out, the company is forecast to meet the accelerating competition from the likes of Sun and Apollo with MicroVAX III, VAXstation III and VAX 8400 systems. All will use versions of a new CMOS chip set, the C-VAX, developed at DEC's Hudson, New Hampshire chip shop. According to Digital Review magazine, the basic CPU is rated at 2 MIPS against 1.1 MIPS for the MicroVAX II set, but will be enhanced to deliver 3 MIPS in the VAX 8400, lining it up against IBM's top 9370, the 9377 Model 90. The new MicroVAX III - Q-bus-based where the 8400 will use the new BI bus - is expected to offer twice the performance of the 8250 but to come in at a lower price - around $65,000.

RACAL-REDAC SEES $20m OVER TWO YEARS FROM SUN PACT

Racal-Redac Ltd has implemented its Visula electronic design software on the Sun Microsystems Sun-3 workstations, and says it is looking for $15m to $20m in software sales from the agreement over the next two years. Visula, already on the DEC VAXstation II/GPX and Apollo Computer Domain stations, will be jointly marketed by Racal and Sun.

HONEYWELL BULL ITALIA ADDS UNIX ON DPS 4000

Honeywell Bull Italia yesterday announced support for the SPIX implementation of Unix System V for the DPS 4000 small business computer - but like ICL with System 25, it has decided to do it by means of a co-processor. The DPS 4000 has a modular multi-processor bus architecture, facilitating support for co-processors alongside the GCOS 4 operating system, and SPIX 4 runs on a 20MHz 68020 with 68881 and 4Mb.

TELEVIDEO ENTERS UK UNIX WORKSTATION MARKET

Televideo has brought its Unix- based 386 box to the UK as well as a number of other new products announced in the US at Comdex and is hoping to attack the Unix engineering workstation market dominated by Apollo and Sun as well as the the general purpose multi- user Unix market. The major announcements include the Intel- based Telenix 286 and 386 machines running Unix System V and MS-DOS concurrently using the DOSMerge facility available under Microport's implementation of Unix System V. A 40Mb hard disc Telenix 286 supporting up to five users with 1Mb RAM, 1.2Mb floppy drive and 60Mb tape will cost £5,995. A 16 user Telenix 386 with a 71Mb hard disc will cost around £9,000. The Telenix 386 will support 2 to 16Mb RAM and up to 150Mb hard disc and 60Mbtape streamer.

BRITTON LEE READY WITH TOP-END RELATIONAL PROCESSOR

Back end relational database processor pioneer Britton-Lee Inc of Los Gatos, California, is ready to make a leap up-market late next month with introduction of the BL- 8000 relational database processor, which is expected to offer 10 times the performance of the company's present high-end 700 line. Designed to be attached to top-end main frames, the processor - with Britton-Lee's proprietary database software - is expected to be about $500,000 in one-off quantities.

HITACHI PREPARES 1.7GFLOPS SUPERCOMPUTER FOR LAUNCH

Hitachi Ltd is pitching for world leadership in the supercomputer stakes with a system being designed to deliver 1.7Glops, for delivery next spring. Coming in above the 810 and 820, the top machine of which is rated at 630Mflops, it will outperform Japan's current performance leader, the NEC SX-2, rated at 1.3Gflops. Cray Research and ETA Systems will almost certainly say that the Cray-2 and ETA-10 outperform either, but Hitachi looks to get the performance out of a single CPU where the big US supers are multiprocessors. However Japan's ICOT Instutute for Computers Of Tomorrow is working on compile algorithms that assume a multiprocessor, so MP configurations of the Nippon CPUs are likely.

AND PICKS LONDON FOR SOFTWARE DEVELOPMENT BASE

Hitachi Ltd, planning to bring its 68020 and 80386 workstations to Europe next year, has picked London as its software development base. It will major on application of artificial intelligence techniques to financial applications, and wants links with UK colleges and research bodies, says the Financial Times.

INTERTECHNIQUE ADDS MID-RANGE IN8200 PICK BOXES

French Pick-popper and technical supermicrocomputer manufacturer IN2, Intertechnique Informatique, has introduced low-end and mid-range models in its IN8000 line of 32-bit Pick systems. The IN8200 comes with up to three interactive processors and one or two additional support processors for numerically intensive applications or for fault tolernance. As single processor IN8200 supports up to 32 users, with two it takes 64 and with three the maximum 128. The machine comes with 4Mb to 16Mb main memory, 16 to 128 async and one to 12 synchronous lines, one or two 150Mb disk drives, and half-inch back-up tape drive - all in a single cabinet. The system can be expanded with one or two 150Mb mirror disks, a 50Mb audit trail disk and quarter inch streamer. The IN8100 uses the same 32-bit processors in a smaller enclosure, using up to four and supporting a maximum 64 users. Main memory goes to 8Mb, it takes 16 to 64 async and one to four synchronous lines and the same peripheral complement as the 8200. The company, still looking for an entree to the UK market, did not give any prices or delivery dates.

CAD/CAM INTEGRATION INC TAKES IBM XT ONTO THE FACTORY FLOOR

If anything can wean the numerical control community away from its perverse addition to punched paper tape, CAD/CAM Integration Inc of Woburn, Massachusetts reckons it has to be the tumbling prices of the IBM Personal XT or AT or compatibles. The company has found that the IBM machines are quite man enough to run an implementation of Unix supporting its Computer Numerical Control software, and it has accordingly come up with the Series 1000 Factory Automation Systems. The systems are designed to provide for distributed numerical control and communications and the company claims that the new line is a distinct break from the past. "Up to now, factory communications systems were designed around proprietary and costly operating environments," says president Joe Lewis. "With the introduction of these products, we have eliminated several barriers to entry - price, standard hardware, and the lack of good factory communications software." Series 1000 provides electronic transmission of manufacturing information between a CAD/CAM/CAE or numerical control preparation system and machine tools or other automated shop floor equipment.

Ethernet or Broadband

Unix was chosen as a convenient source of a multi-tasking operating environment: using Series 1000, an operator can simultaneously take data from a CAD/CAM system, queue jobs on the Series 1000 and sending a job to the machine tool simultaneously. The system provides for two-way communications for down loading to, and uploading manufacturing information from numerical control and computer numerical control machine tools, robots, co- ordinate measuring machines and other shop- floor devices. Post-processed files are downloaded from a CAD/CAM or numerical control preparation system to the Series 1000, which can store and distribute the information to the shop floor. The system can then monitor the machine tool for production reporting, quality control and maintenance. In its basic form, the Series 1000 can be configured as a DNC 1000 for standard direct numerical control applications including eliminating paper tapes, part program editing at the shop floor, job queuing and remote job requests. The system provides software links into host systems and multiple protocols for linking into machine tools. The DNC 1000 uses a 16-channel multiplexer, expandable to 64 channels, to download part programs via asynchronous RS-422 or RS-232 communications to the machine tools. A Cell 1000 includes the DNC 1000 and monitoring software, such as machine tool monitoring, production control system, probe data collection, maintenance reporting, and graphics communications. Hardware options include machine interface units, probe mate, communicator modules, and graphic terminals. All Series 1000 products support Ethernet and Broadband local area networks. The Series 1000 is available now, and starts at $7,500 and includes a 16- channel multiplexer, Unix, RS-422 or RS-232 links, full screen numerical control editor and standard machine tool protocols. Bring your own Personalike.

VALID LOGIC TEAMS UP WITH SUN AND LAUNCHES RULES-DRIVEN DESIGN TOOLS

Valid Logic Systems has signed to become an OEM for its electronic design automation tools on Sun Microsystems' workstations. The OEM agreement commits Valid to buying $10m of Sun technical workstations over the next 18 months and it also includes a joint marketing agreement and co-operation on future technology development. Valid intends to sell the Sun workstations as turnkey systems having added its CAE, IC CAD and PCB CAD tools. As part of the technology co- operation both companies intend to let the other know of their plans and give them advance copies and where appropriate helping to implement them. Valid has also applied a new design technique to its PCB design system, Allegro, and its chip architecture design tool, ValidCompose. Valid claims that the rules-driven design methodology gives the engineer greater control over the physical layout by assigning properties to particular graphical elements in the schematic the engineer can drive through explicit considerations for layout. Allegro is currently in beta test sites and shipments will begin in August. Running as a turnkey PCB design system on a Sun 3/110 will cost around $70,000 for single unit quantities. ValidCompose is also in beta test and scheduled for delivery in September for a price of $20,000.

AND SUES DAISY, GENRAD, MENTOR, THREE OTHERS OVER ALLEGED PATENT INFRINGEMENT

Valid Logic Systems Inc, San Jose, California announced as we closed for press last night that it had filed patent infringement suits against six leading computer-aided engineering firms - Daisy Systems, Mentor Graphics, GenRad, HHB Systems, Teradyne and Cadnetix. The complaint seeks injunctions and damages for alleged infringement of Valid's patent on a Method and Apparatus for Modelling Systems of Complex Circuits. Valid believes the patent covers a fundamental method and apparatus for hardware modelling, which allows real integrated circuits to be used as simulation models.

ROOT CLAIMS IMPROVED PERFORMANCE WITH X/OPEN CONFORMANT ISAM

The Root Office Systems division of Root Computers has used the X/Open Common Applications Environment to produce an indexed sequential access method for Unix. The resulting ISAM is very similar to that used by the Informix DBMS, also being X/Open conformant, but Root claims faster performance. Using a Motorola 68010-based machine running Uniplus+ V.0 Root has produced benchmarks that show write-time and read-time improvements of around 30% compared to C-ISAM. The reason for this speed improvement is that X/ISAM uses a design that handles variable length records and frequently occuring key-words, which, says Root, leads to more efficient data storage. Root adds that its implementation includes: audit trail recovery routines to allow automatic roll-back or roll-forward routines; cross-referencing of ISAM files; and a file consistency check. Althogh the X/Open group is pleased that Root has produced a product based on the CAE X/Open has had nothing to do with the product but Root will be targetting the member manufacturers of X/Open for the product. Software houses will also be addressed by the Root sales force. The end- user price for a single-user run-time licence is about £75 but a multi-user licence could be as much as £600 - with large discounts available for quantity. X/ISAM has to date been sold to Apricot and Infospec of Leeds.

SUN MICROSYSTEMS "SETS 10 MIPS RISC FAMILY FOR JULY LAUNCH"

Sun Microsystems Inc now has 100 systems built around its own Reduced Instruction Set processor running in-house at Mountain View, California, and is planning to announce the first machines using the 32-bit chip set next month. So says Computer Systems News, adding that the set, initially clocked at 16.6MHz and rated at a racy 10 MIPS, is believed to have been designed using 1.5 micron Fujitsu semi-custom arrays integrating 15,000 gates per chip, and may be passed to Cypress Semiconductor, Sunnyvale, for fabrication. The new Sun-4 family using the new arrays is expected to relegate the 68020-based Sun-3 line - rated at 4 MIPS - to the role of low- end models; its initial incarnation is expected to be as the Sun-4/260, tipped to cost about $50,000 in the monochrome version with 8Mb of memory, $70,000 with colour. Deliveries are expected to begin in late summer, and to be followed by network server and multi-user models later. Sun is also expected to follow the path pioneered by DEC and other major mini-computer manufacturers in the mid-1970s by diversifying into the commercial computing market from a strong base of technical systems. The Sun RISC is believed to implement 93 instructions with an average execution time of 81nS; the company, which declines comment on any forthcoming products or its plans, is thought to want to double the performance of the processor each year by moving to higher levels of integration and winding up the clock. It is also understood to be looking to sell the chip set OEM to other vendors.

COMPUTER CONSOLES ADOPTS KERRIDGE's WANG-TO-UNIX BASIC-K WORLDWIDE

Kerridge Computers Ltd of Newbury, Berkshire is celebrating a significant coup with a contract from Computer Consoles Inc that gives the Waltham, Massachusetts company exclusive worldwide distribution rights outside the UK to a Basic compiler that facilitates transfer of applications written for Wang 2200 machines to a Unix environment. Computer Consoles, ironically run by former Wang Laboratories heir presumptive John Cunningham, is offering Kerridge's Basic-K compiler as an aid for Wang 2200 users and software developers wanting to migrate their applications upwards to Unix machines, specifically Computer Consoles' Power5 micros and Power6 minis - the latter supports up to 80 users against 16 on the Wang 2200. Basic-K under Unix is also claimed to offer many language extensions and operating system enhancements that are not available, or even possible, under Basic-2 on the Wang 2200. These include Unix utilities to perform previously programmed functions, open file systems with non-restrictive siz- ing, and expanded memory capabilities. Other new possibilities for the 2200 community, says the company, are migration to databases, new applications and additional languages. Computer Consoles reckons that there is a population of about 50,000 end-users and 2,000 software developers and value-added resellers of the Wang 2200 to be wooed, and resellers will also be able to offer added value by combining Basic-K-based applications with the integrated Officepower office automation software. Beta test sites for Basic-K include The Office Manager Software and AIMS+PLUS. Prices for Basic-K range from $1,500 to $4,500, depending on hardware configuration.

CONTROL DATA TO BECOME VAR FOR PYRAMID MACHINE - ADDS ASCENT

Pyramid Technology has entered an agreement with Control Data Corp's Professional Services division to market CDC's Ascent gateway software on Pyramid's minicomputers. Under the terms of the agreement CDC will act as a VAR and independent software vendor so that the Pleasanton, California company can sell complete systems or just provide the software for exiting owners of Pyramid machines or users that would rather buy direct. Ascent is a suite of packages that provides communications, networking, office automation and database facilities. The terms of the agreement were not disclosed.

ACORN JOINS RISC FRAY - UNIX COULD BE AVAILABLE IF DEMANDED

Acorn yesterday duly launched its 32-bit RISC machine named Archimedes in honour of the scientist but which Acorn points out is also an anagram of "he made RISC". The Archimedes range currently consists of two series: the 300 which will be called the BBC Micro 300; and the 400 which will be Acorn badged. The two models in the 300 range - the entry level 305 and the 310. The 305 has 0.5Mb RAM upgradeable to 1Mb, which is standard with the 310. Both machines have a 3.5" 1Mb floppy disc drive, with room for a second, and a two slot backplane. The two machines in the 400 series are the 410 and 440. The 440 has 4Mb RAM, 0.5Mb ROM, 1Mb 3.5" floppy disc drive, 20Mb hard disc and a four socket backplane. The 410 is basically the same machine but with 1Mb RAM and no hard disc but can be upgraded to the 440. Acorn has coined the word podule - peripheral module - which allow the machines to be expanded or to emulate the 6502 processor used in the first BBC Micros or the 8088 to run MS-DOS. Acorn intends to release ROM extension, additional input/output facilities, MIDI interface, modem, SCSI and MS-DOS co-processor podules in the future. The Archimedes machines have 18 standard screen modes and 256 colours are available from a palette of 4096. The operating system used on both series is Arthur, an enhanced version of the BBC micro operating system. BBC Basic has also been extended and renamed BBC Basic V and C, Pascal, Fortran-77, Lisp, Prolog and Comal are also available on the Archimedes. Acorn say that Unix could be implemented on the 440 but will only provide it if there is sufficient demand. Acorn is staying in its traditional markets of education, home and small business computing with the new machine but sees the 4 MIPS machine doing well as an OEM product in other areas such as desk-top publishing. The Series 300 is available now in limited quantities with full production scheduled for Septenber: the 400 will be out in November. The entry level price for the 305 is £799 rising to £999 for a fully configured machine complete with colour monitor. The 310 has an entry level price of £875 and fully configured price of £1,075. The basic 410 model pricing starts at £1,399 rising to £1,599 and the 440 costs a minimum of £2,299 and fully configured £2,499.

CULLINET ADDS WINDOWS TO ITS IDMS/R PERFORMANCE MONITOR

Westwood, Massachusetts-based Cullinet Software Inc has a new windowing facility for resource management in Release 10.1 of Performance Monitor, its on-line program analysis system for users of the IDMS/R database manager. It comprises three tools, Application Monitor, System Interval Monitor and Realtime Monitor. The Realtime Monitor provides the system programmer with statistics on resources the system is currently using, automatically refreshing the screen display with new data. The System Interval Monitor displays detailed wait statistics for a defined time interval. The new multiple windowing display enables the user to view several resources concurrently, helpful in using the Realtime and System Interval Monitors, since it allows a comparison of the use of various resources in the system simultaneously. A multi- directional scrolling feature enables users to take advantage of their terminals' full data presentation potential by offering the capability to view information beyond the standard screen.

PALANTIR SOFTWARE OFFERS INTEGRATED 10-MODULE OFFICE SUITE FOR MS-WINDOWS

Palantir Software Inc of Houston, Texas has introduced what it reckons is the first completely integrated line of office automation programs designed to run under Microsoft Windows on MS-DOS and PC-DOS micros. The Windows Office Automation Series includes 10 applications, utilities and productivity tools, all of which can share text, data and graphics "with seamless integration", says Palantir. The 10 products in the series are the WinText word processor, already available in 42 languages; the Windows inTalk communications program designed to facilitate micro-to-mini and micro-to-mainframe links; the Windows Spell spell-checker that works in background; the Windows Filer flat file data- base for forms creation and records entry; the WinCalc spreadsheet; the WinPaint paint and graphics program; the WinTime resource scheduler; WinFonts to generate fonts output; the WinLook database for graphics images; and WinScan, which imports and edits scanned images. The products can be configured in a variety of ways to create an integrated office system. Palantir has ambitions to join the world's top 10 software publishers and the Windows version is just the beginning - it plans to extend the concept to its MS- DOS, Unix and Macintosh products.

AES DATA TO GO TO KINBURN AS CPT PULLS OUT OF TALKS

Although CPT Corp reached agreement in principle to buy AES Data Inc from Canada Development Corp back in February, the two failed to find common ground on a price, and talks broke down last Friday. Canada Development has now agreed to sell the word processing systems specialist to Kinburn Technology Corp of Ottawa. Terms of the agreement were not disclosed.

ORACLE PREVIEWS RECORD FISCAL YEAR FOR 1987

Oracle Corp, Belmont, Washington developer and marketer of the Oracle relational database management system can't wait till the beginning of next month when the figures are all added up to deliver the news that it achieved record revenues and earnings for the fourth quarter of its 1987 fiscal year to May 31. It says that preliminary estimates indicate that sales in the period increased about 140% to around $50m and net profit rose about 200% to around $7.8m, and with it, earnings per share. For the year it looks to report net up 170% at $15.9m on sales up 136% to around $131m "During the fourth quarter business results remain very strong," says president Lawrence Ellison. "We are especially proud to have consistently met or exceeded growth and profitability targets" he declares.

SHARES IN ADOBE SYSTEMS TAKE A TUMBLE AHEAD OF ALDUS FLOTATION

In contrast to the frenetic excitement over the initial public offering Aldus Corp, developer of the Pagemaker desk-top publishing application, shares in PostScript developer Adobe Systems Inc have been well-nigh friendless on Wall Street. For those who find the two companies hope lessly confusing and mistake the one for the other, Aldus is the one that sells the software that runs on the computer - the Apple Macintosh was the original target machine and still accounts for the vast proportion of sales; Adobe is the one that developed the PostScript page description language that tells the laser printer how to respond to the commands from the computer - and is normally installed in the printer rather than the computer. Adobe shares peaked at $56 earlier this year, but are now trading at around $35.50, down from $44 in the middle of the week before last. Among the developments that have contributed to the lacklustre performance of Adobe's shares are the fact that at the Comdex show in Atlanta at the beginning of the month, privately-held - and very highly regarded - Phoenix Technologies demonstrated a clone of PostScript. And, notes AP-Dow Jones, there has been a rumour doing the rounds that Apple Computer was planning to introduce a laser printer for use with its Apple IIe computers that would not use PostScript (we don't comment on such things, says Apple). Ajit Kapoor, a desktop publishing analyst with Dataquest in San Jose told Dow Jones that he isn't surprised by the decline in the Adobe share price. He says the stock probably should trade in a range of $15 to $30 a share and that its high price in recent months "reflects the hype, not the reality. What you see is a correction after the hype is over and reality sets in. David Schechter, an analyst with Homans, McGraw, Trull & Valeo in Boston, agrees that Adobe's stock is still overpriced. He says the company's revenue stream will be hurt by a trend toward declining prices for laser printers, since it receives revenue from royalty payments based on a percentage of the sales price of the printers that use PostScript - and cheaper laser printers from foreign firms, using PostScript clones, will take away a chunk of the company's market.

CONVERGENT TO ADD BIDTEK TO ITS BUSINESS SYSTEMS PORTFOLIO OF FIRMS

Convergent Inc, San Jose, has agreement in principle to acquire Bidtek Inc of Portland, Oregon in a share exchange on undisclosed terms. Bidtek supplies turnkey computer-based estimating systems for construction firms and will join the gang of acquisitions that makes up the Convergent Business Systems subsidiary, where it will work closely with another construction industry supplier, Digital Systems, acquired last year. Bidtek Inc was founded in 1976, has an installed base of over 250 systems in 30 states, and had sales of $6m in 1986.

CREDIT RATINGS

Unisys Corp is impressing everyone - including itself - with the rate at which the former Sperry and Burroughs operations are being consolidated, and despite the fact that the merged company is burdened down with debt raised for the acquisition of Sperry, some of that debt has been raised to blue chip status by Moody's Investors Services. Moody's has raised the firm's senior debt to single-A-3 from Baa-2, while the subordinated debt and preference shares are both lifted to Baa-1 from Baa-3. The Prime 2 rating for the company's commercial paper is confirmed and the company's shelf registration of senior debt not yet issued goes to provisional single-A-3 from provisional Baa-2.

NEW ISSUES

Innovative Software Inc, developing mini and micro business applications in Lenexa, Kansas is offering $25m of convertible subordinated debentures due 2012 through Shearson Lehman Brothers Inc and Gartner Securities Corp. The company wants the cash for acquisition of, joint ventures on, or licensing agreements relating to, complementary products, technologies or businesses, but says it doesn't have anything of that kind currently on the go.

INTEL PAYS IBM $360m TO BUY BACK 8.9m OF ITS OWN SHARES

At the end of 1982, IBM paid $250m for new Intel Corp shares to give it a 12% stake in the chipmaker, and subsequently bought shares in the market to take its holding to around 24%. Now Intel has paid IBM $361.6m to buy 8.9m of those shares - 7.6% of the total out, leaving IBM with 13.7m Intel shares, 11.7%. The continuing IBM holding includes 7.8m shares to support the exchange of IBM Eurobonds for Intel stock under that February 1986 offering of IBM exchangeable subordinated Eurobonds. IBM said it intends to hold the remaining 5.9m shares as a continuing investment in Intel. IBM retains rights to manufacture the 80286 and 80386 under licence and was Intel's largest customer last year, and will continue to buy substantially at least until 1990.

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Minigrams

Micro Focus has announced that its VS Cobol compiler will be available on the new Altos 386 series 2000 and that Altos will sell the product directly from the fourth quarter 1987.

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HCR Corp of Toronto, Ontario and **ETA Systems** of St Paul, Minnesota have reacted to reports that HCR and ETA are no longer associated by confirming that HCR's contract to develop a C compiler and port System V with Berkeley 4.2 networking enhancements for ETA is still on schedule but add that the confusion may have arisen because ETA is developing in-house another version of Unix specifically for smaller hardware configurations.

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Informix Corp got its 1.23m share issue - 1m new - away at $19.25 a shot; it wants the $19m or so net proceeds for general purposes; Hambrecht & Quist and Smith Barney Harris Upham were underwriters.

- o -

Apricot Computers Plc has reported net profits for the year to March 31 of £2.8m, against a loss last time of £14.9m, on turnover that fell 21% at £71.2m; pre-tax profits were £4m against a loss of £15.4m while earnings per share were 5.03 pence.

- o -

India is not at all impressed that the US will not licence a **Cray** larger than an X-MP/14 - it wanted an X-MP/24 - for monsoon prediction and is hinting Japan may win the business; the US says perhaps it will allow an upgrade in two years.

- o -

There seems to be something rotten in the state of Dayton and **NCR** is having to work overtime to protect its image of solid respectability: less than a month after having to fire several of its accounts people for attempting to use inside information to make a killing in the traded options market (as well as losing their jobs, they got skinned), the Dayton, Ohio company is now having to proceed against a former advertising manager and three companies because it reckoned they defrauded it by selling it market studies that were never performed, and overcharged for promotional material; NCR is seeking $300,000 actual damages, tripled under the US Racketeer Influenced and Corrupt Organisations Act.

How's the **IBM** Personal System/2 going down in the market? Like a lead balloon, according to **International Data Corp**'s William Zachman, who says that the line appears to have been designed to be as proprietary as practically possible rather than to serve customers' needs, and dismisses the first four models of the line thus: "the Model 30 is clearly a deadend machine and its beyond me why anyone would buy one of these things - I think it will be an absolute disaster in terms of sales; the Model 50 is clearly slower than a 12MHz AT- compatible - I consider it an insult to buyers; the Model 60 is based on a chip of the past - I seriously question whether the 60 can be a platform for OS/2; the Model 80 is a powerful, but over-priced system that is not even shipping yet - it's a pretty price for the IBM logo".

- o -

You pays your money and you takes your choice: **Dataquest**, the people who brought you the 1981 forecast that **IBM** would be shipping 350,000 Personal Computers a year by 1985, for annual business of $700m to $800m and 10% of the sub-$5,000 market, reckons that IBM will this year sell 500,000 Personal System/2 Model 30s, 240,000 50s, 98,000 Model 60s, and 115,000 Model 80s.

- o -

The truth probably lies somewhere between the two views, but perhaps we can get nearer to it by going to the proverbial horse's mouth: Edward Lucente says the machines are going better than forecast and that eight large accounts, which include **United Airlines** - if it's still around to take delivery after the violent tug o' war going on over its future - and **Delta Air Lines**, are in for 130,000 PS/2s all told.

- o -

What enthusiasm among dealers? Despite allegations from IDC's Zachmann that the PS/2 Models 30 and 50 are already showing up in the grey market because dealers can't sell enough of them, Lucente reports that two in three of **IBM**'s Authorised Dealers in the US are seeking to requalify as resellers of the Personal System/2 family.

There's considerable excitement over in Scotts Valley at the success of the Turbo C compiler and development environment, and the news could filter over into **Borland International**'s share price here in London, where it closed up 1 at 220 yesterday: the company says that it has more than 100,000 orders for Turbo C and there is no sign of any slackening in the rate at which they are coming in; it is working on promotional material for dealers to maintain the momentum for it.

- o -

The downsizing of **Fairchild Semiconductor** continues even as **Schlumberger** continues to negotiate sale of the company to a management consortium: its Japanese subsidiary **Nippon Fairchild KK** is negotiation to sell its Nagasaki plant, which has capacity to process 25,000 six- inch wafers a month, to **Sony Corp**.

- o -

Matsushita Electric Trading launched the new 80386 Symmetry multiprocessor Unix machine almost as soon as **Sequent Computer** announced the machine in the US, and looks to sell 50 of the things in the first year of marketing.

- o -

Dataquest has been looking at the Japanese workstation market, and reckons that the 1985 market of just 1,800 worth $108m, grew to 4,500 worth $231m in 1986, and that in the five years to 1991 will grow again to 33,000 machines worth $870m for a growth rate of 50% by number, 30% by value; despite increasing competition, the demand for CAD/CAM and workstations for scientific calculation will grow, as will demand for computers running expert decision support systems; foreign manufacturers led by **DEC**, **Sun Microsystems** and **Apollo Computer** are expected to hold 85% market share within two to three years, but competition from **Hitachi** and **NEC** are just around the corner.

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The **Data Base Promotion Centre** reports that turnover of the local Japanese data base ser vice industry reached $720m in 1985, but that data stored on overseas databases still accounted for 78.2% of all pieces of information that are available electronically in Japan.

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ICL SETS UNIX UNDER VME FOR SEPTEMBER

First preannounced by Robb Wilmot as long ago as April 1982, Unix under ICL's VME operating system on its Series 39 mainframes will finally debut in the next VME release due in September. ICL is according the facility little strategic importance and will sell it only to existing VME users who want the ability to run a few Unix applications. New customers and existing ME29 users wanting to switch to Unix will be offered the Clan range. A series of tools to help ME29 sites make the transition to Unix are also being developed in collaboration with third parties for later this year. As for the new low-end Series 39 machines, the models 15, 25 and 35 are available from July 1, with an 8Mb 15 coming in at £91,000, or £71,000 to ME29 sites that upgrade. The 25 and 35 offer 10% more power and 40% better price-performance than the models 20 and 30 they replace. Upgrades from the 20 and 30 to the new machines cost £5,000. The model dual 35D will be available late this year. And the Series 39 line will be further extended next year but this time in an upwards direction with introduction of a three-node and a four-node model 80.

DANA TO USE MIPS RISCs IN $80,000 PERSONAL SUPERCOMPUTER

The first generation networked workstations from Convergent Technologies represented a very original concept when they were introduced, and Allen Michels is determined that the first product, the Titan personal supercomputer, from his new company, Dana Computer Inc, will be equally original. The aim is to take existing technology - as with the Convergent AWS and IWS - and surround it with original features to create something that is both unique and affordable. Dana has been lifting the veil on its plans to Computer Systems News, which reports that the existing technology will include multiple Unix RISC boards from MIPS Computer - likely the new 16MHz implementation rated at 10 MIPS, and standard gate arrays. The key original feature will be multiple 64-bit vector processors built out those gate arrays that will serve as computer engines with the colour graphics integrated rather than handled by a dedicated graphics processor. The MIPS processors will handle input-output, and all the elements will be tied together by a bus capable of handling "hundreds of megabytes per second". The company has chosen to integrate graphics tightly into the system because it believes that it is the cheapest and most efficient solution - and as a result expects to deliver the single-user Titan machine at about $80,000 when it introduces it in the first quarter of next year (as reported, the company is about nine months behind its original schedule for introduction). Buying as much as possible off the shelf means that Dana has more cash resources to devote to the crucial software, and much of the effort is going into development of proprietary multi-processor vectorising C and Fortran compilers. The company has also persuaded a string of third parties with structural analysis, fluidics and modelling applications to adapt them to the Titan so that it can be launched with substantial software support. The machine is expected to deliver between 20 and 30 times the performance of the VAX-11/780 and about 6Mflops on the double- precision 64-bit Linpack benchmark. Although Dana has one major OEM customer lined up for the Titan, it expects to have to sell mainly in ones and twos direct to end-users. It has raised about $31m in venture capital, $20m of it from Kubota Ltd of Tokyo, which will do a large part of its manufacturing and has exclusive Far East marketing rights to Titan.

ROYAL NAVY OPTS FOR UNIX - AWARDS SD ADP CONTRACT

The Scientific division of Systems Designers has won a contract to be the prime contractor to the Royal Navy for an automatic data processing system. The OASIS System III contract is valued at around £5m and is intended for on- shore and off-shore Navy facilities. The main sub- contractor will be Gould supplying its PN 6000 machines running Unix. The software will be based on Relational Technology's Ingres database management system and Systems Deigners will develop application software and provide the project management. Standard PN 6040 machines will be used for the stationary installations with ruggedised versions for mobile sites.

AMDAHL UNVEILS NATIVE UNIX V.2/XA

Amdahl Corp, which introduced an implementation of Unix for its IBM- compatible mainframes at a time when IBM still believed the very idea to be heresy, is set to move several steps ahead of IBM with its announcement of release 1.2 of its UTS/580 implementation of Unix System V for its IBMulators: the new version, as expected, supports 370 Extended Architecture and new double-capacity disk drives; it can run native on a 580, in one or more domains under the 580/Multiple Domain Feature, or as a VM guest; source is available now with a binary version out next month.

APOLLO TO HALVE DN3000 PRICE NEXT WEEK

Prices are tumbling in the engineering workstation market, and next week, Apollo Computer Inc will follow Sun Microsystems and DEC in reducing by half the entry price for its 68020-based Domain Series 3000 workstation, taking it down to around $5,000. At the same time, reports Electronic News, Apollo will bring in an up-market line of workstations at around the 4 MIPS performance level, and will also introduce new packaged variants of the Series 3000 that will fall into the $10,000 to $20,000 price range.

NEXEL ALLAYS FORTUNE USER FEA[illegible] WITH EXCLUSIVE DISTRIBUTORSH[illegible]

Following the shake up at Fortune Systems many users and delears of the Fortune equipment have been unsure of their future. Nexel now owned by the UCL group is seeking to remedy this by formally announcing that it now has exclusive marketing rights for the Fortune products throughout the UK and will continue to sell through its existing 20 strong dealer network and vamp up its own direct sales activity. Hardware will be shipped from the the new Fortune owners', SCI, manufacturing bases in the US and Far East - although there is a possibility that SCI will do some Fortune manufacturing at its plant in Scotland. All software for the systems will come from the Fortune Systems International division in Monaco which has just been subject to a management buyout. Nexel claims to have sold £1m worth of Fortune systems over the last three months.

OPTIM COMPUTER ACQUIRES BUTEL FOR SOFTWARE AND NETWORKING EXPANSION

The Optim Computer Group Ltd has acquired Butel Technology Ltd to expand its range of vertical applications and give it an entry ticket for networking contracts. Optim of Letchworth, Hertfordshire anticipates that the combined turnover of the two companies will be around £10m by October - the end of its financial year - with Butel accounting for 25% of the total. Chiswick-based Butel will act as an independent subsidiary but give Optim a London office. Optim, using Unix, currently operates in four areas: field service management; hotel reservations, retail, window and door manufacturing. Butel will add to this its local government oriented office automation products and its cable management systems. Other packages offered by Butel include: construction industry estimating; equipment hire and maintenance; joint venture accounting; food production and distribution; hospital administration; leisure booking; and theatre ticketing. Both companies are VARs for AT&T/Olivetti and the acquisition is bonded by another recent acquisition between Austec and Ryan-McFarland (UX No 130). Butel is a VAR for Data General and uses the Austec ACE products to move customer applications to Unix environments, whilst much of the Optim software is written in RM Cobol. Butel has no field service operation and Optim expects to increase its user base by servicing existing Butel customers. The terms of the agreement were not disclosed.

DAVIN TO BRING OUT 64-BIT SUPERMINI THIS WEEK

Davin Computer Corp, the firm that was formed by Computer Automation founder David Methvin to complete and bring to market a 64-bit processor development abandoned by his former company, is scheduled to introduce the finished superminicomputer this week. Details are as yet sketchy, but the it is reportedly a traditional complex instruction machine with 60Mbit per second input-output bandwidth, and has been designed for highly interactive database-data communications applications.

PC UNIX COMPARISONS SHOWS MICROPORT TO BE BEST BUY WITH SCO XENIX DOING WELL

According to a benchmark comparison of personal computers running various implementations of Unix performed by AIM Technology Microport System V/AT prooved to be the "best buy". Using the AIM Benchmark Suite II the company analysed four versions of Unix on an AT&T PC 6300, an IBM PC AT and a Summit 1000. The Santa Cruz Operation's Xenix was tested on all three machines; Interactive System Corp's IN/ix ran on the AT&T PC; Microport System V/AT and VenturCom's Venix were used on the AT. AIM's benchmark comprises 38 functional tests that measure the instruction speeds of the system doing specific tasks such as creating and closing files, disk copying, multiply float. AIM then sorts and weights these to form individual subsystems which are analysed to evaluate impact on overall system performance. The same tests are grouped to make up applications such as spreadsheet and compilation which are then combined to make different environments such as business and engineering. The tests showed SCO Xenix and System V/AT on the IBM and Summit doing well in a business environment. Venix did well on data collection, IN/ix performed well in general business database applications. In the engineering world SCO Xenix and Microport V/AT came out on top but Venix did well in CAD/CAM. The report says that the AT was the best performing hardware.

MODCOMP RE-ENGINEERS TOP-END CLASSIC FOR REAL-TIME BOOST

Modular Computer Systems is pitching for leadership in the real-time computing world with a re-engineered version of its top-end 32-bit mini, the Classic 32/85. The Fort Lauderdale, Florida company now owned by AEG AG of West Germany, has created the new Classic 32/87 by redesigning the input-output controllers and enhancing the central processing units to improve interrupt performance and increase the overall input- output throughput. The central processing complex contains one or more central processors and one or more microprogrammable input-ouput control processors, each connected to the ports of from one to eight separate memory subsystems, each of which can contain from 2Mb to 32Mb for a maximum of 256Mb of main memory. There is also a 64Kb four-way set associative cache memory, multi- level mapped memory addressing, and 16 sets of map-ping register caches. An address word of 30 bits gives 1Gb maximum virtual program size, and the processor executes an eight- stage instruction pipeline. There are 128 sets of 15 32-bit general-purpose registers, and 8K-words of writeable control store for creating special instructions. The CPU also includes an integral fast floating point processor that allows parallel operation on 32-, 48- and 64-bit operands. No prices were given. The 32/87 runs the old MAX IV and new MAX 32 real-time operating systems, and also ModComp's new Realix real-time implementation of Unix System V.2 under MAX 32.

APOLLO TO ADD SECURE UNIX AND EMBED AT&T AND BEREKELEY UNIX IN DOMAIN KERNEL

Apollo Computer Inc is working to capture more goverment contracts through a secure implementation of Unix and attract general business with closer adherence to the Unix standard. Although Apollo has long been accepted as a Unix workstation company until recently Unix was not native on the Apollo Domain system. The company has now undertaken a project to integrate its proprietary Domain networking software with the AT&T and Berkeley versions of Unix and anticipates that this will take a couple of years to complete. The secure implementation is also likely to take a few years because once the implementation is completed to the satisfaction of the company it can take anything up to eighteen months to be validated. Although several companies claim a level of secure Unix, to date only Gould has had its UTX/32S version ratified by the US National Security Centre to C2 level of the US Department of Defense's Directive 145. Apollo is aiming for a high B rating and Gould is also going for a higher level. Gould says that the C2 passed version contains a number of B-type elements and may have passed the more stringent B tests but it only entered it for C2 because it was sure of success, failure means starting the whole process again.

SUN OFFERS SUN-3 AS EUROCARD BOARD SET

Sun Microsystems Inc is pulling out all the stops to squeeze every last sale out of its 68020-based Sun-3 family, and the latest variant is a knock-down kit version of the processor on four VMEbus Eurocards. The new board set implements the complete Sun-3 architecture on four double-height VME cards consisting of processor board with 20MHz 68020, 4Mb of memory and Sun's converged System V+4.2 Unix; a monochrome video frame buffer interface board; a combined Small Computer Systems Interface and Ethernet board; and a 4Mb memory expansion board, all built with surface mount technology. Sun's current workstations incorporate a larger single-board computer including the MC68020 CPU, 4Mb memory, mono video controller, Ethernet controller and Unix, all on a triple-height, quad-depth VMEbus board which will continue to be available OEM. Sun reckons that the small size of the new boards will make them attractive for embedded systems. Ships start next month, and, in single quantities, the CPU board is $7,700, the Ethernet/SCSI is $2,300 and the video board is $1,800. On the way are a colour frame buffer and higher capacity memory expansion boards.

FUJITSU HABLARA ESPANOL

Fujitsu's flagship European affiliate Fujitsu Espana, a joint venture with Telefonica has started a five-year development effort on a Japanese-Spanish machine translation system. Four Spanish engineers are training at Fujitsu's research base on Fujitsu's A-series minicomputer.

APPLE USING UNIX-BASED CRAY TO DESIGN VISUAL INTERFACES FOR MACINTOSH

Apple Computer has been using its Cray XMP-48 supercomputer running Unix to develop visual interfaces for the Macintosh and "future products". The Cray is part of a $20 million installation used by Apple's Advanced Technology group and consists of four CPUs operating at 9.5 nanoseconds per cycle, 8 million 64-bit words of program memory, and 8 million words of I/O buffer memory. The I/O system supports multiple 50-megabit/second channels called the Hyperchannel from Network Systems Corp, Minneapolis, and one high-speed channel operating at 850 called the HSX channel. For storage, the system includes eight 1.25-gigabyte drives for a total of 10 gigabytes, and several tape backup systems. The HSX channel is to a high-performance frame buffer system from a San Jose start-up firm named Ultra Corp. The Ultra frame buffer allows graphics images from the Cray to be displayed directly on a CRT. According to Sam Holland, manager of advanced technical projects, Apple is the first company that Cray has allowed to the HSX channel. In fact, Apple claims to be the only company to use the Cray in an actual environment. The Hyperchannel connects the Cray to several networks of Apple Macintosh computers via a VAX 11/785, a VAX 11/780, and a Sun/2. The Macs are linked to the VAXes and Sun via AppleTalk in series with Ethernet. Ethernet and AppleTalk are bridged by a converter system from Kinetics Inc. Users log into the Cray from a Macintosh via a micro-mainframe package from Pacer Inc. Once logged in, the Macintosh performs as a remote terminal of the Cray. The Cray uses the Unicos operating system, which is Cray's licensed version of Unix System V. In addition to the network, a Silicon Graphics system for high-speed animation is connected to the Cray via the Hyperchannel. Animation is primarily used to simulate high-speed video interface scenarios on the Macintosh and future machines. Apple anticipates that the system will soon include a VME board operating at 50 megabits per second, connecting a Mac II directly to the Cray and eventually it will have keyboards and mice connected directly. Another objective is to have Ethernet talking directly to the Cray thus bypassing the VAXes and Sun/2. At present, about 200 users have access to the Cray and only about 10 use the system at one time. The other area of Cray activity for Apple involves, for the most part, VLSI circuit design and simulation with most code written in C or Smalltalk. In addition to a much shorter development cycle, one of the main advantages of using the Cray as a simulation tool, Apple says, is that once created, designs can be edited and modified in an interactive, real-time environment. Although Apple has yet to release a product fully simulated and tested on the Cray system, the Mac II's NuBus technology, which was engineered before the Cray went on-line, was "verified" on the Cray before final release. The company adds that it may have some VLSI products out next year but speculates that it would probably be about two years before release of a product that was engineered and simulated on the Cray from scratch. Although Apple believes that simulating products on the Cray means less development time it cannot specify how much it says that the main benefit of the simulation process is that once it has a product there will be no unforseen problems.

MICROSOFT ADDS C COMPILERS AND ANNOUNCES ANNOUNCES $1m AGREEMENT WITH NATURAL LANGUAGE INCORPORATED

Microsoft Corp has introduced two new C compilers and announced a $1m product licensing and investment agreement with Natural Language Incorporated of Berkeley, California. The C Optimizing and QuickC compilers will be available in September in the US and UK. Microsoft claims that the C Optimizing Compiler allows programmers to generate code around 30% faster than the previous version 4. QuickC compiles at 10,000 lines per minute and its debugger allows debugging at source level. The agreement with Natural Language is for developing natural language software based on English but product announcements are a long way off. Natural Language's basic product is DataTalker which generates SQL queries, sorts out which queries to generate and what programs to run, where the data is and what data to get. DataTalker currently runs on Sun workstations, DEC VAX and some 386-based machines running Unix.

SEMICONDUCTOR INDUSTRY ASSOCIATION CELEBRATES AS BOOK-TO-BILL HITS 1.26

The Semiconductor Industry Association's book-to-bill ratio rose for the eighth consecutive month in May, with measurements of bookings, billings, and the ratio itself either reaching or almost equalling three- year highs. The preliminary book-to-bill ratio reported for May was 1.26; the last time the indicator was higher occurred exactly three years ago in May 1984, when it stood at 1.27. Book-to-bill ratios for March and April have also both been revised upward to 1.22; March was announced as 1.21 and April as 1.20; the March figure was revised downwards to 1.20 in April. The book-to-bill ratio is computed by dividing three-month average orders taken in the semiconductor industry by three-month average shipments. Three-month average US market orders for May totalled $1,023.2m, a 7.4% increase over April's $953.0m. The last time bookings were higher was in August 1984, when $1,027.1m in average monthly orders were taken. Three- month average shipments through May amounted to $812.5m, a 4.0% increase from the same figure for April. Orders for the month of May alone, which stood at $473.7m, were 25.4% higher than one year ago and 116.0% higher than the cyclical bookings low established in September 1985. At $789.8m, US shipments during May alone were 2.9% higher than the $767.7m of chips shipped during April. The last time billings were higher for a four- week month was in November 1984, when $940.5m of chips were sold. Association president Andrew Procassini commented "With May's strong US market performance, I am now convinced that this year will truly be a record year."

OLIVETTI ANSWERS PS/2 WITH 386-TOPJOB EIGHT-TASK MS-DOS WITH UNIX EMPAHASIS

The consensus on how to answer IBM's Personal System/2 is boiling down to building models that line up against each of IBM's offerings while retaining the AT bus, and offering more flexibility by providing both 5.25" and 3.5" floppy disk drives. Olivetti duly followed that tack yesterday, bringing in three families of machines, the 80386-based M380, 80286-based M280, and 8086-based M240, the latter two being enhanced versions of the M28 and M24. And, not surprisingly given the AT&T connection, there is a strong emphasis on Unix, with the M380 running Xenix V 386 and Unix System V/386 as well as MS-DOS - and OS/2 when it is ready. Where IBM has only floor-standing 80386-based machines, the M380 comes in desk-top, table-top and tower configurations. A key feature of the 386 machines is Olivetti's development of an equivalent to Digital Research's Concurrent DOS: called 386-TopJob, the environment supports eight concurrent MS-DOS partitions on the 386, using the LIM expanded memory specification; Olivetti claims that even badly-behaved applications that by-pass the IBM BIOS will run. The M380C is a compact desk-top version while the M380 is designed as a file server and medium performance Xenix box; both run at 16MHz. They have three 32-bit Olivetti slots, two 16-bit AT slots and two 8-bit XT slots. The floor- standing M380T runs at 20MHz and is aimed primarily at the Unix and large file server markets. The 380C comes with 1Mb memory, the other two with 4Mb; the 380 and 380C have up to 48Mb main memory, the M380T 64Mb using 4Mb or 16Mb boards. The floppy disk controller enables users to mix and match 5.25" 360Kb and 1.2Mb drives and 3.5" 720Mb and 1.44Mb drives. 68Mb and 135Mb Winchesters are offered. The machines are available in September. The M280 is an enhanced M28 with up to 7Mb memory, 70Mb disk and choice of floppies. The M240 has a 10MHz 8086 with zero wait states with seven slots, choice of floppies, 20Mb disk and 20Mb tape. All use a new 102-key board and have EGA, with VGA promised; prices next month.

BUT PROFITS WILL FALL THIS YEAR, WARNS DE BENEDETTI

Olivetti SpA will not be able to maintain the profitability it achieved last year, chief executive Carlo de Benedetti warned in Ivrea yesterday. Key factors in the deteriorating outlook are led by a much lower order level from AT&T - just 40,000 Personalikes this year compared with 210,000 in 1986. Olivetti, which claims to have sold 500,000 Personalikes altogether last year, has also lost Xerox as an OEM customer, but hopes to make up the shortfall by selling many more in Europe this year. The company reckons that it had 13% of the European market at the end of 1986, and says European business is up by 25% this year.

NO CONFIDENCE VOTE FOR UNIX FROM JOBS AT USENIX

The former Apple Computer chairman, Steve Jobs, proclaimed in his keynote speech at this months Usenix conference that Unix must become a mainstream product by 1990 or it will die. He expressed doubts concerning the likelihood of Unix survival saying that major players within the computer industry had a vested interest in ensuring it did not. Both IBM and DEC whilst paddling in the Unix waters are not prepared to take the plunge because of their own proprietary operating systems. Jobs says that the supporters of Unix - AT&T, Sun Microsystems and Apollo - lack the clout of their adversaries. Jobs complains that Unix has no interface for "mere mortals", is too expensive and has a number of different variants. Concerning windowing standards Jobs opts for PostScript and says of the current proposed standard, X-Windows, "its brain damaged".

ORACLE AND SEQUENT AGREE NEW PACT TO PROVIDE BETTER DATABASE PACKAGES

Oracle Corp has announced an expanded marketing and product development relationship with Sequent Computer Systems Inc. The intention of the new relationship is to enhance Oracle's use of Sequent's parallel processing architecture and enable Oracle and Sequent to offer more integrated and complete database solutions to the business automation market. Under the terms of the agreement, Sequent placed an order for $1 million worth of Oracle database products, which will be sold by the Sequent sales organization. The agreement is nonexclusive and in all cases, Sequent customers will sign a maintenance agreement with Oracle to supply ongoing support directly. Oracle will use a Sequent B21 system as one of its platforms for Unix program development, beginning with application development tools and then migrating to ongoing Oracle relational database management system development on the B21 system. Sequent's B21 will also be used to run Oracle's Premium Support Platform, an automated system for tracking the status of requests for product support. Sequent has chosen to use Oracle to automate several of its corporate functions, including its marketing and field sales programs and many parts of its manufacturing process. Oracle will supply a consulting engineer to work in the Sequent marketing/sales organization, who will assist in pre-sales and post-sales support efforts. Sequent will place a full- time engineer at Oracle's headquarters in Belmont. The engineer will work as part of Oracle's development organization to ensure that Sequent parallel processing capabilities are fully utilized. All of Oracle products have been ported to Balance systems, including version 5.1 of Oracle. Oracle will be immediately available on Sequent's new Symmetry systems when the Symmetry series becomes available during the fourth quarter of 1987.

NCR SETS NEW RESELLER PLAN - KALAMAZOO FIRST TO JOIN

NCR has fomalised its reseller programme and called it 'Partners in Business'. NCR say that the new method offers dealers greater support and back-up services. Under the programme NCR's Independent Marketing Division will offer major discounts on systems intended for software development, financial aid for product launches, free training and field sales and technical support. Kalamazoo is the first in line to beome a partner and business and has placed an initial order worth 100,000 for the Tower range. Kalamazoo will be using the Towers to sell turnkey packages into the motor, construction and general commercial market.

NATSEMI ENTERS APPLE MAC ADD-ON MEMORY MARKET

National Semiconductor Corp, long a supplier of add-on memory for mini-computers, has entered the personal computer add-on market with a 16Mb memory expansion module for the Apple Macintosh II. NatSemi claims the NS8/16 provides the largest memory capacity and highest speed of any add-on memory for the Mac II and that it is the only one that supports both MAC-DOS and Unix. NatSemi's RAMdisk software, packaged with the NS8/16, is claimed to eliminate the delays that commonly occur when users operating on hard or floppy disks switch from one application to another, enabling the user to address the memory board as if it were a disk. It uses 100nS 1Mbit dynamic memory chips and consists of 8Mb mother and 8Mb daughter boards; it can be configured with 4Mb, 8Mb, 12Mb or 16Mb at $400 a megabyte, occupying a single NuBus card slot. It provides 32-bit native mode addressing for the 68020 processor, and 24- bit address mode is also supported. NatSemi is promising other add-ons for the Macintosh line for later this year.

SUN ENHANCES THIRD PARTY PROGRAM TO ATTRACT NEW OEMs

Sun Microsystems announced this week that it had "significantly enhanced its Catalyst third party referral program" to help penetration into key markets. Also announced is a new developer program to attract new third parties and OEMs. Under the enhanced Catalyst Program, Sun is creating a second category of developers called Catalyst Advantage. With immediate effect all Catalyst vendors will now have a single system purchase option with the introduction of each new Sun product family. In addition, all current and new Catalyst vendors are eligible for membership in Catalyst Advantage. Developers qualify for Catalyst Advantage by demonstrating success in their markets through an installed base of 75 to 100 sites and at least five user-references. Sun will review its existing base of 500 vendors to spot Catalyst Advantage candidates.

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Minigrams

Sun Microsystems Inc has joined the First Division of computer manufacturers with that heart-felt but two-edged accolade - the attention of third party add-on alternatives to the memory and peripherals it offers for its machines: **Data Design Techniques Ltd** has signed to bring to the UK the single board memories for Sun workstations made by **Parity Inc** of Sunnyvale, California; the memories have VMEbus interfaces on three edge connectors and the boards go up to 24Mb for Sun-3 and 6Mb for Sun-2 stations; boards with combined memory and SCSI disk interface control are also offered; no prices were given.

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AT&T Co has taken a licence to **Verdix Corp's** Verdix Ada Development System to run on the 3B line of Unix computers: AT&T Federal Systems will market the VADS Ada compiler to defence, aerospace and scientific users where it sees demand for advanced Ada software design applications growing rapidly; the Chantilly, Virginia company will also be providing AT&T with maintenance and training services.

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The Royal Navy Submarine Museum in Gosport, Hampshire has bought a Convergent Technology machine and the <<Strix>> text retrieval system to manage its archives.

- o -

Sequent Europe Ltd has become one of the first to take on-board Root's UniTecs as part of a £1.2m collaboration deal between the two companies: Sequent sees the product being used on its Balance and Symmetry series as a migration tool from IBM mainframes, a satellite devlopment environment and as a transaction processing system.

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The MRC Institute of Hearing Research has ordered an MC5600, worth £100,000, from **Masscomp** for use by speech, psychoacoustics and signal processing specialists for projects relationg to the problem of retrieving speech signals from noise.

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Cifer Plc saw first half pre-tax profits of £226,000, up from just £5,000 last time, on sales off 13.1% at £2.6m; earnings per share were 1.45p.

Schoolchildren in the north of England taking the new GCSE examinations next summer will have their results processed by an Oracle RDBMS running on a DEC VAX: **Praxis Systems** of Bath, Avon is implementing the system.

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Faxon Communications (UK) Ltd of Basingstoke, Hampshire is claiming the first UK sale of the new Intel 80386-based Altos Series 2000: the Logitek VAR is installing the system at the Corby, Northamptonshire headquarters of European Study Conferences Ltd.

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The Cresta project management system from K & H Project Systems is being offered by TIS under Unix running on Convergent Technologies S series.

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A hearing has been set for July 8 in the legal battle between **Thomson** and **Motorola** over 68020 masks.

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National Semiconductor Corp has turned in fourth quarter net profits of $8.1m against a loss last time of $7.1m, on turnover up 28.7% at $511.9m; net loss for the year to May 31 was $24.6m after a $15m restructuring charge, down from a loss last time of $91.5m that included a net gain of $51.2m from cumulative effect of an accounting change, on turnover that rose 26.4% to $1,867.9m. The figures are struck after tax credits of $4.2m in the year this time, and $2.3m in the quarter, $5.6m in the year, last. Net per share was $0.06 in the quarter,

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Sage Software Inc has reported fourth quarter net profits up 36.1% at $724,000 on turnover up 18.1% at $4.3m; net profit for the year to April 30 was up 43.9% at $1.8m on turnover that rose 38.8% to $14.5m. Net earnings per share, off 7% to $0.14 in the quarter, rose 22.8% to $0.43 in the year.

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Access Technology has released an enhanced version of the 20/20 spreadsheet for use on DEC VAx computers which includes support for postscript and XY graphs.

If there appears to have been a sufficiency of Tempests swirling around the industry this week - and we're not talking about this rotten summer in Northern Europe - the explanation is that the 41st Annual Armed Forces Communications & Electronics Exposition has been going on in Washington: pick of the crop are perhaps the **Data General** offerings - the Eclipse MV/15000R Rugged and MV/15000T Tempest series - claimed to be the most powerful Tempests yet, capable of more than 6 MIPS in their top model, they come in three configurations, Model 8, Model 10 and Model 20, ranging from 2.9 MIPS to 6.4 MIPS and from $117,500 to $284,000 for the Rugged version, from $177,000 to $299,000 for the Tempest version; field upgrades involve swapping one board and loading new microcoded instructions; Data General also introduced a new Tempest Dasher D461T VDU.

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Next up, **Lanier Business Products Inc** announced a Tempest version of its Intel iAPX-86-based Workgroup systems: the **Harris Corp** unit says the Concept 4300T Tempest Workgroup System file server and communications controller brings Tempest-certified NetBIOS- compatibility to Personal Computer local area networks; the system uses an open architecture and runs Xenix 3.0 and MS-DOS 3.1 and 3.2 and up to 28 systems can be Tempest-linked, each system accomodates up to 16 IBM Personalikes for a maximum of 448.

- o -

The Tempest continues to rage, and **Apollo Computer Inc** has Tempest-shielded its Domain Series 3000 Personal Workstation, DN580 Turbo graphics workstation and DSP90 and DFS90 servers to be sure of winning US government contracts where users are worried that someone might try a bit of electronic eavesdropping to find out what is being entered into the machines: remembering that a chain is only as strong as its weakest link, Apollo also offers an electrically-inert fibre optic local area network to link the things.

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APOLLO OFFERS 4 MIPS DN4000 AT OLD PRICE OF DN3000

Apollo Computer Inc this week introduced its answers to the agressive pitches made at the low end of the workstation market, with price cuts of up to 50% on the Domain Series 3000 workstation family, adding a 15" monochrome model, and bringing in a new higher-end line offering 4 MIPS performance, doubling the performance of the 3000 family at the price the 3000 was introduced at only 15 months ago. At the time of going to press details of the new Domain Series 4000 line are sketchy, but it is expected to include a monochrome and colour models and a DSP 4000 server version. The company also introduced two new PC integration products. The Domain/PC Emulator is a software product which runs MS-DOS applications on any Domain workstation without requiring additional hardware and the Domain/PCI-Ring is a hardware/software communications package which connects a single PC to the Apollo Token Ring network with Apollo's Domain workstations and other PCs residing on the network. Apollo also announced that late this year it will release a similar product, Domain/PCI-Enet, which will connect a single PC to an Ethernet network for sharing services with Domain workstations and PCs on the network. A colour version of the Domain Series 4000 costs around $19,000; with the monochrome coming inm at $14,000; and the server for about $13,000.

DAVIN BRINGS BAT-64 TRANSACTION MACHINE IN AT JUST $15,000

The new 64-bit general purpose machine from Davin Computer Corp will not be generally available for another two to four months but founder David Methvin anticipates taking the 32-bit world by storm when the machine hits the market. The entry level price for the BAT-64 will be a mere $15,000. Unix System V will be offered as an alternative to the proprietary real-time operating system, Darts, which Davin acquired from a "company in Texas" that Methvin declined to identify. The machine is a complex instruction set computer, which Methvin believes is the only way forward, but allows eight bytes to be processed simultaneously. The Davin architecture also has multiple sliding register stacks and the machine has a 60Mbit per second input-output bandwidth. Although the architecture has floating point and array processing facilities the company emphasises that the machine is not intended for the scientific world but for the I/O intensive commercial and industrial markets. Methvin anticipates no competition from RISC architectures saying its strength is in "the limited" compute intensive areas but falls over in I/O intensive areas essential for general business applications. The BAT-64 is built of CMOS gate arrays. Methvin says that Davin expects to be followed into into 64-bits but adds that it has an advantage over the likes of DEC because it did not have a user base to protect and so had the freedom to design a completely new architecture making use of all the latest "high tech goodies". Unix System V will be offered as well as a proprietary real-time operating system, Darts. Methvin considers Unix to be a good development environment but sees Darts or something like it being essential for high speed real- time I/O applications. Davin shipped its first machine three weeks ago and is currently going through its second round of venture financing to help bring the product to market. In the US Davin will sell through a direct sales force but in other parts of the world it is seeking distributors.

TEXAS INSTRUMENTS INCLUDES UNIX MODEL OF EXPLORER II

The new Explorer II artificial intelligence workstation that uses the new Explorer Lisp microprocessor is accompanied by a II LX model that adds a 68020 co-processor for running the TI System V implementation of Unix. The Megachip, developed with US Department of Defense money for use in embedded military applications, is rated at 40,000 logical inferences per second - LIPS. Texas Instruments, which has a lot of trouble with nomenclature for its artificial intelligence products - it used to call the 32- bit microprocessor the Explorer Megachip - hasn't even gotten around to finding a name for the Explorer operating system, even though the new models are accompanied by the third release of the environment. The new release adds interfaces for IBM SNA, DECnet, TCP/IP and Sun's Network File System, and is standard with all Explorer IIs. Texas Instruments is justifiably proud of the chip, which integrates 60% of the original bit-slice on a single 1.2 micron CMOS chip 2.5 times as dense as the Motorola 68020. Many Lisp macroinstructions are executed in a single cycle and includes 114K-bits - over 3.5K-words - of on-chip RAM. The Explorer II processor comes on a board with 32K-words of writeable control store and two fast caches; there is a plug-in floating point accelerator option, and main memory goes from 8Mb to 128Mb, 32Mb per board using 1M-bit chips. It uses a 17" 1,024 by 808 pixel monitor, and 140Mb and 516Mb disks are available. Deliveries start next month and a plug-in upgrade for existing Explorers is £17,295. A base system with 8Mb, display, 140Mb disk, local net interface and software is £56,295; the LX version with 68020, 32Mb memory, three 140Mb disks and a cartridge tape drive is £96,695.

AT&T STILL LOVES COMPUTERS

AT&T has flatly denied a suggestion in BusinessWeek, July 6, that it would dump its computers into a new joint company with Olivetti: computers are an integral part of AT&T's networking strategy, it says, adding that they are on plan in 1987.

DEC PDP 11 VARS FIRST IN LINE FOR ALTOS' QUEST FOR MORE RESELLERS

Altos Computer Systems is seeking to expand its reseller base and is currently going after the PDP 11/10 vendors. To this end Altos has taken on the TransBasic RSTS/E- Basic Plus migration package from Systime. Altos has spent £70,000 for the licence to provide the 8,500 strong PDP 11 user base the tools to replace PDP 11s running Unix on Altos 286 or 386 machines. Altos say that it chose the Systime product as opposed to some of the other products that convert applications to a Unix environment such as Datvision's Universe Basic because TransBasic allows users to continue using RSTS until they gain confidence in or find a need to use Unix - according to Altos it could find no other product that provided this. Many of the existing PDP 11 RSTS users are very happy in their environments and probably would stay as they are except for the rising costs in maintaining the obsolete DEC product and the problems in obtaining spare parts, says Altos. As well as DEC resellers Altos is also looking at similar products to attack Data General, IBM, ICL and Wang VARS. The AccCobol product from Austec is being evaluated for the Data General offensive but Altos is still deciding on the other products. Altos UK expects to get about three DEC PDP 11 VARS and expects a total of about a dozen new ones over the next 18 months. The first in line to take up the offer is Instate Systems Limited, a subsidiary of Instate Technology headed by John Arnold, former director of Systime. ISL also markets the Datavision product and C-Gen from MS Associates.

INTEL ADDS FORTRAN VECTORIZER FOR HYPERCUBE

Intel Scientific Computers added a Fortran vectorizer to the list of software available for its iPSC-VX vector concurrent computer which it has just started shipping. The Fortran vectorizer, VAST-2, performs the same functions as vectorizing compilers found on other supercomputers: it accepts standard Fortran 77 applications and then vectorizes the code. As well as Fortran, C and Lisp programming environments are available all with a concurrent debugger. Intel say that it has shipped 65 iPSCs worldwide mostly into research establishments.

EXCELAN TO ACQUIRE KINETICS

Excelan Inc is to acquire San Jose neighbour Kinetics Inc in a share exchange valuing Kinetics at $7.6m. The merger, if it comes off, will combine Excelan's TCP/IP Transmission Control Protocol/Internet Protocol-based communications products with Kinetics development of high-end networking for Apple products. Excelan already offers Unix and DEC communications for IBM Personalikes and Kinetics will add a Mac string to its bow - Kinetics has direct Ethernet links and AppleTalk-to-Ethernet gateways for the Mac line.

NCR PRODUCES TEXT RETRIEVAL PACKAGE TO HELP COUNCILS WITH MINUTES

Customer demand from NCR's local government installed base has motivated the UK based division to produce a software package for the processing and retrieval of council minutes. NCR Ltd reckons that the market for the "council minutes" package is huge saying that the average district council meets about eight times a year and at each meeting produces around 150 sheets of A4 paper. After ten years about 5,400,000 words will have been produced which, according to NCR's calculations, is equivalent to seven Bibles. Each of the 386 district councils send out about 200 copies of the minutes and has to make them available to all members of the public. The package is available on the Unix-based Tower series and is derived from a package called BRS Search from US-based BRS. NCR claims that Council Minutes will retrieve any word in less than a second regardless of database size. The entry-level price for the system is £30,000 which includes a 2Mb Towerwith 45Mb disc, tape, three terminals, a laser printer, Unix, the software package and five days of tailoring. The package will be on show next week in Nottingham at Solace - an exhibition for local authorities. NCR adds that it is looking to develop a package 6to help local authorities implement the new poll tax system.

NCR PICKS UP CHIP DESIGN PROOVING PROGRAM FROM MCO

NCR Corp has for long been an enthusiastic participant in joint ventures with other computer companies, and over the past few years has innovated at a furious pace, so it comes as little surprise that the first company to bring out a product based on technology developed at the Microelectronics & Computer Technology Corp research co-operative in Austin, Texas, should be the Daytoner. NCR's product is the Design Advisor, a program that applies artificial intelligence techniques to the task of proving - and improving designs for applications-specific integrated circuits. NCR reckons that the new system can cut weeks or months off circuit design times, using human-like reasoning to show up potential circuit problems to engineers and allow them to "argue over" potential solutions with the computer. NCR is initially making the program available as a remote service, at $4,000 per design analysis, but is hoping to have a version for Unix-based computer-aided engineering workstations ready for introduction next year.

MULTI CONCEPTS TO DISTRIBUTE BASMARK BASIC COMPILER IN THE UK

Software house Multi Concepts of Wokingham, Berkshire has taken on a Basic compiler from US developer Basmark. Basmark Basic is an IBM PC Basic and Microsoft Basic compatible compiler which run under Unix. Multi Concepts claim that Basmark includes file sharing, termcap/terminfo screen handling and interprocess communication using 'pipe:'. Basmark says that it is committed to X/Open and has a conformant C-ISAM interface available and intends to develop other interface as they are defined. Basmark Basic is available on the IBM PC/XT/AT and the 6150, AT&T/Olivetti 3B series, Tandy, Altos, NCR, Unisys, Plexus, Convergent Technologies, ICL and DEC machines as well as IBM and Amdahl mainframes.

ATARI ADOPTS IDRIS UNIX FOR ITS 68000 BOXES

Atari Corp and Commodore International are both determined to be seen as suppliers of business machines as well as home computers, and the first step towards making any 68000 family machine look like a serious business box is to put Unix onto it. Accordingly, Atari Corp has gone to Computer Tools Ltd in Seattle, Washington for a licence to the Idris Unixalike. Idris was developed by Whitesmiths Ltd in Concord, Massachusetts, and was chosen by Atari because it doesn't need a memory management unit - there is no memory manager in the 68000-based 520ST and 1040ST machines. The company has also chosen the Informix relational database manager from Informix Software Inc, Menlo Park, California, and picked up between 400 and 500 Informix applications. The company is preparing an open architecture version of the 1040ST and called the Mega ST for September, when Unix is likely to be announced; open architecture simply means that it has vacant slots into which third party add-ons can be plugged. Idris will be Atari's first pass at Unix, but according to Computer Systems News, the company is also working on a 68020-based Mega-ES that will have a memory manager and will run full System V.

JAPAN COMPUTER TIES 68020 TO WE32100 IN 3D STATION

It is a feature of Japanese supermicros that, unlike their US counterparts, they routinely include two leading edge processors to achieve the performance and functionality required by the originator, and the latest example comes from Japan Computer Corp, which just launched a three-dimensional graphics workstation, the JCC-G10, which uses a Motorola 68020 for graphics processing, and an AT&T WE32100 as the central processor handling floating point arithmetic and memory management. The machine runs Unix System V.3.1, and comes with a 20" display, 16Mb main memory and support for up to 1Gb on disk and Ethernet and TCP/IP protocols. The JCC- G10 workstation is priced from $54,200.

WICAT ADDS PERSONALIKE TRAINING STATIONS

Wicat Systems Inc, Orem, Utah, has slipped IBM XT-alike WITS 1500 and AT-alike WITS 2000 training stations in under its 68000-based WITS 3000 Unix station. The 1500 has an 8MHz 8088 slowable to 4.77MHz and 14" RGB interlaced colour graphics screen. The WITS 2000 has a 10MHz 80286 processor slowable to 6MHz and Wicat Graphics Controller to put up 640 by 480 pixels on the 14" RGB screen. No prices were given.

ICL PICKS STRATUS WHERE FAULT-TOLERANCE IS NEEDED

ICL has picked Stratus Computer's fault- tolerant systems for any bids where fault- tolerance is required. It has a purchase agreement with the Marlborough, Massachusetts firm but stresses it will sell the Stratus boxes only as part of an ICL system; the Metropolitan Police was the first ICL-Stratus installation.

DEC PROMISES UNIX SYSTEM V, INTEGRATED VECTOR PROCESSOR,

Digital Equipment Corp has announced that the upcoming version of its Ultrix Berkeley 4.2- based Unix that is to add full System V compatibility, will be going into beta test "within weeks". The company has now refined its Unix strategy, and says that it sees it as a workstation operating system in the VAX context, and that VAX-based workstations will be able to upload files and programs to VAX hosts running the flagship VMS operating system. DEC has also acknowledged that it is working on an integrated vector facility option for its VAX processors, and told Electronic News that the development was "on schedule", adding that a VAX with the forthcoming facility installed will be "much better" than the minisupercomputer offerings from the likes of Convex Computer and Alliant Computer. It will also enable DEC to offer a reasonably convincing alternative to IBM's mainframe Vector Facility, and sounds like more bad news for Floating Point Systems, which traditionally supplies back-end scientific processors for minicomputers from DEC and others. Meantime in the UK, DEC has announced availability of the IBM PC Integration Package that enables IBM Personals and ATs as well as its own VAXmate to share VMS services in a network, and the PC All-In-1 MicroVAX II-based packaged system that supports IBM Personals and VAXmates in an office automation network, with WPS-Plus word processing software on the micros.

ANSA TO PUT PARADOX ON UNIX, MAC ENVIRONMENTS

Ansa Corp is expected to come out with versions of its Paradox database product for environments other than MS-DOS. The Belmont, California company intends to put Paradox on as many environments as possible. It is specifically looking at the Unix, Macintosh and SQL environments but the company claims that paradox will appear the same to users. Other areas that Ansa is looking at include: OS/2, Windows, and the Presentation Manager. Ansa told Microbytes Daily that it intends to attack markets where there is no clear cut leader and "hopefully establish Paradox as that market leader." According to Ansa vice-president of software development Robert Shostak, the task of porting Paradox to other environments won't be that difficult because, he claims, a lot of thought went into the design of Paradox and it is written in C and its use of algorithms is better and more portable than brute-force assembly code. Ansa claims that paradox is operating system independent and adds that the Paradox architecture can take advantage of the additional resources of OS/2 and the large address space of other environments. The user-interface code is separate from the actual Paradox code so that the actual meat of Paradox would not have to be recoded for another version and only the interface would need alterations. No dates were given but Ansa told Microbytes that "timely support from OS/2" would be an announcement criteria.

NEURAL NETS SHOW THEIR PACES - AND KNOW THEIR FACES - AT SAN DIEGO SHOW

A system that can recognise faces was one of the products demonstrating the capabilities of neural networks at the IEEE First Annual International Conference on Neural Networks, held in San Diego last week. Hecht-Nielsen Neurocomputer Corp, based in San Diego, showed its IBM AT-based face-recognising system, which uses the company's new Anza co- processor board. Although the system was shown off recognising faces, the Anza system allows users to design and create simulations of neural networks and is aimed at database searching and robotics applications as well as pattern recognition. In the demonstration, visitors were invited to sign on to the system and stand in front of an ordinary video camera to have their faces digitised. They were then asked to go away and come back later, whereupon the system would identify them by putting up their original image on the screen and speak their name - even if they changed their expression or tilted their head at a different angle. Hecht-Nielsen also provided some disguise props - noses, moustaches, beards - to demonstrate the neural network's "nearest neighbour" fuzzy matching capability.

Each new face

According to Tony Materna of Hecht-Nielsen, the only other face-recognition system with similar capabilities was done here in the UK a couple of years ago and consisted of about 30,000 8-bit microprocessors in a parallel processing arrangement. The Anza board, consisting of about 300 neurons and 13,000 connections, has the capacity to memorise 100 faces - and each new face uses two more neurons. The Anza board will be able to implement a neural network with up to 30,000 neurons and 480,000 interconnections. The network uses a new counterpropagation paradigm, invented by Dr Robert Hecht- Nielsen, that enables the face recogniser to operate and learn at the same time where many other paradigms require a separate learning phase. For the face-recognition demonstration, 36 spatial frequencies are derived from a 14-second Fast Fourier Transform of a 32 by 32 - 1,024 - pixel image. The actual processing by the neural network takes less than one second, the company says. The lowest spatial frequencies represent gross facial features such as the width and height of the face; mid-frequencies represent features such as noses and cheekbones, while complexion and other fine details are represented by the highest frequencies. The network is arranged in three layers, or slabs; the first slab contains 36 neurons, one for each of the spatial frequencies derived from Fourier transform; the second and third slabs each contain one neuron for each face memorised. The Anza neurocomputer co-processor board lists for $9,500 and ships in the middle of next month.

MacBrain

Also on show at the exhibition was a Macintosh program for simulating neural networks. The program was shown by Neuronics Inc, of Cambridge, Massachusetts and Matt Jensen, who developed the software, claims it's the only neural net simulation environment to sell for less than $10,000; in fact, it sells for just $250. Called MacBrain, it runs at 25,000 connections per second. "What MacBrain is a very simple way, a very graphic way, of simulating the neural nets, says Jensen. "Basically you can create neurons on the Mac screen, connect them together just by moving the mouse around; you can perform commands on the system just like regular Mac programs." It's aimed at people beginning to explore the abstruse world of neural networking - which nevertheless is currently the most promising technology for simulating human thought processes - as well as those that already have a grasp on the technology. "Our first target market is made up of the low-end, non- technical people," says Jensen. "Primarily that includes students, grad students, psychologists, and non-computer people wor- king in fringe fields that have some overlap into neural network theory and its applications. It's for the sort of people that don't want to get too heavily involved in mathematics but just want some idea of what this technology can do for them, and want some results they can see visually. It is very quick and easy to get things up and running and adjust parameters interactively." MacBrain runs on the Mac Plus, SE, or II. For those who already have a grasp of the technology, it is said to contain an interpreter and paradigm shells and to enables users to create their own multiple paradigm shells. The company says that it is equipped to simulate adaptive resonance, the Delta rule, Boltzman machines, and Hopfield nets, whatever they may be - and an August update is set to support Transputer-based boards. That version will also offer two programming languages, one text-based and one graphics-icon-based, so users can create their own types of paradigms and rules. Nestor Inc of Providence, Rhode Island, showed several applications designed a round its Nestor Decision Learning System, including object, character, and handwriting recognition systems, adaptive expert systems, and a toolkit for developing neural networking applications. They all run on AT- compatibles, Sun, or Apollo workstations. SAIC, Scientific Applications International Corp of San Diego showed two systems. The Sigma-0 is an AT-alike without artificial neural network shells and is capable of 10,000 connections per second. The Sigma-1 comes with a mouse, 1Mb memory, 30Mb hard drive, a full C compiler, artificial neural network shells under Microsoft's Windows, and a high-level language, Anspec.

Cognitive maps

The shell software package has six neural network simulations. The Sigma-1 runs at 10m interconnections per second, but with additional boards can run at 30m interconnections per second. Scientific Applications' defence division showed off a Generic Interactive Neural Network Simulator, a Lisp-based software package running on a Symbolics workstation. Verac Inc, another San Diego-based company, demonstrated various systems developed under government funding, including several associative memory systems and "fuzzy" cognitive maps for knowledge combination and processing for unsupervised learning procedures. TRW Corp, yet again through its San Diego division, showed its Mark III artificial neural network system, one of which has just gone in at Massachusetts Institute of Technology's Lincoln Labs. The Mark III demonstrated five experiments - multiple target tracking from radar "hits," which also has potential in air-traffic control systems; image recognition of aircraft; helicopter radar return recognition using "nearest neighbour" algorithms; a neural net for artificial intelligence applications (using an if-then- else rule system) that learns by back propagation; and a self-learning system that teaches itself feature detection.

OS/2 THE PLATFORM FOR MULTITASKING DATABASE APPLICATIONS?

OS/2 will provide the opportunity for multitasking database applications, panelists said at the Software Entrepreneurs' Forum in Palo Alto, California, last week reports Microbytes Daily. "A lot of people talk about running spreadsheets, word processors, and databases simultaneously, but one of the major uses of multitasking will be running multiple database applications at the same time," according to Wayne Erickson, developer of R:Base and chairman of Microrim. In a multitasking environment such as OS/2, it will be possible to perform many time- consuming database operations in the background, such as report generating and sorting, said Erickson. Miriam Liskin, a Bay Area dBase consultant and columnist, speculated that the next version of dBase will run only on OS/2 and will support multitasking, arrays, user-developed functions, and increased math capabilities. Asked about his opinion on IBM's plans for SQL as part of "enhanced" OS/2, Erickson said that "IBM is basically talking about a PC version of dB2," IBM's mainframe database program. SQL is typically embedded in another programming language, since it does not include conditional processing, said Erickson. He added that SQL is not easy to use and will be "hidden from the end user," but will be integrated into many new database products. The panel discussion also focused on the use of databases in a programming environment. Erickson cited Microrim's Program Interface as a method for integrating database file-handling and report capabilities into a high-level application written in Microsoft Pascal, C, or Fortran. Liskin stated that programming in a database application language can greatly reduce development time. She added that "there is a lot of room in vertical markets for applications developed in a database programming language." A third speaker at the seminar was Bob Davies, founder of SBT of Sausalito, California, which develops accounting applications in the dBase programming language and includes the source code as part of the package. As an example of success in vertical markets, SBT started using dBase four years ago to develop a cost- control application for a Bechtel nuclear power plant project. Bechtel's MIS department had estimated that nine months and $60,000 would be required to develop the application on a mainframe. SBT developed the application in three weeks at a cost of $12,000, according to Davies.

DATAMEDIA COLORSCAN/2 COMBINES PERSONALIKE, VT240

ICL's Unix systems manufacturing partner - where it holds a 16% stake - Datamedia Corp of Nashua, New Hampshire, has a new workstation that it claims combines the capabilities of IBM's entire Personal line including PS/2, and the DEC VT240 display terminal. The Colorscan/2 features parallel operation in the DEC VAX and MS-DOS environments, with a single keystroke to switch between the two. The disk-less workstation measures 10" by 15" by 2.5", and starts at $2,000 with discounts for quantity. US volume deliveries start next month.

UNIRAS XCOPY ENABLES IBM GDDM TO USE RASTER-BASED GRAPHICS PLOTTERS

Fancy colour pictures on a computer screen are often too disappointing for words - a thousand words? - when they are printed out on paper and IBM GDDM Graphics Data Display Manager users who are restricted to IBM's selection of output devices know the feeling only too well. Colour graphics specialist Uniras, based in Slough, has introduced XL- Copy which will enable GDDM users to use the more popular raster-based devices from the likes of Tektronix, Versatec and Benson rather than than IBM''s vector-based printer-plotters. XL-Copy has been developed independently of Uniras' own graphics applications and is a piece of system software which intercepts the user's GDDM files (or is summoned from within a user's application program) converting the picture files into a raster form and sorting them in a raster database. It then uses the appropriate Uniras device-driver to generate the hard-copy by using the maximum resolution of the hardcopy device rather than simply enlarging the screen copy. XL-Copy supports all applications written in GDDM, including APL-based programs, ICU, Tell-A-Graf, Disspla, PGF, SAS/Graph as well as Uniras's own interactive packages which run on all IBM machines from the 3090 to the AT. Shipments begin in September. Uniras has been involved in a number of joint projects with IBM, including the RT and, more recently, the interface to the GKS Graphics Kernel System from GDDM, under IBM contract.

IBM, SEEING RECORD YEAR FOR MICROS, SAYS IT HAS INCREASED OUTPUT OF PS/2s

IBM's Entry Systems Division bounded all over the analysts called in to hear it put the record straight on the Personal System/2 last week, bombarding them with news of forecasts increased, booming sales, and "our production people in Austin and Boca Raton... working flat out to meet the demand". Entry Systems sees a record year for both volume and sales, implying at least $6,000m of business for the year. IBM said that it had a back-log of about 500,000 PS/2s, and that its manufacturing plants, including a third line opened in Raleigh, North Carolina, complete "each week with essentially no finshed goods inventory". As for the OS/2 operating system, far from being late, as has been suggested - it is promised for first quarter 1988 - IBM says that it will be early.

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Minigrams

Symbolics Inc, Cambridge, Massachusetts is celebrating a $500,000 contract from NASA Ames Research Center for the preliminary design of a space-borne symbolic processor to execute both symbolic and numeric applications on future Space Shuttle, Space Station, interplanetary and deep space missions: the 15-month contract will be the first application of Symbolics' hot new Ivory 40-bit single-chip symbolic processor, and is start of a multiphase programme to develop a symbolic processor for NASA's Systems Autonomy Program - Symbolics has brought in TRW as sub-contractor.

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A player in the sector whose shares have been attracting attention of late is **Zygal Dynamics Plc**, which last week announced an unusual agreement under which it will get **Convergent Technology** kit not from one of the UK distributors, but from **Bull SA** of France, which builds the Convergent N-Gen under licence as the Questar 400; Zygal gets the machines on some very healthy margins, and also picks up key Bull-developed software under the deal, but the buzz in the share price is generated more by the hope that the March acquisition of **Base- Sys**, almost doubling Zygal's size, will soon be followed by another.

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One small step for a man... At 12.01 last Wednesday morning - Pacific Daylight Time, presumably, **Microport Systems Inc**, Scotts Valley, California began shipping System V/386 - to insomniacs, no doubt, and claims that the product is the first commercially available Unix for the **Intel** 80386 microprocessor: "commercially available" appears to mean that users can go out and buy it, since vendors have been shipping 80386 systems with Unix on them for some weeks; the company offers a System V/386 Runtime Package, Software Development, Text Processing and Streams networking packages - all to run on 80386 AT-alikes; source costs $25,000 to qualified customers, and a bundled Runtime System with media support, documentation and 90-day warranty is $199; first to get it is **Harris-Lanier**.

Microport in its second year of business has also opened new offices in Scotts Valley, California.

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AT&T has also announced the availability of Unix System V/386 and in doing so added that next year an updated version will be available that will run Xenix as well as Unix applications.

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Any advance on $240m? That is the ludicrous sum in damages being sought from **NCR Corp** by those 10 former employees who were given their cards after they were found to have been buying options in NCR shares: they feel thoroughly hard done by because they reckon that they acted only on published data on the company, and because although NCR did not come right out and accuse them of anything worse than "poor judgement", it publicised the incident with suggestions of insider trading, making it a hot media story, and made it difficult for the Dayton 10 to persuade prospective future employers of their probity; for good measure, the 10 are also suing **MIS Week** and its parent **Fairchild Publications**, which is part of **Capital Cities**, which also owns the **ABC** TV network.

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Latest to sign for the **Verdix** Ada Development System is **Tektronix Inc**, which will integrate the environment with its Military Standard 1750A, and Motorola M68000 family of software executors (whatever happened to simple computers?) and integration systems: included in the agreement are validated native and cross- compiler systems hosted on **DEC** VAX/VMS and Ultrix systems.

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Kode International Plc is merging its Kode, Kode Services and Comart Computers operating companies into a single unit.

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Tandem Computers Ltd has cut UK prices on its mid-range NonStop TXP fault-tolerant systems by from 15% to 25%; the company has also come out with two- and three-processor packages of its top-end VLX systems, at £538,200 and £698,280, as well as 8- to 32-CPU packages.

IBM is to sell the Pegasus Senior, Pegasus Network Senior and Pegasus Xenix Senior accounting packages, and a new version for the RT under IBM's AIX Unix, from the Pegasus Software arm of **Brikat Group Plc**, Kettering, in its IBM Business Centres, which already sell Teamwork.

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Bolt Beranek & Newman's BBN Advanced Computers in Cambridge, Massachusetts, has signed to offer **Quantitative Technology Corp's** Math Advantage scientific and engineering subroutine library on its Butterfly parallel processor: Math Advantage provides programmers with building blocks that can be called from C and Fortran programs and embedded in applications, including simulation of chemical processes, VLSI circuit simulation, image understanding for industrial inspection, and sonar signal processing; Math Advantage is $5,000 for the object code, $7,500 for the source.

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Computer Consoles Inc is investing in a multi-million pound R&D Centre in the Thames Valley and will be devloping a range of directory products for its Unix-based fault- tolerant systems.

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East London-based **Chancelogic** has signed up distributors in Germany, Austria, Switzerland, France, Holland and Florida for its source code program gernerator, Pro-C: the compnay values the contracts at $500,000.

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Zeta-Soft Ltd of Massachusetts has launched Zeta-C - a compiler and development system for the C language intended for **Texas Instruments'** Explorer.

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Convergent Technologies has announced that its Network PC diskless workstation is now available in the UK from its base in Bracknell, Berkshire and from its normal distributors.

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The Corporation for Open Systems International and the **National Computing Centre** have recently agreed to jointly develop a protocol tester for File Transfer Access and Management (FTAM) and Message Handling Systems (MHS): work has started on the project and is expected to be completed by the end of the year.

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IBM SIGNS LOCUS FOR DOS UNDER UNIX AIX IMPLEMENTATION ON PS/2

IBM has signed up Locus Computing for joint devlopment of Unix- based software for the PS/2 Model 80 which includes devloping AIX for the PS/2. Locus say that the operating system devloped for the PS/2 will be a subset of AIX. IBM has said that the products resulting from this agreement will fall into its IBM sells and supports and recommend that customers build their "corporate business" on as IBM commits itself to enhancing and maintaining them. When IBM announced the PS/2 back in April Unix products were not down to fall into this category but the announcement that AIX would run PC-DOS 3.3 as a task is still consistent. As Locus points out "there are two ball games in town" in the DOS under Unix arena: Locus with its Merge 386; and the combined forces of Intercative Systems and Phoenix Technologies touting VP/ix. Locus sees the IBM pact as an endorsement of its product which will be the basis of the AIX implementation but grudgingly admits that this is not an exclusive agreement. Interactive Corp still has an a Unix collaboration agreement with IBM and is continuing to develop products with IBM for the PS/2. No dates have been announced for the availability of the products but Locus says that the PS/2 is no more difficult to port to than any other 80386-based machine although device drivers have to be written for the new micro channel. AIX is currently an implementation of Unix System V.2 but Locus would not say whether the new implementation would be a V.3 upgrade. Locus added that its implementation of X Windows will be ported to the system and inferred that its other products such as PC-Interface would also be there. Locus sees the Unix operating system on the PS/2 not as competition to OS/2 but as an alternative dependent on whether the user requires a single-user system or multi-tasking, multi-user.

NCR AND DEC OUT IN SWEDISH GOVERNMENT CONTRACT BID

Excitement is mounting amongst companies in Sweden as the Government and Department of Defence are within days of announcing which lucky companies will be awarded the contracts to supply Unix-based machines for its second purchasing phase. The purchasing specification is issued jointly by the Government and Department of Defence but contracts will be awarded separetely. The final contenders for the civil administration contract include: Sweden's own Data Industrier AB (DIAB) selling its own machines; Dator Seringen offering Arete and Cromemco hardware; Carl Lamm with Pyramid and Zilog boxes; Unisys; NCR; and Ericsson which offers Sun Microsystems' workstations. On the defence side both NCR and DEC are reported to be out of the running: NCR because of its failure to meet the communications criteria and DEC because its Unix implementation is not in line with the specification. Unisys and its 5000 family is still in with a chance even though it did not show in the previous round, this, the company claims, was due to the fact that it had no offices there. The partnership between Norsk Data and Diab is also a strong contender for the defence contract which will be implementing a combination of the two companies machines should its bid prove successful. Whilst admitting that the Swedish Government makes no exceptions for Swedish companies failing to meet the specification criteria Norsk and Diab feel that once it has been met home-grown companies may well be favoured. Although Norsk is not Swedish it considers itself to be the next best thing coming from Norway and having a Swedish partner. To date around 150 machines have been installed for civil administration and 200 in defence.

PLEXUS, ARETE CALL OFF THE UNIX WEDDING OF THE YEAR

We know about the penchant of some Americans for so-called Open Marriage, but when Plexus Computers began putting out press releases that didn't even mention its betrothal and impending nuptuals with Arete Systems Corp, it looked as if all was not well with the happy couple. And so it has proved: yesterday the two companies announced that they had decided to go their separate ways with no hard feelings. Reason for the return of rings is that the pair concluded that combining the firms would not result in the benefit to holders that were envisaged.

UNISYS TO BRING OUT MULTI-OS 80386 BOX

Unisys Corp says it will have an 80386 box running Unix, Xenix, OS/2 and MS-DOS out in the autumn. The company doesn't say, however, whether it will be from Mitsubishi Electric, Convergent Technologies or an in-house developed product.

MIPS OFFERS CHIP-LEVEL RISC TO CHALLENGE INTEL 80386

Determined that Intel should not get things all its own way with the 80386 microprocessor, MIPS Computer Systems Inc, the Sunnyvale, California company that previously sold its R2000 RISC microprocessor only as a board-level product with write buffer chips and software, as of now is offering the microprocessor alone, and has priced it to compete with the 80386, charging $295 when you buy the 16.67MHz version, $195 for the 12.5MHz - when you buy 5,000 or more. MIPS reckons that the move will put its mid-range microprocessor - which it reckons offers twice the power - at half the price of the 80386 and 68020. Software available includes the Umips operating system: binary licences for the Unix System V.3 and 4.3 BSD versions are $100 per processor in quantities of 5,000- up.

SYBASE TO JOIN OTHER DBMS VENDORS IN THE UK

Three year-old Sybase Inc, a recent but highly competitive entrant on the growing Unix-based database management system scene, is poised to enter the UK with its on-line relational DBMS intended for transaction processing. Saying that it doesn't feel that relying on distributors will get the right results, it plans to open a UK office by the end of the year. Opponents already entrenched in the UK include DBMS software vendors: Relational Technology Inc; Oracle Corp, Informix Corp and Unify Corp. Sybase is convinced, however, that it has the right staff, backing and product to take a sizeable share of this well-populated area.

Sybase of Berkeley, California has a strong pedigree in personnel terms including the principal developer of Britton Lee's database machines and a number of other ex-Britton Lee employees as well as key staff involved in the development of Ingres - the RTI product. The 100-strong company, headquartered in Berkeley, California, has financial backers including Hambrecht & Quist, Kleiner Perkins Caufield & Byers, Charles River Ventures, TRW Inc and Oak Investment Partners.

Requester/Server Architecture

The Sybase system is based on a requester/server architecture where application and data management functions are handled separately. The product has two components: the DataServer which handles data management; and the DataToolset which provides a set of window-based tools for building and running applications. The two components can run concurrently on a single machine or independently on different ones with the DataToolset providing transparent access across most major networks to the remote DataServer. The DataServer will allow applications running on many different to access a common database. Sybase claims high volume performance, DBMS enforced integrity, high availability, and distributed data management for its DataServer adding that this is because of its advanced architecture. This multi-threaded server architecture allows a single process to manage the tasks of all users accessing data on a machine. The single process creates a 'database operating system' on top of, but independent of the machines operating system so that the DataServer controls functions such as scheduling, task switching, disk caching, indexing, transaction processing, and locking. Sybase claims that its product can handle the DataServer with 20Kb of main memory per user which it points out frees more memory to act as disk cache to reduce I/O overhead. The multi-threaded architecture means that the DataServer can optimize and process several SQL statements at the same time as well as transaction locking and I/O. Sybase also allows an applications developer to create a set of procedures that can be stored in the data dictionary as compiled images which may then be shared by all applications. These procedures are defined using Transact-SQL which is a set of logic and transaction procedures added to standard SQL.

Sybase claims that this product is the first SQL environment that handles "complex transactions and referential integrity" within the database. The DataToolset, the company says, allows applications to be built, run and maintained on character terminals or bit-mapped workstations and no application code changes are required to move applications between the two. The inspiration for the DataToolset came from the Macintosh style user interface and uses all the visual facilities associated with the product. The DataToolset componenets include: AptForms which handles the presentation of data for on-line applications; DB-Library and Forms-Library provide forms control and access to the DataServer from programs written in C, Cobol, and Fortran - DB-Library also includes networking for DECNet and TCP/IP; and the Data Workbench provides a set of tools that help with decision support, application development and database maintenance. Sybase intends its products for use in government and defence, Fortune 1000, banking and finance, and telecommunications markets and its customers include: Chemical Bank, John Hopkins Hospital and TRW.

DBMS market to triple

Sybase is confident that the market for its product is growing citing an IDC report that predicts that relational database systems will grow from 30% of the market in 1986 to 70% of the market in 1990 and adds that the report also stated that the DBMS market itself is expected to triple over the same period. Sybase says that most relational databases are currently used in decision support applications and thinks that as more companies use them as such they will see the need for an RDBMS in its on-line applications. Because the product has been designed from scratch for transaction processing, Sybase makes the contentious claim that it has a two to three year lead on other relational database vendors in the on-line arena, but it is nup against the likes of nthe established and rapidly growing Oracle and RTI, both of whom have recently been stressing improved transaction processing performance. Nevertheless Sybase Vice President of marketing, Stewart Schuster, claims that in order to meet the required levels of performance, integrity and high application availability other dbms products will have to go through "substantial retrofitting or even total redesign". And, he said, a problem for existing relational database vendors trying to move into the on- line market will be providing a migration path for current customers. Sybase products are currently available on DEC VAX/VMS products and Sun Microsystems' workstations running Unix but says it is currently talking to Pyramid Technology with a view to porting the Sybase product to its machines. Sybase has also recently gained an OEM contract with Stratus.

The 100 staff-strong company says its product will run over a wide range of operating systems, adding that it actually "avoids operating systems like the plague" and in the Unix system only uses 10 Unix commands.

UK TRAINING NEWCOMER, ATTA, WINS SIEMENS - LARGEST EVER SOFTWARE PRODUCTS GRANT

With £5m backing including the largest ever single grant from the Government's Software Products scheme, Advanced Training Technology Associates yesterday announced its plans to develop a new generation of computer based training systems using artificial intelligence techniques. Investment in the company has come from the Department of Trade and Industry's Software Products scheme in the shape of its largest single grant - £883,000; Siemens has awarded the new company a contract worth £750,000 for developing intelligent training software to be embedded in its new machines; other investors include Advent Eurofund, Advent Capital, Investors in Industry, Legal and General Assurance and Symbolics Inc. In ATTA's opinion existing CBT tools are inefficient, unwieldy and often expensive. It claims that with existing systems it can take up to 300 hours to produce an hour of teaching material; it expects to reduce the time needed to 30 hours. Artificial intelligence expert Professor Tim O'Shea of the Open University says that existing computer tutors are "stupid" because they cannot do what they are attempting to teach and so cannot make any comments or criticisms of the students attempts, they merely note that the student has got the problem right or wrong. O'Shea suggests that CBT tools should allow: instantaneous criticism of work done, knowledge of the students past performance to be retained, and taught subject matter to be increased. ATTA's product TASTE, technically assisted training education, is intended as an authoring system or applications generator as well as a teaching aid and is based on O'Shea's 5-ring model.

The five components include: teaching administrator which presents material to the student and processes responses in a conversational manner; student history records the material presented to the student in chronological and topic orders; student model makes predictions concerning the students future performance and his current ability; teaching strategy relates the system's view of the student to the types of teaching action available and chooses an approach based on the student's own way of working; teaching generator selects a specific item or teaching module for the teaching administrator to use. All components are expressed in production rules or IF...THEN rules, such as IF it is raining THEN I will take my umbrella. Templates are provided for the author to create 'lessons' through forms and the system advises on the most appropriate structures, designs and presentation tools. ATTA was first established in December 1986 and has spent the last six months getting finance and finding offices. The first fruits of its product development are expected before the end of this year but a completed saleable authoring system will not be available until the first quarter next year. Taste is being developed in Common LISP on Symbolics hardware but the finished products will run under Unix, MS-DOS and OS/2 on most popular hardware. The Hitchin, Hertfordshire will initially target large companies similar to Siemens rather than the eductation market because, as it pragmatically points out, that is where the money is. English speaking countries will also be first to be tackled. ATTA intends to sell to the industry direct and through value added resellers. According to a recent survey on the CBT marketplace conducted by the NCC £230m sales are predicted in the UK in 1990 and £1 billion in Europe. ATTA intends to do £35m in revenue and £7.5m in profit over the next five years. The TASTE product will cost between £4,000 and £11,000.

CULLER SHUTS DOWN, SEEKS BUYER FOR MINISUPER TECHNOLOGY

Over the past couple of years, the minisupercomputer market has suddenly become crowded as a whole string of start-up companies launched products onto the essentially limited market within weeks of each other, and it is becoming clear that if a machine wasn't one of the first, it has to have some pretty original features in order not to get lost in the crowd. Sad to say the Culler 7, and the recast PSC Personal Super Computer version, fulfilled neither criterion, and as a result Culler Scientific Systems Corp of Santa Barbara, California has run out of cash and finds its backers are not prepared to add to the $24m they have already contributed. Accordingly, reports Computer Systems News, Culler has had to suspend virtually all operations, firing all but 10 of its 80 employees, and is looking to sell its technology. The company sold just three of the original $250,000 to $1m Culler 7, and 15 or so of the $100,000 to $750,000 PSC, all uniprocessors, its weaknesses being seen as including a lack of software, and delays in bringing the system to market. The technology is clearly worth a look: the machine uses a globally optimising back-end compiler that optimises concurrency on both scalar and vector processing for front-end Fortran 77 and C compilers. The system consists of a series of dissimilar function processors tightly coupled on 64-bit data and 32-bit address buses, the complex front-ended by a Sun workstation running a subset of Berkeley Unix. C Itoh, which sells the Culler machines in the Far East, is tipped as likely to be interested. The company's principal venture backers were Adler & Co and F Eberstadt.

80386 CRISIS DEEPENS AS DEMAND TRIPLES

A crisis is brewing for a host of small manufacturers pinning their future on the 80386 microprocessor according to the latest intelligence coming in from the US. While Intel is still saying that it will have shipped between 500,000 and 1m of the chips by the end of the year, it reveals that demand has tripled over the past few weeks, so that greater shortages and longer delays than expected are now likely. And full production of the remasked 80386 chips without the 32-bit arithmetic bug will not begin before the end of July at the earliest. But at least one industry watcher contracted by the US newswire Microbytes Daily reckons that "by the end of the year, the supply and demand situation will be in worse shape than Intel says", adding that the only way Intel can meet the commitment is to dump all the parts on customers sometime during the fourth quarter, so that companies won't have any chance to gear up manufacturing in a normal fashion.

BUT REVERSE ENGINEERS "ARE READYING 80386 ALTERNATIVES"

Reverse engineers are racing against time to complete designs that are functionally equivalent to the Intel 80386 but do not infringe any of Intel's copyrights, according to one hardware manufacturer impatiently awaiting deliveries of 80386s. "If Intel delays long enough," he told Microbytes, "it may not be the only player when the market is really huge. We know of several companies that are working on chips that act just like a 386 but aren't. Intel may have gone too far this time in banking on an established market."

AS INTEL PLANS EXTRA QUALITY CONTROLS FOR JAPAN SALES DRIVE

Intel is also planning a special quality control programme to target the Japanese semiconductor market, and will establish dedicated lines in its main semiconductor plants to do microprocessors for the Japanese market. The first shipments are planned for February next year. The parts will be semi finished at Intel's five US plants, and assembled in Penang en route for Japan. Production decisions will be made via an dedicated link between the Santa Clara and Intel Japan. The first Japan-quality parts will be 80286 and 80386 microprocessors, and 8051 microcontrollers, with EPROMs to follow.

DEC TO SUPPLY RTI'S INGRES RDBMS DIRECT

Relational Technology Inc has signed a non-exclusive worldwide distribution agreement with DEC to supply RTI's Ingres relational database management system on its VAX range running Ultrix. RTI claim that this relationship is the first of its kind and the closest that any outside supplier can have with DEC without DEC actually manufacturing the product itself.

UNIX ALLOWS MONEY MAKERS TO CHECK ACCOUNTS 24-HOURS A DAY ON THE PHONE

Sequioa Systems will be providing Hager Telecommunications with its fault-tolerant Series 1000 machines for voice response and recognition products to be used in the financial market. The Sequioa system will be used as a front-end machine holding an on- line database of securities prices and account information. The Sequoia hardware will be integrated with Hager Voice System to provide customers with account status information and 24-hour stock quotes. Hager say that the integration is possible because Hager's implementation of Unix, V.5, is compatible with the Sequoia Topix operating system. The system will allow customers to make enquiries using the telephoning concerning the price of stock or the status of their accounts. The system will respond to voice or touchtone input. Sequoia says that this emphasises its move into the financial market adding that it already has an arrangement that allows it to provide Standard & Poor's on-line securities pricing software on its machines. Sequoia intends to make other similar arrangements with software suppliers.

LATICORP ACKNOWLEDGES THAT AMERICANS DO NOT SPEAK ENGLISH

Laticorp is making a bid to enter the European market by providing translated versions of its software including 'British English' versions. Laticorp of San Francisco, California is initailly targetting the British, French and German markets. The first product to be translated is HTBG, Laticorp's business graphics product. In September Latitude, an integrated word processor and spreadsheet package, will be available in all three languages as will Sync, electronic mail, in British English. French and German versions of Sync will be available in December. Laticorp says that this part of its plans to conform to the X/Open guidelines with reference to the internationalisation standards and adds that every future Laticorp product will automatically be available in major European languages and on European Unix hardware shortly after its US release.

DEC PICKS FRANCE FOR ITS FOURTH RESEARCH CENTRE

Digital Equipment Corp today opens its first research laboratory outside the US, and has accorded Paris the honour of hosting its European Research Centre. The new centre, under Patrick Baudelaire, founder of Tangram and an alumnus of Xerox Corp's world-famous Palo Alto Research Center, will have some 30 employees within two years, and will specialise in graphics, man-machine interfaces, parallel processing, algorithmic geometry, applications specification and programming environments. In the US, DEC has had two research centres in Palo Alto, California for some time, and a third is in process of being established in Cambridge, Massachusetts.

SCO BEGINS FIRST SHIPMENTS OF XENIX 386 SYSTEM V - PROMISES MULTIVIEW AND VP/IX

The Santa Cruz Operation has begun first shipments of the SCO Xenix 386 System V operating system and the SCO Xenix 386 System V development system for 80386-based, AT- compatible personal computers to its OEM and value-added reseller customers. The current release of SCO Xenix 386 runs on "386AT- class" personal computers such as those manufactured by Compaq, Wyse, Zenith, Olivetti, XTRA Business Systems (ITT) and Texas Instruments. It also runs on IBM PC AT- compatible machines which have been "turbocharged" with a 386 accelerator card such as the Intel INboard. SCO says that Xenix System V has an installed base of over 200,000 machines, and adds that inits opinion representing more market-share than all other Unix systems combined. SCO ontinues by saying that on Intel microprocessor-based computers, Xenix is installed on over 90 percent of all systems running any Unix system version. SCO claim that SCO Xenix 386's 4-gigabyte virtual address space means that the SCO Xenix 386 operating system can accommodate large applications, such as CAD/CAM, AI and desktop publishing, that were once applicable only to 32-bit dedicated workstations, minicomputers and mainframes. The availability of high- resolution graphics devices for PCs makes it attractive to port 32-bit applications from environments such as VAX and Sun workstations to 386AT-class machines, says SCO claiming that this porting is much easier with SCO Xenix 386 than with any other personal computer environment. The 32-bit native-mode code used in the SCO Xenix 386 operating system and generated by the SCO Xenix 386 development system optimised using the Microsoft C Compiler release 5.0. gives dramatic performance gains, claims SCO. Doug Michels said, "some large 286 programs have run more than 100 percent faster, simply by recompiling them with this new compiler. That, coupled with the increased performance of the 386 processor, can yield as much as a 600 percent improvement over the same application running on a 286." MultiView and VP/ix will soon be available under SCO Xenix System V to improve the windowing environment and user interface. SCO VP/ix permits multiple DOS and Xenix applications to be run concurrently from the system console, under the control of the virtual screen manager. In multiuser systems, it expands to permit ASCII terminals to concurrently run multiple DOS and Xenix applications via a serial port connection, under the control of an enhanced virtual screen manager. VP/ix enables SCO Xenix 386 users to run DOS applications software "off-the-shelf" as a task under Xenix on 386-based machines. The SCO Xenix 386 operating system and the SCO Xenix 386 development system both cost $695. The complete SCO Xenix system, which also includes the SCO Xenix text processing system, is priced at $1,495.

MANNESMANN KIENZLE REASSURES CUSTOMERS OF ITS COMMITMENT TO UNIX

Mannesmann Kienzle has issued a statement saying that it will phase out development of its MTOS machines during 1989 in favour of Unix. Mannesmann will be devloping Unix- based machines for delivery within three years that are rated at a minimum of 5MIPS and have a lower hardware cost than currently available on MTOS systems. The Cadmus division of Mannesmann will be responsible for the design and devlopment of the new machines. Mannesmann says that it issued the statement in response to customer enquiries of the company's position with respect to Unix in view of a greater number of contracts being subject to Unix availability. The company adds that a migration path will be developed nfor existing customers.

ARTIFICIAL INTELLIGENCE TO DO C VERSION OF INTELLECT

Artificial Intelligence Corp has enhanced its PL/1-based version of the Intellect artificial intelligence-based information retrieval and query system for the last time. The next release of the 'natural language' system will be completely rewritten in C which the company says will result in more compact and faster code. Another major attraction is the reputed portability of C which will allow the system to be ported to a wider range of computers. The company expects to move the product to Unix-based machines as Unix users start to make more use of Unix-based SQL databases such as Ingres and Oracle in commercial applications. This the company says would make a product like Intellect a viable purchase. A DEC VMS version is already available written in C. AI is alo developing a version of Intellect for the IBM 9370 which it expects to have available to coincide with IBM's bulk shipments of the 9370. VM/CMS and MVS/TSO versions will be available for the 9370. A version of Intellect for the Teradata DBC/1012 database computer system has just been made available in Europe. Teradata of Los Angeles, California develops dedicated database machines similar to those produced by Britton Lee but larger. The latest and final release of Intellect in PL/1 is also now available in Europe from AI's distributors in London. The new version 303C includes improved calculation handling; expanded date handling; more powerful concise syntax; single-word definitions for complex calculations; conditional statements for file sorting; IF-THEN-ELSE logic in queries and definitions; and a personal vocabulary option. An option called PC Link is also included in this release which allows users to merge their applications with Intellect and make English language-type enquiries to a mainframe computer via IBM PC-compatible machines. Intellect has an installed base of 550 worldwide but hopes for more competition in this market as it says it spends most of its time getting the natural langage idea accepted. Prices for the DBC/1012 Intellect interface start at £14,732 and a complete Intellect installation on the DBC/1012 costs from £44,00.

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Minigrams

Sun Microsystems has beaten **Apollo Computer** to a "big contract" - at a very keen price - for its workstations from a US government agency so secret that no-one will identify it, although it is assumed to be the **National Security Agency** in Langley, Virginia: the news was good for $1.50 on Sun shares at $42.25.

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Cray Research has landed another Japanese order for a scientific supercomputer, albeit only a baby this time: customer is **Aichi Industrial University** in Nagoya, which has ordered a Cray X-MP/14 for installation next February next year; the contract is worth about $3.7m - about one half to one third the price of Japanese supercomputers - and will be used in the industrial information processing department for structural analysis and other research; the US trade counsellor reckons the sale has "built a bridge for more technical exchange between US and Japanese universities", and will encourage Cray and others to target other colleges.

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And **Cray** has also received a $20m order for a Cray 2 supercomputer from **Unisys Corp**, which will install it at the US Air Force Weapons Laboratory, Kirtland Air Force Base in Albuquerque, New Mexico.

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CISI-Ingenierie, the computer services offshoot of the French Atomic Energy Agency, which is getting closer to **Cap Gemini Sogeti SA**, has completed development of compilers for the **Bull** SPS 7/70 and 7/300 68000 family multiprocessor Unix machines: the SP-Ada system is based on the Verdix Ada Development System from **Verdix Corp**, Chantilly, Virginia, which is marketed in Europe by **GEC Software Ltd** of Covent Garden, which in turn has licensed CISI to distribute it in France.

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Austec Inc has completed its acquisition of **Ryan-McFarland Corp** on undisclosed terms and will immediately incorporate RM/Cobol and RM/Fortran into its ACE environment - and add the RM prefix to everything that it sells: the combined companies have annual sales of $25m; terms have not been given.

The **Santa Cruz Operation Inc** has begun shipments of the Xenix 386 System V operating system and Xenix 386 System V development system for 80386-based AT-alikes: the company claims that the 32-bit native-mode code used in the operating system and generated by the development system is extremely compact and optimised as a result of use of the Microsoft C 5.0 compiler so that "some large 286 programs run more than 100% faster simply by recompiling, and adding the performance of the 386 processor can yield as much as a 600% improvement over the same application running on an 80286"; it comes packaged with CGI graphics based on GSS*CGI, operating and development system are $695 each, and complete Xenix 386 system, which bundles text processing with the other two items, is $1,495.

- o -

CHoPP Computer Corp has chosen the **San Diego Supercompter Center** to be the first beta site for the CHoPP 1 Supercomputer, and says it plans to have the first production prototype of the CHoPP 1, designed to be the fastest supercomputer commercially available, by second quarter 1988: San Diego will get a 16 processor machine estimated to be worth $25m.

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Hitachi Ltd unveiled its new top- end scientific supercomputer last weekon Wednesday calling the new machine the Hitac S-820: the company claims that in dual processor configuration it does 3 GFLOPS.

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Flexible Computer Corp, Dallas, Texas, has raised $3.9m in a round of venture financing with "a limited number" of European and American investors.

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Former **Fortune Systems Corp**, Belmont, California, formally became **Tigera Group Inc** after sale of its manufacturing and hardware marketing operations to **SCI Systems Corp** for $16m: Tigera Group says it starts life with a strong balance sheet, an excellent cash position and well-accepted office software products such as Fortune:Word - now marketed as Word Era - in place; its aim now is to expand its office software offerings - if need be by acquisition of companies - and get them onto other Unix boxes.

Digital Communications Associates Inc, Alpharetta, Georgia, says it has now received verbal confirmation from **IBM** regarding identification numbers for its Microchannel Architecture communications products for the Personal System/2, and accordingly can now go ahead and ship its Irma 2 software-loaded addition to its Irma line of micro-to-mainframe connection boards and a Microchannel version of Smart Alec, and will start in the autumn.

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Apollo Computer Inc claims that it has been able to slash the price of its DN3000 workstations because unexpected demand has meant that 20,000 units have been shipped since February, and that in turn means substantial ecomomies of scale in manufacturing for Apollo.

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The UK defence establishment has had such a roasting in the media over the past year or so that it must be seeing Campbells and Colinses under every stone, so **ICL**'s move to enable the top brass to sleep sounder in their beds at night is a timely one: the company has come up with a Tempest-shielded version of the DRS 300 distributed workstation family, so that by virture of the benefits of shielding and fibre optics, Admiral Byng can send messages to Commodore Bong saying what a bounder that Dale Campbell-Savours is without fear of being electronically overheard; a four terminal system costs £25,000.

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Stratus Computer Inc, Marlboro, Massachusetts, has donated an XA 2000 Model 100 Continuous Processing System to **Carnegie Mellon University**'s Research Center on Dependable Computing: as the centre's first fault-tolerant computer, the Stratus system will be used in a working laboratory dedicated to research on perfecting computer reliability, being used in studies to predict hardware failures, to integrate parallel processing and fault-tolerance, and to design alternative hardware redundancy architectures - and it will port the university's Unix- based Mach operating system onto the Stratus box.

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FUJITSU TO OFFER AMDAHL's UNIX ON ITS VP SUPERCOMPUTERS

Fujitsu Ltd will shortly announce support for a version of Amdahl Corp's UTS implementation of Unix System V for its VP series of scientific supercomputers, reports our Tokyo correspondent. The VP machines are IBM-compatible, and Fujitsu will support UTS/M on them under its AVM rewrite of IBM's VM/370 operating system. Unix is increasingly becoming the operating system of choice for large-scale scientific processors, and is the standard operating system on the Cray Research Cray 2. Support for Unix will also enable Fujitsu to support its new G-series of 68020-based workstations as terminals to the VP supercomputers - which are marketed in the US by Amdahl Corp, and in Europe by both Amdahl and Siemens. The Facom G series machines comes in three models, G150 and G150A based on the 68020, and G140, based on the 68010. The operating system is SX/G, based on Unix, and providing support for up to 16 screen windows, and the G machines also run the EShell/X expert system shell. Languages supported include Lisp, Prolog and Fujitsu's mainframe Fortran 77 compiler (which was the first software product offered by the company in the US, some five years ago). Prices for the Gs start at $8,150 for the G140 and $12,000 for the G150A.

FRENCH AND DANES JOIN TOLERANT TO PRODUCE UNIX LINE

An unusual technology agreement between US fault-tolerant systems manufacturer Tolerant Systems, Bull of France and Denmark's RC Computer is hatching new Unix systems from the Europeans that will be fed back into Tolerant's product line. Bull and RC have licensed Tolerant's fault-tolerant Unix-based operating system, Transaction Executive, to put on their new products and Tolerant will have exclusive sales rights for the products in North America. Bull is in the process of producing a Motorola 680X0-based supermicro-mini range for fault-tolerant applications. RC meanwhile is engaged in developing an on-line transaction processing system based on MIPS Computer System's RISC CPU. RC is aiming the new product at specific vertical markets such as telephone directory assistance systems, and library systems. Tolerant sees the partnerships as a means of getting cheaper R&D, an entry into the European marketplace and a way of expanding its product line at minimum cost maintaining compatibility with its existing product line. The Bull product will fill out the bottom end of Tolerant's range and the RC machine will come in on top of the existing Tolerant National Semiconductor 32032-based Eternity series. The RC product is due for delivery in late 1988 but the Bull machine is targetted to be available from Tolerant by year-end. Tolerant of San Jose, California adds that it is "entertaining" other similar agreements.

AT&T UNIX PC GOES OUT AT FIRE SALE PRICES IN THE US

The 68010-based Unix PC or PC7300 developed and manufactured for AT&T by Convergent Inc has proved to be such a commercial disaster that the machine is now going out at fire sale prices in the US, leading observers to conclude that Convergent must have sold its excess stocks of the machine as a job lot to a third party. The machine is currently available at $1,900 for a 2Mb processor with 67Mb disk drive, documentation and extras, compared with about $5,400 list. The MS-DOS co-processor is $140, down from $700.

AT&T ADDS EUROPEAN V.3 LANGUAGE SUPPLEMENTS

AT&T has adopted the X/Open internationalisation scheme to enable System V to speak German and French by September. Following the April announcement (UX No 124) of the ability to handle 8-bit character sets and different date/time formats with the release of System V.3.1, AT&T is now adding Native Language Supplements to support individual European languages. The NLS modules are based on the X/Open internationalisation interfaces and those parts of the forthcoming ANSI C standard that deal with internationalisation. The first supplements are the French Application Environment and German Application Environment which AT&T claims allows an application to be written independent of machine, country and language. To help the translation process AT&T has developed a tool which extracts all messages from a program placing them in a file which a linguist can then translate and edit before the tool replaces them in the program. Both supplements are essentially the same but differ in the supported devices allowing for the difference between the two countries ASCII terminals and teletext terminals. AT&T intends to develop supplements for other languages, initially European, and the plan is ultimately to have a uniform Unix worldwide even for countries such as Japan with complex character sets. Native Language Supplements will be available from September 16th from AT&T in the US and UK to its own licensees at source code price of $20,000.

PYRAMID PLANS 100 MIPS CPU

Pyramid Technology is reportedly working on a single-board scientific computer in ECL designed to deliver 50 to 100 MIPS. No-one need hold their breath however - the machine is not due for delivery until 1991.

CYPRESS PLANS FOUR-CHIP 0.8 MICRON CMOS SUN SPARC SET

Sun Microsystems' SPARC Scalable Processor Architecture has sparked a deal of excitement among chipmakers, and its named partners on the part are rushing to commit to silicon implementations significantly more advanced than the initial pass done by Fujitsu in 1.5 micron CMOS to create the two-chip set used in the new Sun-4 (see page 3). Cypress Semiconductor Corp, San Jose is working with the Sun design team to implement a four-chip set around the basic SPARC design that will use 0.8 micron CMOS, almost twice as dense as the Fujitsu parts. This second generation set, when fully operational, is intended to include an integer processor, floating point processor, memory management unit and cache memory. Cypress reckons use of its proprietary sub-micron dual layer metal CMOS process will enable the set to offer a significant increase in performance over RISC processors currently available. The complete Cypress set is planned to be out in 1988 and will be offered generally under Sun's policy of attempting to make the SPARC an industry standard.

AS BIPOLAR INTEGRATED TECHNOLOGY DOES TWO ECL SPARCs

Even higher performance is promised by the other licencee named by Sun, Beaverton, Oregon-based Bipolar Integrated Technology, which plans to implement the SPARC in its proprietary BIT1 ECL process, with a view to getting it into production and available on the open market in late 1988. Bipolar reckons that its implementation will offer sustained performance of more than five times that of currently available 32-bit RISC microprocessors, and it intends to offer an even higher-performance version in 1989 using its BIT2 technology, both of which will find their way into future Sun products as well as onto the open market. Bipolar's existing parts include a floating-point chip set in both ECL 10KH and TTL versions consisting of a multiplier and arithmetic logic unit that delivers 60MFLOPS performance for non-pipelined 64-bit operation.

COUNTERPOINT WINS FUNDS, DEVELOPMENT PACT FROM ITALTEL

Counterpoint Computers Inc, San Jose, has a way of winning friends in high places, and its latest coup is to win an OEM contract, joint product development and equity investment agreement with Italtel SpA, the largest Italian manufacturer of telecommunications equipment. The OEM portion of the agreement calls for Italtel to buy $5m to $10m of Counterpoint's System 19K 68020-based Unix machines over three years, for use as attached processors in Italtel telecommunications systems. Italtel will also part-fund joint development of a new high-performance multiprocessor system, to be brought to market in late 1988. Italtel looks for the agreement to serve as the basis for it to win a share of the US market for office communication systems. Counterpoint's other investing partners include AT&T Information Systems, Kyocera Corp, and British & Commonwealth Ltd here.

SYMBOLICS UNVEILS 80386 DELIVERY ENVIRONMENT, C DEVELOPMENT KIT

Taking a leaf out of Texas Instruments' book - Texas offers a 68020 co-processor option to enable users to run Unix on its Explorer artificial intelligence machines - Symbolics Inc has announced an 80386-based co-processor board for its 3600-series workstations so that users can run Unix and MS-DOS in parallel with its proprietary symbolic processing operating system. The company accompanied the announcement with it new software environment that enables artificial intelligence applications developed on the 3600 family to be delivered on 80386-based personal computers. Other new products from the company are a C language software development environment, and a software link that "creates a clear path to IBM mainframes". No details were given by Symbolics, which launched the products at the Artificial Intelligence show in Seattle.

GOULD AND FRENCH FORUM SIGN TECHNOLOGY EXCHANGE AGREEMENT

Paris-based Forum International has licensed Gould's UTX/32 implementation of Unix for its 32-bit machines. Gould intends to market the Forum machines as entry-level systems to its line. Both Gould and Forum expect to gain additional sales through promoting the Gould system as a server for the French machines. Forum anticipates gaining 10% of the French scientific market over the next two years as a result of this agreement.

HARRIS COMPUTER ADDS TO 48-BIT REAL-TIME SUPERMINI LINE

When most of the minicomputer world was 16-bit, Harris Corp went a half better and chose a 24-bit word length, and so when the competition doubled everything up and went 32-bit, Harris graduated to become only the second major manufacturer after Unisys with the A series and its B5-6-7X00 predecessors to implement a 48-bit word. And, despite its diversification into 32-bit Unix systems, Harris Computer Systems remains fully committed to its 48-bit real-time H-series machines, and last week added four new models, and with them a new multiprocessor RT-VOS/MP release of its proprietary real-time virtual operating system, that supports tightly-coupled multiprocessing for the first time. And not just over two or four processors, but over as many as 12. The new models, all built in the same 100K ECL as the previous H-1000 and H-1200, are the H-900 and H-1100 uniprocessors, the H-1500 dual processor, and the H-1600 triple processor. The H-1500 is rated by the company at 10 MIPS on the single precision Whetstone benchmark, the H-1600 at 15 MIPS, 8 MIPS and 12 MIPS in double precision work. The H-900 and the H-1100, which can be used either standalone or as additional CPUs in MP complexes, start at $240,000 and $260,000 respectively. As well as RT/VOS-MP, Harris offers the VUE operating system, which combines Unix with VOS. Languages currently supported are Ada, C, Fortran and assembler. The machines are aimed primarily at applications in fields such as real-time simulation and process control.

SUN UNVEILS SUN-4/200, AIMS TO MAKE SPARC RISC A STANDARD

Sun Microsystems Inc last week introduced the first Sun-4 Unix workstations based on its 10 MIPS SPARC - Scalable Processor Architecture - reduced instruction set microprocessor, and announced a comprehensive licence programme aimed at winning industry standard status for the SPARC. On offer are the SPARC architecture, operating system, development tools and C compiler, as well as the chips themselves, currently available from Fujitsu Microelectronics Inc, Cypress Semiconductor Corp, and Bipolar Integrated Technology Inc.

Sun and Fujitsu implemented the SPARC on a 1.5 micron 20,000 gate CMOS array, and combines the MB86900 Integer Unit with the MB86910 Floating Point Controller to create the processor for the Sun-4/200, which is object-code compatible with Sun's Motorola-based workstations, so that software only needs to be recompiled. Cross compilers are available so that Sun-2s and 3s can be used as development systems for 4s and vice versa. The SPARC is differentiated from other RISCs in that it uses a large windowed register file to maximise performance and simplify compiler design. In its initial incarnation, 120 32-bit registers are organised into seven register windows. Special tagged instruction types support artificial intelligence languages, and the fact that the entire design requires only 50,000 transistors means that it can be reimplemented in new chip technologies quickly. Sun says work on faster implementations are already well down the track (see page 2) - and the company sees 100 MIPS on the desk-top by 1990. It sees SPARC applications in parallel processing, robotics, embedded intelligence and communications as well as workstations and servers.

Price Cuts

The workstations include the entry-level Sun-4/260, available now, which has 8Mb of main memory and a 19" monochrome monitor priced at £35,000, $39,900 in the US, and a version with 32Mb memory and colour monitor with 560Mb disk subsystem and 60Mb cartridge tape is around over £70,000, $85,500 in the US, but will not be available until October. An upgrade from the Sun-3/260 to the 4/260 is available through a CPU board swap for £11,700. The 4/200 servers are available in pedestal and cabinet packages with the entry 3/260 model with 8Mb memory costing £33,000. The 4/280S in cabinet packaging with 32Mb memory, 1.2Gb disk and half inch tape drive comes in at £90,000. Sun says that the new series development has been driven by its customers demanding more performance. Predictably Sun has repriced the existing product range which means that the bottom-end 3/50 now costs about £4,000; the 3/100 start at £11,000; and the 3/200 now starts at £25,000. Sun adds that it will be making major announcements every two weeks between now and the end of this year and in three weeks' time will improve graphics performance. Sun also introduced the Symbolic Programming Environment, a set of software tools for development of artificial intelligence applications on its workstations. The new tools, designed to improve productivity and ease program development in Lisp, offer "the first true symbolic programming environment for general-purpose workstations", says Sun. The Symbolic Programming Environment lists for $3,500 and will be available in the first quarter of 1988 for the Sun-4 and Sun-3 workstation lines.

MIPS ANSWERS 10 MIPS CHALLENGE AND CUTS CURRENT RANGE PRICES

As well as defending its customer base against the 80386 onslaught (UX No 136) MIPS Computer has answered the workstation/server challenge from Sun and Apollo with a 10 MIPS system starting at around $41,000. The RISC-based M/1000 is intended as an applications server for OEM customers building Unix-based systems. last week MIPS announced that it would be selling its RISC microprocessors alone instead of as a board-level product - the new M/1000 will also be sold unbundled. The M/1000 uses MIPS' new R2800 CPU board which contains a full-custom, 32-bit CMOS microprocessor, the MIPS R2000 CPU. The board has high-speed instruction and data caches, separate buses for I/O and computation, memory interface circuitry and a co-processor interface to its R2010 Floating Point Accelerator. MIPS offers an upgrade for its existing customers which involves a board swap from the R2300 or R2600 to the new R2800, costing $11,500. MIPS also announced that Informix Corp, Relational Technology Inc, and Unify Corp will all be porting their relational database products onto its M series. CAD software from Meta-Software and ECAD will also be available on the M Series. The Meta-Software package is HSpice derived from the Berkeley Spice program used for modelling integrated circuit designs. The ECAD product is the Dracula integrated circuit layout verification suite. a DECnet compatible communications package sold by Technology Concepts Inc called CommUnity is also being ported to the M Series. Like Sun MIPS has cut the prices of its existing machines by about 40%. The bottom of the range M/500 boasting 5 MIPS performance now costs $24,000 for an entry-level system in single OEM quantities and a "typical configuration" is priced at $43,900. The 8 MIPS M/800 has an entry-level price of $29,785 and with the R2010 floating point accelerator, Ethernet, disk, tape, Umips implementation of Unix, Fortran and NFS the cost is $68,000. As well as price cutting another similarity to the Sun strategy is MIPS' commitment to doubling the performance of its machines every year adding that because it was the first company to implement RISC in VLSI "no-one will be faster faster". MIPS is currently delivering in 2 micron CMOS and says that by going to 1 micron performance would be improved substantially and the current implementation could be tweaked by circuit designers to get improved performance. MIPS, with 135 staff, now claims 60 customers worldwide one of which is working on a secure implementation of Unix for announcement this autumn. Over the next three months MIPS will be setting up offices in France and Germany.

LITTLE FOR ANYONE's COMFORT IN INTEL's PROBLEMS WITH, POLICY FOR, THE 80386

The 80386 chip promises to become the biggest moneys-pinner of all time among microprocessors, and fortunes will be made and lost on it. A host of companies are crucially affected by availability of the chip, and boardrooms on either side of the Atlantic are populated by executives with churning stomachs and bitten fingernails. The Microbytes Daily newswire has been assessing the combination, and finds little immediate cheer for the host of manufacturers anxiously awaiting 80386s in the number they need - and finds that Intel Corp is playing a decidedly dangerous game in its efforts to keep the entire business for itself. Several weeks ago, Intel announced that, because of a 32-bit arithmetic execution problem, the 80386 would have to be remasked and production would slow down, putting chips in short supply until the end of the year. By that time, it said, the company would have delivered between 500,000 and 1m. But while Intel is still saying that it remains "on track to hit this goal," it reports that within the past few weeks, "demand for the 386 has tripled" and that greater shortages and longer delays than expected would be likely, adding that full production of the remasked chips is not expected before the end of July at the earliest.

In worse shape

But at least one industry watcher contacted by Microbytes reckons that "by the end of the year, the supply and demand situation will be in worse shape than Intel says. At this time, the only way they can meet the commitments they've made is to dump all the parts on customers all at once in the fourth quarter, and companies won't have any chance to gear up manufacturing in a normal fashion." If the faulty arithmetic-logic circuits are avoided, the 80386 effectively becomes a 16-bit chip working in the real only and not the protected mode. Customers currently report that they can get all of the 16-bit 386s they want but the remasked ones are under allocation. On the other hand others believe that Intel's main customers, IBM, Compaq, PCs Limited, for example - are getting all the 80386 chips they want, while smaller customers, particularly those in the Far East, aren't getting any at all. Others affected by the low availability of the 80386 include other chipmakers like Chips & Technologies, the company that puts together those super-attractive PC-DOS cloning kits. "We can't ship 386 chip sets without 386s out there," it says. "The market is being held back just at the time it should be ramping up." What of Intel's efforts to keep the 80386 all to itself, and not allowing even its contracted second source, Advanced Micro Devices, have a crack at the part? An Intel official, Gene Meieran, is quite open about the policy, saying that single-sourcing will be increasingly important in the semiconductor industry, and that customers prefer "a small number of reliable suppliers instead of a large number of questionable suppliers." Intel elaborates, saying "Instead of going to second sources, we are spreading our fabrication plants out around the world." Intel currently has two 80386 fabrication plants in operation, one in Livermore, California, and another in Jerusalem, Israel, and it plans to open one in Oregon by the end of the year and a fifth in Albuquerque early in 1988. Meantime the dispute between Intel and Advanced Micro over AMD's claim that it has the right to second-source the 80386 appears to be no closer to resolution than before, and neither company wants to forecast when it will be resolved.

The dispute began in April when Intel unilaterally cancelled the 10-year technology exchange agreement with AMD initiated in 1981, alleging non-payment of some royalties. AMD wasn't buying that one, and the issue is now in binding arbitration, as called for in the original agreement. AMD's declares that it provided devices that fit Intel's needs and thereby built up points - the basis on which a second source gets to move on to the next key part. It is demanding masks to both the 80386 and to the 80X87 maths co-processors. But AMD acknowledges that Intel has enough capacity to make the 80386 itself - and that's what it's going to do. But apart from the possibility that AMD will come out the victor in the arbitration, and the problems caused by the bug and the need to remask, Intel has two other nagging concerns to worry about. The first is an agreement it had little choice but to sign with IBM. Some Intel customers reckon that one of the real reasons Intel wishes to remain the single source of the 386 is that IBM of course has an option to fabricate the chip. If IBM decides to pick up that option - and the bug in the original mask is just the kind of irritation that will spur it to take the thing into its own hands - supply would be less of a problem and prices would drop. And IBM has the right not only to make the chip as is, but also to alter the microcode - "and you can damn well bet that they will, probably within the next couple of years," says one party. If there are any winners in the current and future 80386 high-price-low-quantity cycle, say some hardware manufacturers, it will probably be the software developers. "With fewer 386s coming out in the short term, the opportunity exists to improve the quality of the software," one developer declares. "It remains to be seen if the industry responds this way."

Just like a 386

Another manufacturer added that he doubts that software developers are "sitting still" just because the hardware isn't there. All parties are in agreement, however, that the short-term losers will be the 80386 clonemakers, who, as one person puts it, "have to get things out there now and cheap. Clonemakers will have a hard time." In the long term however, the US chipmakers seem to be in a no-win situation. Motorola has decided that it will ignore pre-existing second-source agreements and keep the 68020 and 68030 to itself, but the policy is likely to be seen to have backfired in a year or two. Because one of those jilted second sources, Hitachi Ltd, has designed its own compatible superset of the 68020, and it is likely to come to market at about the same time as the 68030. Although unlikely to be fully compatible with that device, it will be as compatible with the 68020 as the 68030 is, so that it will almost certainly provide the likes of Sun and Apollo with all they can get from the 68030. If Motorola has any trouble with the new part, or attempts to keep prices up, Hitachi will get its entree to the market. And one hardware manufacturer impatiently awaiting deliveries of 80386s, reckons that with its sole-source policy, Intel is exposing itself to a similar threat. "If they delay long enough," he says, "they may not be the only player when the market is really huge. We know of several companies that are working on chips that act just like a 386 but aren't, and Intel won't be able to claim any infringement. Intel may have gone too far this time in banking on an established market."

UNISYS ENTERS EDUCATIONAL MARKET WITH ICON CPU, UNIXALIKE

Unisys Corp has entered the computers-for-schools market by acquiring worldwide rights to an 80186-based machine and companion Unix-like software that was conceived by the Ontario Ministry of Education, Canada. The machine, called the Icon, runs the QNX Unixalike from Quantum Software Systems Ltd - QNX is marketed in the UK by Genus Ltd of Edinburgh - and is designed to be used with a server, up to 32 of the Icon micros being supported by the server. Key features of QNX include a Smalltalk-like user interface, and communications built into the kernel. The Icon machine was originally designed and manufactured by Cemcorp of Toronto and marketed by Burroughs Corp of Canada, but now that Unisys has world-wide marketing rights for the machine from Cemcorp's parent, Meridian Technologies Inc, it is getting the machine made by Lucky-Goldstar Group in Seoul, South Korea. Unisys sells the Icon Series workstation at $1,895 with 1Mb 80186 processor; Microtel of Toronto makes a 70Mb file server for it which sells for $8,990. Educational applications for the Icon Series have been developed by Learning Connections, a Unisys company also based in Toronto. An emulator program to support MS-DOS applications is available as an option under QNX, says Computer Systems News.

PARADOX GAINED: BORLAND TO ACQUIRE ANSA

Borland International Inc, quoted on London's Unlisted Securities Market, announced last week that it had a preliminary agreement to acquire Ansa Software Corp for 8.85m shares, valuing the company at an indicated $37.4m. Privately-held Ansa is the developer of the Paradox PC-DOS relational database manager, which is currently being converted for a Unix environment, that responds to near-English questions using query-by-example. Ansa was heavily backed by the Sevin-Rosen venture capital partnership, and promises to provide Borland with a solid long-lived product to complement its mass of low-end products. Borland says Ansa's turnover would have accounted for 25% of the combined total of the two firms in the year to March 31; Ansa lost $1.4m in the year to December 31, but looks to move into profit this quarter. Under the share exchange agreement, Ansa will account for 13.4% of the enlarged equity.

INFORMIX UNDERWRITERS EXERCISE OPTION TO BUY ADDITIONAL SHARES

Informix Corp, Menlo Park, California says its underwriters, Hambrecht & Quist and Smith Barney, Harris Upham & Co, exercised their over-allotment option to buy 183,975 additional shares at a price to the public of $19.25 per share, for aggregate proceeds to Informix, after underwriting discounts, of approximately $3.36m, following its second public offering which closed June 12. Informix raised a total of $18.25m from sale of 1m shares.

CONVERGENT DOES DEAL TO SELL UP TO $40m OF LEASE CONTRACTS ON TO CHASE

Convergent Inc, San Jose has done a deal with Manhattan Leasing Co of Los Angeles that will enable it to sell to Chase up to $40m of customer lease and instalment sale contracts. The agreement has already been activated, with sale last of a portion of the contracts originated by Convergent's wholly owned Baron Data Systems. The $21.3m proceeds were used to establish an interest bearing reserve of $3.2m to retire all of Baron's bank term loan of approximately $9.4m, and with the balance, to increase the company's cash position by $8.7m. Convergent is also forming a separate operation to provide lease and installment sales finance to its customers, and says that the agreement with Chase represents the first step in that process. The company points out that the initial Chase financing adds to an already strong liquidity position.

BBN ADDS LISP TO BUTTERFLY RANGE

BBN Advanced Computers Inc has added Butterfly Lisp claiming it to be the first large-scale shared memory multiprocessor Common Lisp. BBN says that the high-level language running on the Butterfly parallel processor preserves the natural shared memory characteristic of Lisp. Butterfly Lisp supports Scheme and Common Lisp dialects in both interpreted and compiled modes, and the Cambridge, Massachusetts has "extended it to support a multiprocessing environment". A mechanism called "future" allows a process to create multiple parallel computations that are automatically distributed to other processors and also provides automatic synchronization, allowing the programmer to develop parallel code as he would with conventional Lisp programs. This implementation of Lisp is part of BBN's strategy to provide a computer that seems like a conventional system, but has the power of an "extraordinary computer," Paul Castleman, president of BBN Advanced Computers, said. Butterfly Lisp allows a single Lisp program or multiple programs to run on up to 256 tightly coupled processors. A performance analysis facility is included in the implementation that allows programmers to analyse the dynamic behaviour of programs to help debugging and improve program performance. The facility graphically displays the evolution of an algorithm once it is run on the Butterfly system, allowing the programmer to identify threads of parallel control and the interactions among them. A mouse can be used to point to a thread of control in order to display the source code that created it. Run-time information about the state of each processor is displayed graphically. BBN adds that status information is available for the numbers of tasks waiting to be executed, effective processor utilization and the rate of memory consumption. C language primitives can be called from Butterfly Lisp to solve complex mathematical equations such as fast fourier transforms. Butterfly Lisp will be entering beta test in September, and will be priced at $12,000.

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Minigrams

Control Data has a $13.7m five-year contract from the Aeronautical Systems Division of the **US Air Force** for a Central Datacomm System that will eventually put up to 1,500 users on-line to a complex of CDC, **Cray**, **DEC** and other machines installed at the Information Systems & Technology Center at Wright-Patterson Air Force Base in Ohio; **Tolerant Systems** gets a $3m subcontract for fault-tolerant Unix CPUs.

- o -

Zeta-Soft Ltd of Massachusetts has launched Zeta-C - a compiler and development system for the C language for **Texas Instruments'** Explorer artificial intelligence line.

- o -

NEC Corp, through its **NEC Technology UK** subsidiary, will manufacture printers, personal and business computers in the UK for the European market - but it is not about to start rushing things: according to the **Yomiuri Shimbun** daily paper, printer manufacture will start in about two years, and computer manufacture will start in around 1991.

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Perkin Elmer Corp has installed $1.2m of **Intergraph** CAD/CAM systems and has already used them in designing and manufacturing parts.

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Alliant Computer Systems Corp says that its second quarter revenue - at $13.2m, approximately $2m less than projected, will mean that profit for the period will come out at about 40% less than the $2.5m that it achieved in the first quarter: Alliant blames orders in the pipeline that did not arrive in time for delivery during the quarter; the news sliced a hefty $7.25 off the Alliant share price to $22.00.

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Dansk Data Elektronik is getting the Winchesters for its Supermax Unix machines from **Priam Corp** under an OEM pact of undisclosed value.

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Imperial Software Technology of London has already ported its Integrated Project Support Environment, ISTAR, to the Sun-4 System.

Life assurance company, **Liberty Life**, has installed a **Sequent** Balance to run Oracle's RDBMS.

- o -

PA Consulting Group has purchased the rights to the **Cambridge Graphics Ltd** product line from the receiver for an undisclosed sum, and taken on what it describes as Camgraph's key people at its computer aided engineering laboratory at Royston, Hertfordshire: Stephen Rout of Peat Marwick McLintock was appointed as receiver after Camgraph's backers, which included venture capital outfit **Advent** and merchant bank **Schroeders**, pulled the plug; PA says the acquisition of Grape, the graphical programming environment, and Camgraph's other nearly-finished products such as an expert system shell for a Welsh water authority, gives it a computer-aided engineering expertise unrivalled in Europe, with its expertise in time-sharing computers, serial devices and data management being complemented by Camgraph's in Unix, C, workstations and graphics.

- o -

We hope that no-one over here has got the mistaken impression that the MS OS/2 operating system will run only on **IBM's** Personal System/2 but the misconception is so wide-spread that **Compaq Computer** begins to think that it has gone too far touting the MS-DOS standard as the "industry standard that has been deserted by **IBM**" that it this week rushed to undo any damage that might have been caused: it declares emphatically that OS/2 will run on its machines, and that it has sent out free Compaq Support Kits to more than 300 firms that have bought the **Microsoft** OS/2 Software Development Kit - the Support Kit enables developers to take advantage of the enhanced disk partitioning and a protected mode version of the internal tape back-up on Compaq 286 and 386 machines; Compaq will ship OS/2 early next year.

Compaq also reckons it might well become a billion dollar company this year, and in an interview with **Reuters**, president Rod Canion, while declining to make a firm forecast, declared that sales growth in the second half should match the 60% to 70% achieved in the first half: sales in 1986 for the Houston firm came out at $625m.

- o -

Spider will be opening new offices away from its home of Edinburgh, Scotland in Wokingham, Berkshire as well as opening a development facility in Edinburgh.

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Intergraph Corp has been awarded a "multi-million" dollar contract from the **United States Air Force** Logistics Command to implement its CAD systems in the Command's Engineering and Services organisations.

- o -

SMB Business Software from **Thorn EMI Datasolve** is now available on Siemens machines running Sinix - the Siemens implementation of Unix.

- o -

BIS Banking Systems of Wimbledon, London has introduced a bond dealing system for the IBM 6150, RT Bond, and announced the first order for the system from the London-based arm of **Tokai International** from Japan.

- o -

Triad Computing Systems of Guildford, Surrey has supplied TV- am with a text retrieval system based on Mexex's HyperSearch software running on Gould's PN6040 Unix-based hardware; costing £120,000, the system replaces 150,000 index cards and provides journalists working in the News Information Unit with fast access to video tape material.

- o -

Tom Cull, Unix guru and former chief of **Interactive Systems** will talk at a three-day conference, sponsored by **Sphinx**, entitled "Open Software '87" which will examine the current market and technical status of Unix to be held at London's Cafe Royal from 6th to 8th October.

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Number 139

GEC COMPUTERS ABANDONS SERIES 63 UNIX MINI TO STRESS REAL-TIME ON 4100

With sales still in little more than single figures after five years of marketing its Series 63 Unix minicomputer - the white hope machine developed in the US with GEC's A B Dick office systems company - GEC Computers has thrown in the towel on the machine and put it on a care-and-maintenance basis, with the promise that the handful of users will continue to be supported - for at least another seven years. The tiny computer manufacturing and marketing company within the big GEC group will divert all resources and personnel which had been employed on the Series 63 back to the original mainstay of the business, the bit-slice Series 4000, specifically the current 4100 generation of 32-bit machines and its highly-regarded Nucleus operating system kernel. Long a neglected backwater within the company, GEC Computers is now promised a place in the sun, with the acquisition of Micro Scope Plc the first of several steps in a programme planned to take the firm into new commercial sectors. Further acquisitions are also promised. The 4100 will be steered more firmly into value-added network, process control and other real-time applications. GEC's Unix thrust will now be with the Series 21 and Series 42 workstations bought OEM from Sun Microsystems.

PRIME, SILICON GRAPHICS CUTS WORKSTATION TAGS

Latest entrant to the workstation price-cutting war is Prime with its PXCL 5500 3-D graphics workstation developed by Silicon Graphics. Only a month after shipments of the MIPS RISC-based workstation began the price has been slashed from £63,100 to £55,100. Prime has also added a 'Turbo Option' to the 5500 which according to Prime allows the workstation to process one million floating point operations per second. Priced at £6,000 the option is a CPU board upgrade which is rated at 10 MIPS. This follows MIPS Computer's launch of its 10 MIPS R2800 processor board and is probably in answer to Sun Microsystems' 10 MIPS Sun- 4 workstation and announouncement that it will be improving graphics capabilities within the next week or so. Sun has recently acquired Trancept Systems Inc which develops and sells graphics and applications accelerators. Prime sees the Turbo Option being taken up in applications such as: finite element analysis and modelling; fluid flow dynamics; molecular models; medical illustrations: and animation. The company also announced that it will be giving away free an implementation of its programmer's hierarchial interactive graphics system (PHIGS) called Figaro with each PXCl 5500. The PXCL 5500 Turbo Option will be available from Prime during the fourth quarter. Silicon Graphics is marketing the Turbo Option as the Iris 4D/60T and has separately announced an addition to the bottom- end Iris 3100 family in the shape of a 2 MIPS 3115 that comes in at $24,900. It uses a 16MHz 68020, has up to 72Mb disk, eight colour bit planes and a 19" colour monitor. Silicon Graphics has also cut the price of the existing 7 MIPS 4D/60 machine by around 13% to $64,900.

CONVERGENT LOOKING TO GROW BUSINESS SYSTEMS IN EURPOE

Convergent Inc, which edged back into profit last quarter is hatching plans to expand its growing Convergent Business Systems unit into Europe. Business Systems, formed by acquiring or investing in companies dominant in niche markets, contributed $40.1m to Convergent's $104m revenues in the quarter, although the unit lost money. A $2.8m profit at the Convergent Technologies systems manufacturing arm, which makes the [NGen workstation and S Series Unix machines, follows a programme to consolidate and cut costs in the mainstream OEM business, and was enough to provide Convergent Inc with a $130,000 profit overall. Convergent's strategy with the Business Systems unit has been to reduce its dependence on the volatile OEM market by diversification; the losses at the unit are attributed by the company to costs associated with building up the business including the cost of converting the products of the consituent parts to run on Convergent hardware. Andrew Bissex, formerly Convergent European marketing manager, is to head the Business Systems effort in Europe, which is in the early stages of seeking out suitable companies with the eventual aim of making acquisitions along the lines of the US operation.

UNISOFT, INTEL MOVE INTO UNIX MAINFRAME WORLD

Unisoft and Intel have joined forces to produce a communications control unit for Unix mainframes. The 9750 CU/X is a customised version of Intel's FastPath control unit. Under the leadership of Donal O'Shea Unisoft will have exclusive rights to sell the control unit and Intel will provide worldwide service, support and training for the 9750 CU/X. Unisoft is convinced that the Unix mainframe environment is a viable and growing market citing figures from the Gartner Group which puts the current total of Unix mainframes at 315, with Amdahl mainframes heading the list with 150.

SOFTWARE DEVELOPERS ARE IN NO HURRY TO DO SOFTWARE FOR IBM's 80386 BOX

Designers of mathematics and engineering software are impressed by what they've heard about the speed, memory, and graphics capabilities of IBM's 80386-based machine, the PS/2 Model 80 - but they're not staying up late writing programs for it until they have a new operating system, reports Microbytes Daily. Computer-Aided Design and engineering programs will put the Model 80's 32-bit capabilities to good use - "for these applications, we can never have enough speed, RAM, and hard disk space," says Ken Blakely of MacNeal-Schwendler Corp, Los Angeles, which does CAE software that performs finite- element analysis. Load-testing models for stress and heat transfer often involve tens of thousands of variables; but until Microsoft finishes the OS/2 operating system for IBM, software development is stalled, Blakely says. Depending on the availability of OS/2, Alice Cox of Minuteman Software, Stow, Massachusetts says she expects a high- end product for the 80386 sometime in the first or second quarter of next year. Minuteman makes a memory-intensive simulations package for modelling engineering systems, and the 80386 version will use more RAM and enhanced graphics, Cox says.

Sitting quietly, waiting

Swanson Analysis in Houston, Pennsylvania says it is "sitting quietly, waiting for an operating system. There's absolutely nothing we can do at the present time." The obvious alternative is of course to forget about the wait for OS/2 and go for Xenix or something else, and a few companies have decided to sidestep the Microsoft/IBM operating system. For instance, Alligator Technologies, which develops data-acquisition and analysis software in Costa Mesa, California, says it will soon release a program that uses hard- coded memory mapping. According to Robert Galter of Alligator, this technique works outside of PC-DOS and enables the company's Prime Factor FFT 2-D program to use the full memory capabilities of the new machine. But there's a catch. To use the hard-coded memory addresses, you need to dedicate the system to Alligator's program, since the operating system doesn't "know" what memory the program has used. But according to Alligator, this limitation is a small price to pay for so much RAM, and most users would run the program on a dedicated system anyway. The program performs Fast Fourier Transform calculations for image processing and for real-time frequency analysis and can run under MS-DOS. Some software houses said that even when OS/2 becomes available, they won't be developing any packages specifically for IBM's 80386 machine. STSC Inc in Rockville, Maryland for example, is developing a statistics/graphics program to run on Compaq's Deskpro 386. Larry Pfortmiller of Foresight Resources, Lawrence, Kansas, which develops the Drafix computer-aided design series, says "there's not a lot of reason to move into another operating environment. We can't afford to get into an operating system that is an added cost to the end user. Before Foresight develops an 80386 package, it will consider developing its graphics program for Xenix, Pfortmiller says.

IBM LIFTS VEIL ON COMPREHENSIVE MID-RANGE PRODUCT PLANS

IBM has suffered such a mauling at the hands of competitors led by DEC in the mid-range of the computer market that the company is taking unprecedented steps to convince the world that the bad old days of incompatible offerings and rival product managers who squabble among themselves really are over. The latest step was a briefing for analysts in Dallas last week at which the company discussed future product plans in unusual detail. Needless to say, much of what was said has been leaked straight to the press. There seems to have been a rethink on Systems Applications Architecture already, and RPG is now included, while the AIX implementation of Unix is not. The word now on AIX is that there will be a "parallel Unix product line". When the Personal System/2 was announced, IBM said that a date for release of a subset of AIX for PS/2 would be notified in the fourth quarter: the company is now saying that it will be available in the first half of next year - and we now know that Locus Computing Corp is doing much of the work (UX No 136). IBM reportedly told the analysts that it was putting an end to internal rivalries left over from the GSD-DPD days by bringing everything together in a co-ordinated single mid-range effort within the System Products Group. As for specific products, the company hinted at yet another series of enhancements for the much-maligned System 36 in the fourth quarter, followed by the Silverlake machine that brings together the System 38 and 38 operating environments in a single machine - in early 1988, probably February. The current promise for Silverlake is that it will combine the file structures of System 38 with the (relative) ease of use of the System 36, and will include rack-mountable models. IBM also hints that the DB2 relational database manager and SQL Structured Query Language may also be added on Silverlake at some stage. However for those impatient to liberate all the functionality of the 9370 with appropriate software, the news is surprisingly bad: while an implementation of the MAP Manufacturing Automation Protocol is promised for the fourth quarter of this year.

500,000 TRANSPUTER CENTRE FOR BRISTOL POLYTECHNIC

A £500,000 initiative to encourage British industry to exploit the capabilities of the revolutionary Inmos International Transputer microprocessor came to fruition this week with the opening of the Bristol Transputer Centre on the campus of Bristol Polytechnic. Funding came from the poly, from Inmos and from the Department of Trade & Industry, and the aim of the centre is to provide information on Transputers and their applications, and to develop short courses, workshops, applications notes and in-house training packs. The location was chosen because a research group at the poly is already working for clients on applications in knowledge-based systems and databases. Equipped with a 40-Transputer system, the centre will also conduct feasibility studies for clients.

NOW HITACHI ANSWERS IBM SYSTEMS APPLICATIONS ARCHITECTURE

Japanese companies are rushing to come up with their own versions of IBM's Systems Applications Architecture, and following Fujitsu's introduction of System Integrated Architecture in May, Hitachi has unveiled Hitachi Application Architecture. The first product to support the new programming environment is the 68020-based 2050/32 Unix workstation. Hitachi Application Architecture is designed to international standards, and will be supported for IBM-compatible mainframes and Unix-based workstations. It implements three common interfaces, the Application Programming Interface for development of applications on any machine implementing the architecture; Communication Support Interface, designed to enable applications on dissimilar machines to communicate; and Common Operation Interface, which is the operating system interface to which developers have to write in order to ensure portability. The new 2050/32 workstation incorporates a Hitachi Token Ring Network local area network interface. It will be available in October. Meantime Fujitsu's System Integrated Architecture is slightly more ambitious than the Hitachi offering in that it is designed to be used on personal computers as well as workstations and mainframes. Fujitsu is offering the new architecture as part of an overall Systems Development Architecture and Support Facility, which in addition provides Tool Use Standards to support automatic program generation from design specifications, and Package Use Standards, designed to simplify development of packages for vertical markets. It also implements an overall Systems Planning Method.

UNISYS UNVEILS BTOS II

Underlining the problems IBM faces with its System 36, widely regarded as old-fashioned, Unisys Corp has already dumped the proprietary Burroughs machines that were aimed at the same market, and has turned the BTOS line of iAPX-86 family derived from the Covnvergent Technologies N-Gen line as its flagship product for the System 36 end of the market. And this week, Unisys launched the protected-mode version of BTOS, BTOS II, derived from Convergent's new CTOS/VM operating system that is designed to run multiple MS-DOS tasks and to support System V as well as running CTOS/BTOS applications (UX No 103). It enables the 80386-based B38 and 80286-based B28 to access up to 4Mb of user memory and take advantage of variable memory partitioning. BTOS II also provides data transfers within clusters of up to 64 workstations at 1.8M-bits per second. Unisys also announced a "positive polarity" monochrome black-on-white monitor in $490 12" and $1,150 15" versions - Unisys says you're dead in Europe without flicker-free black-on-white these days. An $1,210 graphics adaptor puts up 720 by 348 pixels and supports line drawing and rasters. UK pricing and availability of the new operating system will be announced next month.

BACK TO BASICS AS DATA GENERAL CLOSES EUROPEAN HEADQUARTERS IN PARIS

Data General Corp last week announced a major restructuring programme that caused it to take a $53.8m charge leading to a $65m loss for the third quarter. The restructuring includes the closure of three US facilities as well as the European headquarters in Paris. All told, 950 people are to be made redundant worldwide, and 30 of the 70 people employed in Paris will lose their jobs. The four European regional operations - UK & Ireland; Central - the German-speaking countries; North - Scandinavia and Benelux; and South - France, Italy and Iberia will now all report direct to corporate headquarters in Southboro, Massachusetts. The company says that the Paris closure is the culmination of a four-year plan to give the regions more autonomy, but the move was clearly hastened by the need to cut costs. In an interview with the New York Times, co-founder and chief executive Ed de Castro declared frankly that the company has made a number of mistakes over the past three or four years. Most important was the strategy of pursuing large corporate accounts - those people want to buy from companies their own size and are increasingly standardising on DEC and IBM kit. Another mistake, said de Castro, was not being quick enough in pursuing Sun Microsystems in Unix workstations. He also says the company dispersed too much organisationally and geographically. His strategy now is a return to basics, concentrating on Data General's traditional OEM and reseller markets.

MOTOROLA REINSTATES CODEX NAME FOR THE UK

Motorola Information Systems Ltd in the UK has changed its name back again to Motorola Codex, as if to admit defeat in its attempt at making money out of selling computer systems. Motorola bought Phase Four Systems of Cupertino, with bases at Tempe, Arizona and Dallas, Texas in 1982 and never succeeded in turning the computer business into a viable proposition, even after pushing the whole thing through its Value Added Reseller scheme, called Freeway, where companies sold Motorola's kit, made up of Convergent Technologies Unix machines and the key-to- disk systems it acquired from Four Phase Systems, into market niches. Anyway the Codex name was always maintained in the US, and is the one known the world over, including the UK. Some of the UK management trickled away from the company earlier this year and new man in the hot seat at the UK company's Wellington headquarters in Surrey is John Richardson, who left bankrupt PABX- maker Z-Tel Corp of Wilmington, Massachusetts as senior vice president for Europe earlier this year.

COMPANY RESULTS

Alliant Computer Systems Inc has reported second quarter net profits up 148.1% at $1.729m after tax credits of $580,000 this time and $325,000 last, on turnover up 125.4% at $13.4m; mid-term net rose 259.9% to $4.2m after tax credits of $1.451m this time and $543,000 last, on turnover up 155.3% at $25.3m. Net earnings per share rose 100% to $0.16 in the quarter, 179% to $0.14 in the half.

Amdahl Corp has reported second quarter net profits up 1,048% at $31.0m on turnover up 63% at $341m; mid-term net rose 1,002% to $56.2m on turnover up 61% at $659.5m. Net earnings per share rose 900% to $0.60 in the quarter, 909% to $1.11 in the half.

Apollo Computer Inc has turned in second quarter net profits up 630% at $7.6m on turnover up 50% at $132.2m; mid-term net rose 788% to $14.0m on turnover up 50% at $255.6m. Net per share rose 600% to $0.21 in the quarter, 680% to $0.39 in the half.

Control Data Corp has reported a second quarter net loss of $5.5m after an extraordinary gain of $100,000, down from a loss last time of $7.8m which included an extraordinary charge of $600,000, on turnover down 5% at $785.9m; mid-term net profit was $1.7m after an extraordinary gain of $900,000 against a loss last time of $29m that included an extraordinary gain of $2.5m, on turnover down 1% at $1,610m. Net per share was $0.03 in the half.

Data General Corp has reported a third quarter net loss of $65.1m after a $53.8m restructuring charge, up from a loss last time of $2m, on turnover down 3.6% at $313.6m; nine-month net loss was $104.4m after the restructuring charge and an $18.2m charge from redemption of debentures, up from a loss last time of $2.6m after a $3.8m charge from debenture redemption, on turnover up 0.4% at $937.9m.

Computer Consoles Inc has reported second quarter net profits of $885,000 after a $255,000 tax credit, against an $886,000 loss last time, on sales up 8.2% at $35.8m; mid-term net profit was $1.7m after a $560,000 tax credit, against a loss last time of $6.5m, on sales up 31.5% at $71.4m. Net per share was $0.07 in the quarter, $0.13 in the half.

Digital Equipment Corp has reported fourth quarter net profits up 58% at $377.3m on turnover up 22% at $2,670m; net profit for the year to June 30 soared 85% to $1,140m on turnover that rose 24% to $9,390m. Net earnings per share rose 57% to $2.85 in the quarter, 77% to $8.53 in the year.

Informix Corp has reported second quarter net profits up 157% at $1.2m on turnover that rose 98% at $9.1m; mid-term net rose 145% to $2.0m on turnover up 86% at $16.3m. Net earnings per share rose 100% to $0.14 in the quarter, 85% to $0.24 in the half.

Prime Computer Inc has reported second quarter net profits up 37.3% at $15.6m on turnover up 12.1% at $236.0m; mid-term net rose 33.3% to $27.6m on turnover up 12.4% at $457.7m. Net per share rose 25% to $0.30 in the quarter, 25% to $0.54 in the half.

Sequent Computer Systems Inc has turned in second quarter net profits of $1.2m after a $319,000 tax credit, up from just $59,000 last time, on turnover up 81% at $9.1m; mid-term net profit was $2.0m after a $497,000 tax credit, against a loss last time of $1.7m, on turnover that rose 130% at $16.6m. Net earnings per share rose 1,500% to $0.16 in the quarter and were $0.30 in the half.

Tandon Corp has reported third quarter net profits of $5.6m against a loss last time of $20.3m after a $627,000 charge for reversal of a tax credit, on turnover up 57.9% at $82.8m; nine-month net profit was $11.7m against a loss last time of $17.5m, on turnover up 51.3% at $238.6m. Net per share was $0.10 in the quarter, $0.21 in the nine months.

Texas Instruments Inc turned in second quarter net profits up 403% at $61.9m after tax credits of $12.7m and a pre-tax gain of $29m from settlement of patent infringement suits, on turnover that rose 10% at $1,370m; mid-term net profit was $145.7m after a $21.8m tax credit and a pre-tax gain of $138m from the patent settlement, against a loss last time of $11.5m after a loss of $10.8m on redemption of debentures, on turnover that rose 10.6% at $2,643m. Net earnings per share, adjusted for a three-for-one split in June, rose 508% to $0.73 in the quarter and were $1.77 in the half.

Unisys Corp has reported second quarter net profits up 56% at $121.2m on turnover up 70% at $2,280m; mid-term net rose 151% to $231.4m on turnover up 90% at $4,690m. Net earnings per share, adjusted for a three-for-one split this month, rose 15% to $0.62 in the quarter, 80% to $1.19 in the half. The figures include those of Sperry Corp from the date of its acquisition in September 1986.

Zenith Electronics Corp saw second quarter net profits of $300,000 against a loss last time of $9.9m on turnover up 41.5% at $538.5m; mid-term net was $1.3m after a pre-tax gain of $2.2m from the sale of property, on sales up 38.9% at $1,085.3m.

BRITTON LEE GOES ON THE OFFENSIVE WITH STRING OF NEW DATABASE PRODUCTS

Britton Lee Inc this week introduced three major new products, headlined by the BL300 Shared Database Systems intended to address the need to share SQL relational databases between IBM Personal computer workgroup systems and departmental systems such as the DEC VAX line. The BL300 Series systems can attach to multiple host systems such as IBM PC-DOS, DEC VAX/VMS, AT&T Unix System V, and Apollo and Sun workstations. The new models of Britton Lee's BL300 Shared Database Systems range in price from $17,950 to $90,950, plus software licence fees. The BL300 series consists of four models differentiated by disk storage capacity and backup devices.

Dedicated Database Processor

All models of the BL300 Shared Database Systems contain a dedicated database processor, 4Mb memory, slots for communications to the host systems and a variable amount of disk storage for the relational databases. All run Britton Lee's Integrated Database Manager software which provides SQL relational database management. "The conventional approach with a software only database facility on each micro and departmental system usually provides for limited or no database sharing with the other systems," the company said, "It has expensive disk storage replicated on each system, and a substantial portion of the computer's processing capacity is used doing database management. Those costs greatly exceed the price of the Britton Lee Shared Database System alternative." The idea of the Britton Lee system is that the application programs execute in the host systems, such as the IBM Personal or DEC VAX, and the relational database software executes in the Britton Lee system. The BL300 attaches to the host systems via Ethernet or RS-232 communications links. Software licence fees for Version 1 of Britton Lee's Integrated Database Manager are in addition to the systems prices, and range from $10,000 to $85,000 depending on the BL300 model and also the size of the host computer system to which the system is attached. IDM is described as a full function SQL relational database facility which off-loads the database function from a host computer into the Shared Database System. A special PC Starter Package is available for use with the BL300 Model 20 and 25 systems at the bundled price of $7,000 for 10 Personals and one BL300 system. It consists of Britton Lee Integrated Database Manager host PC system resident software, IDM/RDBMS software that provides SQL relational database management on the BL300 Models 20 and 25 and PC/SQL-Link software for the IBM PC-DOS systems. PC/SQL- Link offers menu-driven SQL language generation, allowing Personal users who are not familiar with the SQL relational database language to access databases stored on the Britton Lee System. The BL300 Model 20 consists of a database processor and memory, 63Mb of disk, expandable to 126Mb, and cartridge tape back-up in a floor standing tower. System price is $17,950. The Model 25 consists of a database processor and memory, 300Mb disk going to 600Mb, and tape, in the same floor standing tower, at $24,950 for the system. The Model 40 has 400Mb disk going to 800Mb, choice of cartridge tape or 9 track reel-to-reel tape drive mounted in a 40" high single bay cabinet. System price is $49,950. The Model 60 takes up to 3.5Gb disk and starts at 95,950. Britton Lee also announced plans to introduce a new version of its Integrated Database Manager software that will conform to industry standards such as ANSI SQL and IBM's DB2. The current Version 1 of Britton Lee software runs on more than 800 of its BL700 and BL300 systems worldwide. The new Version 2 has been extended to accommodate the new BL8000 Shared Database System capabilities. It provides the functionality to support the flexibility and power of relational database management, including full facilities for database definition and modification, query processing, transaction management, data integrity, security, back-up, recovery and database optimisation. Version 2 will include extensions for the 32-bit architecture of the new generation of Britton Lee Shared Database Systems, beginning with the newly announced BL8000. It will be released in July 1988. IDM Version 2 consists of two modules: IDM host-resident software and IDM/RDBMS which resides in the Britton Lee Shared Database System. The licence price of the host-resident IDM Version 2 software is from $5,000 for 10 IBM Personals to $60,000 for the IBM 3090 and DEC VAX 8900. The IDM/RDBMS software for the BL8000 is $75,000.

Focus on VM/CMS

And the company also announced an interface to the Focus applications generator, providing direct access to Shared Database Systems in the IBM VM/CMS mainframe environment. Focus on VM/CMS, a product of Information Builders Inc of New York, can now access Britton Lee systems in the same way that it accesses IBM's SQL/DS. Focus users will be able to share data with users from DEC, IBM Personal and Unix workstation environments. Communications between VM/CMS hosts and Britton Lee databases is through IBM Block Multiplexor Channel attachment. Focus is a complete information control system with report writing, graphics, spreadsheets, statistical packages, superior analytical capabilities and decision support facilities. It will be available from Information Builders beginning in October on the BL700 Series and in 1988 on the BL8000. Details of the new BL8000 were not available.

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Hearing - in Paris - of **Thomson's** $525m breach of contract lawsuit against **Motorola Inc** over non-delivery of 68020 microprocessor masks under the two companies' second source agreement has been put back yet again, this time to an unspecified date in September; initial hearings on the suit had been set for this month, but no doubt the long French summer has intervened.

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Roland Pampel is to share the load with **Apollo Computer Inc's** chairman and chief executive Thomas Vanderslice: Vanderslice previously held all the top posts at the Cheimsford, Massachusetts company, now Pampel, presently senior vice-president, technology, manufacturing and marketing, becomes president and chief operating officer; he served his time with IBM and arrived at Apollo via **Prime Computer** and **AT&T Information Systems.**

- o -

NCR Ltd Group, the UK-based arm of NCR Corp, has reported pre-tax profits up 7.9% at £17.1m in the six months to May 31, on turnover up 15.6% at £102.7m; chairman Rex Fleet says the company is confident of "a record year" as orders in the current half are up on last year.

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Meanwhile, another UK subsidiary of a US company, **Oracle UK** has had a superb set of results for fiscal 1987 - better even than its parent's 165% profits growth (UX No 137); pre-tax profits and turnover grew 190% with turnover reaching £12.2m; UK managing director Geoff Squire has been rewarded for his efforts with the further post of chief executive of **Oracle Europe.**

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Microprocessor Developments Ltd of North West London has ported its Sulptor applications development language to Sinix, Siemens implementation of Unix.

- o -

Sun Microsystems has completed an agreement with **Oxford University's** Department of Engineering Science to supply 130 workstations valued at around £1.5m.

Minigrams

Sequoia Systems has signed up **QV Trading Systems** as a VAR which will put its on-line securities trading system on the Unix-based Sequoia Series 100 fault-tolerant family.

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And **Thame Microsystems** of Thame, Oxfordshire, has signed to become a **Motorola** distributor of the 68020-based Series 8000.

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Borland International Inc, Scotts Valley, California, has licensed its expanded memory driver for the **IBM** PS/2 models 50 and 60 to **Vericomp** of San Diego, which is incorporating it into a software product for users of IBM's 80286 memory expansion board who want true high speed expanded memory to the **Lotus/Intel/Microsoft** standard.

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Nixdorf Computer AG reports that first half turnover rose 13% to the equivalent of $1,100m worldwide - 18% in West Germany - and the company looks for profits to grow on double-digit sales growth for the full 1987 year: Nixdorf has already invested 16% more than in the first half of last year at some $140m to improve manufacturing technology, engineering and software production, but, again lending the lie to the idea that automation means lost jobs, it has also hired almost 2,000 more people in the first half to take its payroll to 27,450, and 1,950 of the 18,150 in Germany are trainees; France and Spain are to start training programmes in 1988.

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On the product front, **Nixdorf** highlights the Targon Unix machines, subject of those giant orders from the West German employment offices and Austrian savings banks, and the 8818 digital PABX, of which more than 4,000 with 500,000 extensions, have been shipped in 12 countries.

- o -

The distribution arm of **Tetra Business Systems** has introduced an intelligent 8 port adaptor card for the IBM 6150.

The networks of computer resellers and resellers' resellers are getting ever more convoluted, and **Computer Consoles Inc**, Waltham, Massachusetts, has introduced another one, which it calls Assist, for Application Solution Sales Implementation Strategy: Assist is a co-operative reseller program offering incentives for software vendors to team up with Computer Consoles and its network of independent sales organisations to do custom software solutions for users worldwide; software vendors will receive commissions from the sale of the Computer Consoles hardware under a new "commission split" agreement.

- o -

Wicat Systems Inc, Orem, Utah should get the redoubtable H Ross Perot onto its board forthwith: attentive subscribers will recall that Perot it was, with his School Board hat on, who declared that Texas schoolkids were becoming a bunch of illiterate jocks whose arithmetic started and ended with the ability to add up the football and baseball scores, and that those who didn't come up to scratch in the classroom wouldn't make the team either; Wicat's Educational Learning Systems - 68000-based Unix machines with special software - have been in use in Texas schools for a couple of years now, and Wicat is over the moon that recent results for the state-mandated (Perot-mandated, no doubt) Texas Educational Assessment of Minimum Skills test have now been tabulated for the Pharr San Juan Alamo Independent School District in Texas' Rio Grande Valley, showing that the number of fifth grade students achieving passing scores on the test doubled in some areas, and that in 16 schools, over 2,500 students in grades three and five where Wicat's curriculum and testing products were used scored "astounding" increases on the test, with grades three and five showing an increase of 50% overall in the number of students passing, and the percentage passing the writing test soared to 83% in 1987 from 41% in 1986 - but it's all so unscientific, now we'll never know whether it was the computers or Perot's threat of no swot, no sport that led to the leap forward.

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NATSEMI's NAS, SUN TEAM ON UNIX FOR HITACHI IBMULATORS

NatSemi's National Advanced Systems unit has ignored Hitachi's efforts to do an IBM-compatible mainframe Unix for its IBMulators that are marketed in the US and Europe by NAS, and has instead turned to Sun Microsystems Inc, Mountain View. The two companies have agreed to do an implementation of Sun's SunOS converged Berkeley 4.2BSD and AT&T System V Unix with its Network File System and other communications software for the large IBM-compatible mainframes. The agreement "forms the basis for developing applications compatibility between NAS mainframes and Sun workstations using Sun's Open Systems Network and a common operating system based on SunOS," says Sun. The pair will promote the use of the environment as a standard software platform within the technical computing industry. NAS sees it as a landmark decision - "the first time two major data processing suppliers have agreed to develop and support a single open operating system and communications effort". Both companies are members of the non-profit Corporation for Open Systems co-operative. There is as yet no word on whether the new Unix will run native or under VM; NAS presumably ignored Hitachi's Unix effort and chose to go with Sun because of the widespread penetration of SunOS in technical markets.

KOREAN GOVERNMENT BACKING UNIX IN $176m NATIONAL ADMINISTRATION PROJECT

Unix specification initiatives amongst government bodies led by the Swedish Government, the UK CCTA and the US Department of Defence are now being followed by the South Korean Government. This week the goverment's prime contractor, Data Communications Corporation of Korea - DACOM, announced that it will use the Tolerant Systems' Unix-based Eternity Series to implement the $176m National Administration Information System project. The specifications for the project include Unix compatibility, fault tolerance and a distributed architecture. Tolerant Systems has signed a five-year purchase, manufacturing and technology licensing agreement with DACOM which has a minimum total value of $11 million. To date, Tolerant has received purchase orders from DACOM amounting to $6.1 million. DACOM is jointly owned by the Korean government and several Korean electronics and high-technology companies which in 1988 will begin manufacturing and marketing their own computer systems based on Tolerant technology. The technology transfer is subject to the final approval of the Korean Ministry of Commerce and Industry. By the end of 1988 the Korean government is scheduled to have seven administrative subsystems on line: residence, real estate, employment, retirement pensions, customs clearance, vehicle registration and economic statistics. Five more subsystems are scheduled for 1991, and 31 more by the year 2000. The initial phase of the NAIS installation will consist of around 90 Eternity processors and their peripheral devices, physically located at five different computer centers in Kwangju, Pusan, Seoul, Taegu, and Taejon. These sites will be linked by DACOM's own wide-area network supporting some 10,000 workstations throughout Korea.

DEC GETS NO SATISFACTION FROM AFCAC OVER SVID INCLUSION IN $3.5bn UNIX CONTRACT

The biggest ever Unix procurement is heading for further delays as DEC's challenge to the right of the US Air Force Computer Acquisition Centre to specify System V compatibility for the 20,000 system Standard Multi-user Small Computer Requirements Contract met an uncompromising response from AFCAC last week. DEC's protest to AFCAC resulted in what its lawyers term a superficial response failing to answer the manufacturer's complaint that the procurement specification for the contract is unlawful. Three weeks ago DEC sent a "substantial document" to AFCAC in which it complained over a requirement that systems be supplied with an operating system which functionally conforms to the AT&T System V Interface Definition. DEC claims that this is illegal and should be removed from the requirement because it specifies an operating system that is proprietary to one of its competitors. Last week AFCAC lawyers answered the protest in a succinct manner reiterating that the SVID has become a de facto industry standard and that operating systems supplied must be adaptable to the IEEE P1003 portable operating system once it is adopted as a Federal Information Processing Standard. The Posix standard is currently incomplete and does not attempt to address many of the areas covered in the SVID. DEC's lawyers are getting ready to present the case before the General Services Administration Board of Contract Appeals; this must be done within two weeks of the AFCAC response, but the final decision to go further had not yet been taken by DEC as we went to press. The Request for Proposals for the Air Force's SMSCRC came out in February even though a Request for Information was issued as long ago as December 1984 with another following it mid 1986. The reason for the delay of this acquisition, estimated to be worth around $3.5 billion, is its size and complexity, and if DEC has its way it will be delayed even longer.

FAULT TOLERANT UNIX FRONT-ENDS US AIR FORCE CRAY

The Information Systems and Technology Center of the U.S. Air Force's Aeronautical Systems Division is housed within the Wright Patterson Air Base complex in Ohio State. Here, a wide variety of powerful (and expensive) computer hardware is in use, including systems from Control Data, DEC and Cray Research. In an effort to make better use of these resources, the center now plans to set up a "central datacomm system" which will allow the various end-user organisations with which it deals to transparently accesses the host computers from their own remote terminals. The contract to implement the system has been awarded to Control Data Corporation in a deal worth $13.7 million.

The project will be developed in two phases - phase 1 will give around 500 users simultaneous round the clock access to the multiple vendor systems at the center, with phase 2 extending this to more than 1,500 users. Control Data claims that its ASCENT software will allow users on a wide variety of dissimilar terminals to transparently access networking, integration, electronic mail and database functions, and has sub-contracted Tolerant Systems Inc. of San Jose to provide a host for the software by signing a $3 million three year VAR agreement. The center will use 18 of Tolerant's fault tolerant UNIX systems as a host for ASCENT, which also provides access control and security procedures.

With future growth in the number of users a major requirement, Tolerant's multiprocessor Eternity system was chosen for its ease of expansion. By using National Semiconductor Series 32000 cpus as "system building blocks" in a functionally distributed architecture, Tolerant claims that a system can be incrementally expanded to utilise up to 40 cpus, depending on the application. Fault tolerance is provided by the operating system and by the distribution of system operations among multiple cpus. Apart from the Aeronautical Systems Division itself, users of the system will include the Wright Aeronautical Labs, Air Force Institute of Technology, and the Armstrong Aerospace Medical Research Labs in the U.S. The center is currently administering programs for the F-15 and F-16 fighters, B1-B bomber, and the C-17 Transport.

TADPOLE MOVES INTO THE US

Tadpole Technology has opened a subsidiary in Dublin, California which will distribute Tadpole's 32-bit processing systems. The US company is 35% owned by Tadpole Techology plc over here and takes over from its previous distributor Pascot Inc. This follows Tadpoles announcement that it had "significant contracts" in the US, India and France, but the company declines to name any names. The company anticipates sales growth on both the west and east coast of America.

SDRC GOES INTO FLUIDS AS SUPERCOMPUTER COSTS FALL

SDRC Engineering Services, one of the most established producers of mechanical CAE software, is taking advantage of the falling cost of supercomputer-class power to branch out into fluid modelling. SDRC has bought a Convex C1 to develop its I-DEAS software to encompass fluids. I-DEAS (Integrated Design and Engineering Analysis Software) previously dealt solely with the problems of structural modelling but the new development, to be called Flodyn, will predict fluid flows in engineering design applications. SDRC says that this type of application requires supercomputer power and previously a project of this kind would have been impractical as few users could afford Cray-like hardware. The company justifies its decision to use the Convex machine by saying that Convex has the largest user base for this class of machine in the US and that this is its target market. Development work on Flodyn will be carried out at the Hitchin, Hertfordshire CAE software development base. Flodyn is intended for use in a networked environment with the Convex machine acting as a back-end to Unix-based workstations from Sun Microsystems, Hewlett-Packard, IBM and DEC. I-DEAS runs on Sun and Hewlett-Packard machines. Flodyn, to be written in Fortran 77, is intended to improve the quality and speed of the design process in applications such as modelling air flow round the body of a car, predicting the air flow in an engine inlet manifold or modelling the flow of cooling water around an engine cylinder block or through a valve orifice. When the program development is completed it will comprise a suite of programs for drafting, solid modelling, stress analysis and testing. SDRC was formed in the US in 1967, set up in the UK 10 years ago and employs 450 people worldwide.

INNOVATIVE SOFTWARE MAKES SMART MOVE TO SUNBURY

The UK arm of Kansas City based Innovative Software is set to launch a Xenix version of the Smart office automation package in the UK this September. Smart, a package which integrates word processing, spreadsheet, database and communications facilities, has long been available under DOS in the States, and over the last year has been sold in the UK from Innovative Software's headquarters in Wandsworth. The port to SCO Xenix was made, according to Marketing Manager Robin Selwood "because that's the way the market is going". The Xenix version will be much the same as Smart under DOS, although Selwood admits the graphics capabilities will be more limited. The company, which has been established seven years and now employs over 200 people in the US, has just announced a net revenue of $18,867,789 over the last year. 35 people are employed in the UK, but future plans include more staff and a move to upmarket Sunbury in Middlesex.

SUN MICROSYSTEMS UPGRADES ITS GRAPHICS PERFORMANCE

Sun Microsystems Inc duly unveiled its panoply of new graphics products yesterday, adding a low-cost 3 MIPS Sun-3/60 series, a line of accelerated graphics systems and a high-performance applications and graphics accelerator. The Sun-3/60 benchmarks at about three times the DEC VAX-11/780 on the Dhrystone measure, and starts at under $10,000. The base Sun-3/60 mono station includes 19" monitor, 4Mb memory, expandable to 24Mb, keyboard, optical mouse and Unix for $7,900. With 71Mb disk and 60Mb cartridge tape, it is $12,900. The entry-level colour version with 16" 8-bit colour monitor, 4Mb memory, keyboard and optical mouse is $9,900. The company also unveiled a new CXP line of workstations with graphics acceleration claimed to add "unparalleled" two and three- dimensional graphics to the Sun line. The line consists of three models based on the Sun-3 and Sun-4: they are the Sun-4/260CXP, the 3/260CXP and the 3/160CXP, each with new graphics acceleration hardware and software. A 4Mb Sun-3/160CXP with 19" 1,152 by 900 pixel colour monitor and accelerator hardware, is $32,900. The 8Mb 3/260CXP is $46,900 and the 4/260CXP with 8Mb is $57,900 and with 32Mb, 560Mb disk and quarter inch cartridge is $95,500 - and CXP upgrades are available for all existing models so that going from a 3/160C to a 3/160CXP is $5,900; upgrading the 3/260C and 4/260C costs $10,900 in either case. Sun also added the TAAC-1 application and graphics accelerator systems, designed to enable Sun workstations to be used in imaging, high-end visualisation and simulation. The TAAC-1 was developed by Sun's High End Graphics/Accelerator Projects team, formerly Trancept Systems Inc, Raleigh, North Carolina, acquired by Sun in May. The TAAC-1 is a programmable processor combining array, graphics and image processing features in a single unit, and costs $25,000 with software as an option for Sun-3s and 4s. An 8Mb Sun-3/260C with 19" colour mon-itor, 280Mb disk, tape and TAAC-1 is $75,500. All the new products arte available on 90 days delivery.

PRIME PICKS SUN-3/60 TO BE MEDUSA PLATFORM

Prime Computer Inc is extending its policy of surrounding its core 32-bit minicomputer line with products acquired OEM by signing to buy $75m of Sun Microsystems Inc workstations for use as delivery platforms for its Medusa computer-aided design software. It will initially offer Medusa packaged up with the 68020-based Sun-3/60 workstation as a turnkey system called the WS3600, but the three-year supply agreement allows it to buy any Sun product. The WS3600 with 4Mb CPU, Medusa 2D+ software, Ethernet controller, 19" colour monitor, graphics tablet, mouse, Sun Network File System and NeWS windowing system, 141Mb disk and 60Mb quarter inch cartridge tape drive is $39,900 in the US, £31,920 in the UK, from September.

CELERITY COMPUTING HIDES UNIX BEHIND DEC VAX COMPATIBILITY ON ITS C1200 RISCs

DEC has wrapped up its VAX architecture and operating software in so many patents and copyrights that there is little prospect of anyone getting away with offering a VAX plug-compatible system. But there are now so many applications out there written for VAX/VMS that they represent an irresistable lure to companies seeking a short cut to fame and fortune. Already the likes of Convex, Alliant, Elxsi and MIPS have announced tools to attract VMS users and applications developers and now Celerity Computing Inc joins the fray. The San Diego company that builds Unix machines around the technically ingenious but commercially disappointing NCR 32 microcodeable 32-bit microprocessor used as a RISC, is now dedicated to a policy of going after those VAX applications, and its approach is to camouflage Unix with so many VMS-like interfaces that users feel that they running a VMS system and are quite unaware of Unix lurking in the background. Celerity announced a DECnet-compatible communications package for its C1200 line of Unix machines a few weeks back, and has now added a $2,000 to $7,500 VMS Command Shell, VCL; a $2,000 clone of the VMS EDT editor, called just EDT; and Desk Executive, a $5,000 to $10,000 clone of DEC's All-In-1 office automation package from Boston Business Computing of Lawrence, Massachusetts. The C1200s cost from $500,000 to $1m.

SAXPY TO BUY KEY ASSETS OF CULLER

The misfortune of Culler Scientific Systems Corp of Goleta, California, which announced at the beginning of the month that it was suspending operations and seeking a buyer for its Personal Super Computer mini-super technology, looks like bringing a big boost to another young hopeful in the supercomputer business, Saxpy Computer Corp of Sunnyvale. Saxpy has agreement in principle with Culler to buy its key assets and technology, and final agreement should be reached in the next few weeks. The Saxpy contender is the Matrix 1 programmable systolic scientific supercomputer designed to do 250Mflops to 1Gflops, launched in May. It is designed to process data as traditional scalar or vector quantities, and also in multi-dimensional matrices, and to be run as a back-end to a DEC VAX under VMS. They cost from $896,000 to $4m. "Access to technology that is complementary to our present and future strategies has made this acquisition attractive to us," says Saxpy President Howard Thrailkill. Privately-held Saxpy has received a total of $19m in venture capital funding from the likes of Venrock Associates, Arthur Rock & Co, First Boston Investment Limited Partnership, John Hancock Venture Capital Management Inc, Oxford Partners, Xerox Venture Capital, and Merrill Lynch Venture Capital.

AT&T COMES UP WITH THREE GOOD REASONS TO GET EXCITED ABOUT SIGNAL PROCESSING

Bloodied it may be in the computer and semiconductor businesses, but AT&T Co is by no means bowed, as its two new challenges in the digital signal processing arena make clear. New ways of manipulating images with a computer at previously unimagined speeds are flooding out of US start-ups and established companies alike, but even against the host of rival offerings, the new AT&T PXM 900 image display system looks to be something pretty special. AT&T certainly thinks so - the product gets its own brand new business division, AT&T Pixel Machines. AT&T is aiming the PXM 900 Series, which will act as a back-end to Sun Microsystems' workstations, at applications that require real time display of complex objects, such as the rendering and animation of three-dimensional objects, visual simulation, image processing, and volume data display and analysis. According to the new division it has used all Bell Laboratories' skills and expertise in parallel processing architectures, graphic research and digital signal processing to come up with the product. AT&T explains that digital signal processors are "integrated circuits that process very high volumes of data by multiplying numbers at blazing speeds and with great accuracy" - shouldn't that be precision?

Five or six Cray 1s

Target customers for the Pixel Machine include scientific and research end users, value-added resellers and system integrators. On the software front, AT&T is a bit vague, but a graphics library and diagnostics are standard with each system and software tools including a C compiler, linker and assembler are promised. AT&T is particularly proud of the optimising C compiler, which it reckons is a definite first, and will lead to much wider application of signal processors - it will also be available on the company's latest DPS32 variant - because it will make the things so much easier to program. On the hardware front, the PXM 900 has a complex and ingenious architecture to push through and keep track of all those fragmentary picture images. It uses a parallel architecture with a large, tightly coupled image memory. Up to 82 floating point processors are used to provide around 800 MFlops of peak performance when they are all able to work together - that in theory means something like five or six Cray 1s all sorting out the details of your picture - right behind the screen on your desktop. Each PXM 900 consists of four functional units: a high-speed parallel interace, a Transformation Pipeline, a parallel array of Pixel Nodes and a video controller, configured on a familiar old standard VME bus. The Transformation Pipeline consists of nine processors called Transformation Nodes which perform transformations, clipping and other geometric operations on incoming data. The resulting data is then sent to the Pixel Nodes over a 32-bit broadcast bus - and an optional second pipeline can be added to increase performance. The Pixel Nodes, which are configured in parallel, perform all the rendering and rasterising, with each node operating independently and simultaneously on a portion of a distributed frame buffer. AT&T says that this division of the frame buffer is unique to the PXM, and is and achieved through a pixel interleaving scheme which results in a balanced load on each node and uniform rendering time on the screen. The PXM 900 can be configured with 16, 20, 32, 40 or 64 Pixel Nodes. The output from the Pixel Nodes is passed to the Pixel Funnel which multiplexes the data and in turn squirts it out onto a high resolution monitor.

Each of the processors in the PXM 900 series is an AT&T DSP32 floating point processor - that's up to 82 separate DSP32 processors - and is fully programmable, which, Pixel Machines says, enables the PXM 900 to be tailored to fit individual user needs as well as to take advantage of new developments in graphics and image processing algorithms. The initial series of five products in the PXM 900 series is modular: any configuration can be upgraded without affecting the compatibility of existing software, and for those with very large image processing workloads, prices look very keen, ranging from $44,500 to $119,500.

Snow White and the Seven Dwarfs

The Pixel Machine uses the existing NMOS version of the DSP32, but if you want to get an animator really animated, just give him an idea of what he'll be able to do when AT&T gets around to putting its second generation version of the chip into the Pixel Machine architecture - create the entire visual footage of Disney's Snow White & the Seven Dwarfs in a month - but with much greater detail? Confusingly, AT&T announced the two developments, quite separately, in the same week, the linking factor being the optimising C compiler. The second generation chip should find its way into the Pixel Machine quite soon, because it is due out in the second quarter of 1988, from AT&T's Allentown, Pennsylvania wafer fab. The new WE DSP32C has an 80nS instruction cycle, and is claimed to perform at 25MFlops - which implies that a fully-configured Pixel Machine using it will have a burst performance of something like 2Gflops, which should set a heart or two fluttering even over in Japan. To achieve faster speeds, the DSP32C has been implemented in 0.9 micron double layer CMOS technology, making this DSP one of the first microprocessors to be imnplemented in sub-micron geometries.

Would be in clover

Evolving from the NMOS device which has been available for a couple of years, it needless to say supports all the features of that part. AT&T is rightly proud of its chip design tools - the company is quicker than most at coming up with new, improved versions of its microprocessors, and if only it could sell the damn things when it has designed them, would be in clover. The company reckons that the computer aided design tools used to create the DSP32C were the most powerful ever assembled even for an AT&T chip design effort. The design team used an all-symbolic layout system to specify an electrical schematic to plan the physical layout of the chip, a procedure that enabled the team to begin work on the chip before the design rules were finalised. In the future, if an upgrade of the chip to even smaller design rules is desired, much of the layout will be performed automatically by the CAD system, cutting redesign time dramatically, says AT&T, adding that in its opinion no other similarly complex chip has ever been designed with all-symbolic layout. AT&T looks for the new C compiler to get the DSP32 into a much wider range of mainstream applications in the appropriate graphics and image processing, CAD/CAM, scientific computing, and high-end telecommunications fields - the last application of course being the one for which the company really designed the chip. The compatibility of the two generations means that designers will have immediate access to an existing library of applications and will not have to wait for the new DSP32C to begin development - they can use a 250nS or 160nS DSP32 now and replace it with the higher-performance, lower power-consumption DSP32C as soon as it is ready.

CONVEX CUTS PRICES FOLLOWING 150% PROFITS

Convex Computer followed the announcement of its remarkably healthy looking second quarter financial results with its first major price reductions on its C1 machines. The company of Richardson, Texas, says that the reason for price cutting despite its strong financial position is to retain its price performance advantage over other supercomputer manufacturers. The company anticipates a price cutting war in supercomputers similar to what we are currently witnessing in the workstation market and news has already reached its ears indicating that Alliant has made price cuts on its products, but Alliant will not be publishing them. Six weeks ago Cray announced its price cuts. According to Vince, base system prices have been reduced by approximately 20% across-the- board and the cost for memory has been reduced by more than 50% from $4,000 to $1,750 per megabyte. Previously, the smallest configured C1 XP1 sold for $475,000 and the C1 XL sold for $375,000. Now, under the new pricing structure, the base price of the C1 XP1, including the CPU, 16 megabytes of memory and the input/output processor, is $320,000 and the C1 XL sells for $240,000. Convex saw second quarter net profits up 142.2% at $2.2m including an extraordinary credit of $786,000, on sales up 83.6% at $16.7m; mid-term net profits rose 197.4% to $4.3m including an extraordinary credit of $1.6m, on sales up 87.4% at $31.1m. Net earnings per share were up 71% to $0.08 in the quarter, 140% to $0.24 in the half. Convex anticipates continued growth throughout this and next year and anticipates a significant amount of this to come from Europe. Frank Vince, vice president of marketing for Convex estimates that just under 50% of the company's revenues comes from Europe with Germany being one of the fastest growing.

RADIUS RESELLER PACT WITH OLIVETTI

Radius Plc last week announced an agreement with the value-added reseller division of British Olivetti Ltd for joint marketing of the Radius Distribution and Warehousing products, Dawn, on the Olivetti AT&T 3B2 range of Unix processors. This came as Radius released its interim results for the half year to May 31, and reflected what is said to be considerable development of solutions being offered on Unix. Orders for the second half of the year are reported to be at record level and include several large Unix based projects. Radius also says it has the potential to be the first major software house in the UK to offer applications under Unix on the Data General range. A deal with ICL is in the offing but it declined to comment. Radius reported net profit for the six months to May 31 up 26% at £569,000 on sales up 27.6% at £4.7m; pre-tax profits rose 27% to £865,000 and earnings per share rose 26% at 5.8p.

WAVEFRONT INTRODUCES MATERIALS EDITOR AND REDUCES PRICES

Last week Wave Wavefront Technologies Inc of Anaheim, California introduced Medit, a materials editor which allows users to interactively choose a wide selection of material properties, lighting models, atmospheres and textures. It also reduced the price of the Wavefront Dynamic Imaging System, a 3D animation and rendering computer system, to reflect both a decrease in the price of system hardware and increased sales. Medit, Wavefront's materials editor which was introduced at Siggraph, will be sold separately. By applying all of Wavefront's rendering routines interactively, Medit, using advanced ray tracing techniques, allows a user to render, in seconds, any combination of materials, textures, lights and atmospheres. Medit not only comes with its own properties, but also lets users build their own. It allows a user to interactively specify the smallest changes in intensity or nuance in these properties and to map them to any part of an image. Medit is intended as an aid for understanding the complex interaction of all the variables which go into defining the look of a scene. This ability to progressively refine an image or animation quickly, promotes a higher level of creativity while increasing productivity. The Wavefront Dynamic Imaging System is an integration of Wavefront's Model, Preview and Image animation and rendering software modules with popular off-the-shelf hardware. The system's design station is a SiliconGraphics IRIS 3130 graphic superworkstation. Hardware supported includes computers manufactured by Alliant Computer Systems Corp, Celerity Computing, Convex Computer Corp, Cray Research, Digital Equipment Corp, Edge Computer Corp, Hewlett-Packard, Pixar, Ridge Computers, Silicon Graphics Computer Systems and Sun Microsystems Inc. As a result of Silicon Graphics' announcement of a $10,000 decrease in the price of it IRIS 3130 workstationl and be- [illegible] it has decreased the starting price of the Wavefront Dynamic Imaging System to $124,000 from $142,000. Medit will be offered separately for $10,000.

SONY CLAIMS 15% WORKSTATION MARKET IN JAPAN

Sony is claiming sales figure of 900 for its January released News workstations and is says that it now has a 14.7% share of this marketin Japan. Sony gives the credit for the success of the machine to the fact that it can run simultaneously both NFS and X- Windows. And adds that low prices of between $18,340 approx and $6,533 also contributed. Sony says that the News machine has 30% better performance at one-fifth the price of the Sun Microsystems SUN 3/160.

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Minigrams

Sun Microsystems Inc has reported fourth quarter net up 98.2% at $10.9m on turnover up 142% at $185.9m; net profit for the year to June 30 was up 224% at $36.3m on turnover that rose 156% to $537.5m. Net earnings per share rose 63% to $0.31 in the quarter, 164% to $1.11 in the year.

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Counterpoint Computers Inc has ported Micro Focus Level II Cobol to its System 19K line to give it X/Open Cobol conformance.

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Unify Corp has ported its relational dbms and applications generator to the Apollo range.

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And **Convergent Technologies** has implemented an in-house manufacturing application system using **Unify's** Accell software intended to automate the documentation control activities within Convergent.

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The **Fleet Air Arm** has ordered a Unix and DOS training package from **Convergent Technologies'** distributor **TIS** to train students at the Air Engineering School at HMS Daedalus in Portsmouth in development and evaluation of systems: an S/220, three Network PCs, text recognition and desktop publishing hardware, laser and dot matrix printers, **Multiplex** software and the **Informix** database will be supplied.

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Lux Computer Services, part of the **Wheatcroft Hards Ltd Group** of Hemel Hempstead has signed to become an NCR distributor under its new Partners in Business scheme: Lux has placed an initial order of £60,000 for the Tower 32/600 systems.

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CGS (UK) Ltd has won two orders for its Unix based Home Office Large Major Enquiry Systems from the Tayside and Northumbria police forces who will be implementing the system on NCR and ICL hardware respectively: the contracts are worth £110,000.

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MS Associates has signed an agreement with **Mass Computing** of Livingstone and Aberdeen for source code rental to enable the porting of MS' CGen family of Basic-to-C translators onto **Sun Microsystems'** and **Hewlett-Packard's** machines.

UK-based **Mentor Graphics** has agreed in principle to purchase exclusive rights to all products of the US developer of fault-simulation and design-for-test software: under the terms of the agreement Mentor will pay an initial $450,000 for Caednet's products.

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Separately **Mentor** announced a new series of workstations based on Apollo's Domain Series 4000.

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Root Technical Systems has launched a series of cross compilers for C intended for software engineers wrting real-time stand-alone applications for microprocessors including those from **Intel, Motorola, National Semiconductor** and **Fairchild.**

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Spain and Portugal have been given a **Micro Focus** Cobol dealer in the shape of **Utinfor SA** of Madrid and Barcelona, which will be the sole authorised dealer for the Iberian peninsular.

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Access Technology has developed a port of its 20/20 spreadsheet package specifically for the **Sequent** Balance 2100 and 8000 machines.

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Focus developers **Information Builders** has released a Focus-to-Oracle interface for the DEC VAX/VMS environment. This interface gives Focus users access access to the Focus reporting and decision-support facilities for use with Oracle databases.

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Kalamazoo's Opthalmic Division are installing thier 20/20 practiser management system in the Vision Sciences department of **Aston University:** the system was donated by Kalamazoo and **Unisys** gave a PC/IT through Kalamazoo.

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Relational Technology International Ltd and **Matra Datasysteme** of France have teamed up to provide Ingres on Matra's range of Unix-based machines as well as collaborating on development of distributed databases, artificial intelligence and networking.

Altos Computer Systems has announced an OEM agreement with **Covalent Systems Corp** of Sunnyvale, California to provide the Altos range to Covalent's customers in the graphics arts industry: the agreement is valued at $16m over the next three years.

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Motorola Inc has come up with terms acceptable to Thomson SA of France to settle Thomson's $500m-plus law- suit that alleged breach of contract in Motorola's failure to supply it with masks for the 68020 microprocessor - but it is not certain that Thomson will be getting the masks or something less: according to Electronic News in its 10K filing with the Securities & Exchange Commission, Motorola says that the suit is settled, and that it will be supplying Thomson with "limited technical assistance" in return for cash - Thomson agrees to drop the suit filed in Paris where Motorola would have argued lack of Thomson parts of equal value to the 68020.

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During the announcement of STC's financial results ICL stated that problems were arising in its Unix range, bought in from Computer Consoles Inc and Datamedia, because of the low margins to be made in this market but pointed out that the Series 39 mainframes and the DRS300 distributed system are doing well.

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Gould Inc is expected shortly to sell its 51% holding in the **Austrian Microsystems International** chip-making joint venture to its partner in the Graz-based CMOS unit, struggling steel maker Voest- Alpine AG.

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With fiscal 1987 turnover up 24.7% at £671m, **DEC UK** is planning to increase its UK workforce by 1,000 employees, 17%, in the year just started, taking it to 7,000 people.

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Clarification: Motorola UK points out that the **Codex** name has been restored only for the traditional communications systems and equipment business to which it previously belonged, and that it has set up a separate **Motorola Computers Ltd** company for the UK (UX No 139) - in a future edition of Unigram.X we will examine the activities of this division.

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Number 141

AT&T UNVEILS DUAL PROCESSOR 3B2/600

AT&T Co - and Olivetti in Europe - have introduced the widely- forecast dual processor model in the 3B super-micro family as the 3B2/600 Multiprocessor. The new top-end model comes with two 18MHz WE32100 central processors, each rated by the company at 2.6 MIPS, one WE32106 floating point co-processor, from three to 12 input-output processors from the WE32X00 family (believed to be the original WE32000). The machine comes with unquantified cache and 8Mb to 16Mb of main memory, SCSI controller and 300Mb to 6.5Gb of disk, 720Kb floppy and 60Mb cartridge tape, 9 track 1,600 bpi tape drive, 12 slots and Unix System V.3.1.1 licence. The existing single processor version can be upgraded to the new model by adding the other processor into the existing cabinet. No prices were given for the new version of the 3B2/600 but is expected to be around 10% more expensive than the existing 3B2/600. The new version will be available throughout Europe during September.

UNIX-BASED SNA COMMS SOFTWARE EXTENDED TO EXCHANGE DOCUMENTS WITH IBM OFFICE SYSTEMS

The market for Unix-based SNA communications software has long been dominated by a handful of specialist companies that run neck- and-neck in announcing new levels of SNA support, and now two of the leaders have extended their range with products for exchanging documents with IBM office systems. New York-based Systems Strategies Inc, which numbers AT&T, IBM, and DEC among its OEMs, last week added cSNADS, a portable version of IBM's SNA Distribution Services, which allows asynchronous document exchange between non-IBM systems, mainframes running IBM's DisOSS/370 office software and System/36 and /38 minis running the Personal Services software. cSNADS, which uses SSI's existing SNA LU6.2 product, provides a store- and-forward facility to allow local and remote mail delivery to avoid the need for both sender and receiver to be active simultaneously, and allows different priorities to be set for the distribution of documents. SSI, a subsidiary of AGS Computers which also has a London office serving the European market, gives per-copy pricing of $100-400 depending on quantity. Meanwhile ICL's San Jose, California partner on SNA communications software, Communications Solutions Inc, has come up with a link between the Unix uucp file transfer software and IBM hosts running DisOSS and SNADS. Called UUCP/Connect, it provides automatic conversion of file formats between uucp and DisOSS, and currently runs under System V.2 with a V.3 version under development. Price to OEMs is $25,000; other existing Communications Solutions OEM customers include Unisys and Hewlett-Packard.

PHOENIX, INTERACTIVE WIN AT&T FOR VP/ix

The VP/ix operating system developed by Phoenix Technologies Ltd of Norwood, Massachusetts and Interactive Systems Corp, Santa Monica, California for supporting multiple MS-DOS tasks on 80386-based machines under Unix, has won endorsement from AT&T Co for its forthcoming 80386-based machines. Last time around, AT&T picked the Merge product from Locus for its 80286-based machines. However Interactive Systems developed Unix System V/386 for 80386-based AT-alikes under contract from Intel and AT&T. VP/ix integrates with any configuration that runs Unix System V/386.

ALTOS TO EXPAND 80386 LINE

Altos Computer Systems is planning an 80286-based diskless workstation for Ethernetworking with its 80386-based Series 2000 Xenix machine. There will also be an entry-level 64-user Series 1000 variant by the end of the year, and a top-end multiprocessor 3000 early next year.

PYRAMID ADDS THIRD PARTIES WORLDWIDE

Pyramid Technology has begun a campaign to increase the number of OEMs and VARs selling its machines. In the US the company is "well underway in its goal of attracting around 50 new vendors. In the UK "about two or three are on the boil". Half a dozen key vendors are being sought out in the UK, as well as about 15 specialist value added resellers. Pyramid says that it will only be recruiting companies that can add value to the products in some way. One of the existing UK third parties, ABS Computers - which boasts around ten Pyramid sales - adds value by providing an upgrade path from its Zilog-based systems to Pyramid.

ALTOS AND SIEMENS ARE TOP BOXES AS IDC REVEALS HARD EUROPEAN FIGURES AT LAST

The news that Jean Yates now works as an analyst with International Data Corporation might leave readers of IDC's latest report, "The Unix Systems Marketplace" 1986-1992, just slightly uneasy. It would be inaccurate and unfair to lay the blame on for the wildly optimistic growth forecasts for sales of Unix which began to appear from around 1983 on any one person or organisation - AT&T's unfamiliar commercial freedom following deregulation in 1984 made them more than willing to contribute wholesale to the hype - but Yates' figures spread widely enough through the industry so that even today her name is still used by many as a synonym for Utopian predictions. Early in 1983 most of us were led to believe that within three years there would be over 3.5 million Unix systems installed worldwide. History records a figure far nearer 600,000.

Even now, most people remain sceptical of such forecasts, although IDC's claims for 28% average future growth, especially in the PC market (which includes workstations and 80386-based super-ATs), are solid rather than sensational, But the main value of the report lies in the figures themselves rather than projected forecasts. Its long been a complaint that actual numbers of sales in the UK and Europe were just not available, so those with vested interests would claim vastly inflated or deflated figures, depending upon their own point of view, with no fear of contradiction. Here at last is some credible information. IDC collates figures for the computer industry as a whole, from which those for the Unix market have been extracted. Presumably, it has taken this long for them to consider it a large enough market for separate treatment.

Varying commitments

The catalogue of events affecting the success (or otherwise) of Unix is starting to sound like a well worn gramophone record: the push for standards, entry of major vendors, government mandates etc. etc. The authors of the report's preamble were obviously impressed by the penetration of X/Open vendors into the market (though how many X/Open systems this represents is not clear) and devote two pages to it's history. Whilst noting the fact that all the major vendors now offer Unix, they do point out that this can often be a token gesture which ensures consideration in lucrative contracts where it is mandatory. Of the major players, Siemens now sells 65% of total systems sold running Unix, representing a 20% value share of total sales; followed by NCR on 50% (30% of total value). DEC manages only 10%, whilst IBM only just shows up on the chart. More on the impact of Posix might have been interesting, particularly after DEC's challenge to the US Air Force over specifying System V, which it considers proprietary to its competitior AT&T (UX No 140). Now to the real figures. The number of Unix machines sold in Europe throughout 1986 was 58,463 units, with the total installed base now standing at 134,285. Total value of 1986 shipments was $1,445 million. This is divided by size of system: PCs and workstations (4% and 18%); small scale systems costing less than $100,000 (54%); medium systems costing up to $1 million (15%); and large scale systems (9%). Almost three quarters of this was spent in the four major European markets of the UK, West Germany, France and Italy, with the UK taking 25% and West Germany 23%. Looking at system sales as a whole, Unix accounted for around 6% of the value of all shipments. The report reveals a stronger hold on the commercial market than is usually credited; around 65% of Unix systems were used for commercial rather than technical applications.

Vendor shares

The report breaks down the figures further to show individual vendor share for Europe as a whole and for individual countries. Altos heads the list for systems under $100,000 in most countries, and took the largest share of the overall market in terms of shipment value with 22% (see table), but in 1986 it was quietly overtaken by Siemens on the amount of units shipped. In the medium systems catagory, DEC is way in front with a 34% share of the total market, followed by IBM and Plexus on 6%, and Olivetti on 5%. Numbers here, however, are small, with only 865 units sold in 1986 (value $218 million). In the UK, 240 units were sold, with ABS following DEC's lead with a 13% share, then Plexus (10%), Pyramid (6%), and Data General, Olivetti and Sequent all on 4%. Also included are tables showing the existing installed base by manufacturer. The hotly contested workstation market has been divided up as follows: Sun (32.8%) Hewlett Packard (29.3%), Apollo (15.4%), and IBM (6.7%) of units sold.

IDC's analysis of how the markets will develop up until 1992 includes strong growth in the PC and workstation sales, aided by the increasing use of the 80386 and its virtual machine capabilities. Profit-wise however, the low-end of the market is likely to show the least growth due to severe price cutting. Medium and large-scale systems should continue to show healthy growth. Geographically, Spain is apparantly the country most likely to take to Unix in a big way over the next five years, largely because it has such a long way to catch up on computerisation. Sounds like a good excuse for a business trip!

PC-INTERFACE AND MULTIPLEX PRODUCTS TO MERGE BY YEAR END

A merged product from Locus Computing Corp and Network Innovations is promised for the end of the year intended to make life a little easier for users wanting to run both DOS and Unix applications across DOS and Unix-based machines. Locus' PC-Interface allows a PC user to treat a Unix disc as a shared file system and store files on the Unix machine downloading those required to the PC. Merge 386 from Locus also provides a combination of Unix and DOS commands. Locus products do not, however, address the problem of a PC user wanting to use PC applications in conjunction with multi-user Unix-based packages. A Lotus 1-2-3 package would not know what to do with Informix data and vice versa, for example. Network Innovations' Multiplex software provides a solution to this using an asynchronous connection or Ethernet. The combined version of PC-Interface, Merge 386 and Multiplex is intended to allow data conversion and extraction. Previously Network Innovations had to customise its product for each new machine but says that with the "base level enabling technology" of Locus time and money will be saved in the porting process. The two companies are OEM oriented and each currently has a number of agreements, part of the agreement is that each company will return to its OEM base and sell the other part of the combined product and then continue jointly marketing the product. First vendor shipments are expected within the next two to three months.

NUBUS FOR COMPATIBLE MANUFACTURERS INSTEAD OF MICROCHANNEL?

Why don't the PC-compatible manufacturers adopt the NuBus standard instead of allowing IBM to run away with the standard using the MicroChannel. This is an idea presented by Marc Epard of WOS Data Systems, developers of accounting software and software development tools based in Lawrence, Kansas, and reported by PC Letter. The NuBus was developed by the Massachussetts Institute of Technology with Texas Instruments, used by Apple in the Macintosh II. PC Letter speculates that cards built around NuBus would work equally well in the Mac II or in non-IBM OS/2 machines because of its processor independence and variable width of up to 32-bits wide. Compatible makers would have access to a standard 32-bit bus for memory and other peripheral expansion without the worry of IBM's or Apple's reaction and as Epard points out the compatibles would overcome the stigma that IBM has associated with the AT bus by abandoning it. PC Letter suggests that machines based on the NuBus would use the 20MHz 80386 processor with 2Mb high speed memory on the motherboard, four or five Nubus slots, built-in VGA-compatible analog graphics, one or two serial ports, one parallel port, and a mouse. Users of these machines could have access to the monitors and graphics capabilities being developed for the Macintosh and the software being devloped for OS/2.

AT&T/PHILIPS BUY UNIX MAINFRAME FOR EUROPEAN TELECOMS PUSH

Unix on a mainframe is still a rarity, so its interesting to hear of a £3.8m installation by AT&T and Philips Telecommunications (a company commonly known as APT - no relation!). A dual processor Amdahl 5890-200 running UTS/580 will be used at the company's new product development and production centre at Malmesbury in Wiltshire, from where AT&T is currently trying to convince Europeans of the benefits of the American 5ESS-PRX switching system for telephone exchanges. The 5890-200, along with two 470E front-end processors and 25Gb of 6380 disk storage brings APT's investment in the centre up to £17m, and it is anticipated that up to 600 people will be employed there by 1990.

HARRIS ADDS BOTTOM END UNIX MINI TO 32-BIT HCX RANGE

Harris Computer Systems has introduced a new model at the bottom end of its HCX line of 32-bit Unix minicomputers that were derived from a technology exchange agreement with Computer Consoles Inc. The new HCX-5, rated at 5 MIPS, is based on the same TTL processor that is used in the HCX-7 and HCX-7, which deliver up to 8 MIPS. The HCX-5 processor cycles at 100nS, supports up to 32Mb memory, and is designed to handle up to 128 users. It has a new VMEbus input-output subsystem that is rated at 25Mbytes-per-second sustained, and 40Mbytes-per-second peak transfer rate. It takes up to 2.7Gb disk, with four drives per controller, and a system with 4Mb, eight-slot VMEbus chassis, eight ports, asynchronous input-output controller, console, C, and 32-user HCX/UX Unix licence costs $124,500.

VALID SPAWNS NEW COMPANY TO DEVELOP HARDWARE MODELLERS

Valid Logic Systems Inc has spawned a new company to concentrate on the hardware modelling part of Valid's business. The new company, Logic Modeling Systems Inc, intends to develop products that will become industry standard hardware modelling systems for integration with popular logic simulators. The new venture is privately financed, with Valid holding an equity position and will be headed up by one of the Valid founders, Curtis Widdoes, aided by the president of Valid, Douglas Hajjar. LMSI has been given an exclusive license to practice Valid's hardware modelling patents, and the right to sublicense the practice of these patents. Valid retains a sublicense under the patents and will continue to support and enhance its Realchip and Realmodel hardware modelling products and intends to offer LMSI's advanced hardware modelling system when it becomes available. Valid says that the market is currently confused with seven different vendors offering products that each only operate with one simulator. LMSI says that it will offer modellers that will integrate easily with all major logic simulators and fault simulators. LMSI will target the OEM market of digital logic simulation vendors and corporations using proprietary simulators. Hardware modelling allows electronic design engineers to simulate designs containing complex VLSI devices such as microprocessors, their peripheral chips and ASICs. Valid announced the first product using that technology, Realchip, in March 1984. On May 20, 1986, Widdoes was awarded the patent on the basic technology behind hardware modelling, and the patent was assigned to Valid. Valid has taken out an infringement suit against six companies that were actively manufacturing and marketing hardware modelling systems. One of the companies, Teradyne Inc., agreed to an out- of-court settlement later that month. As part of the settlement, Teradyne was granted a license to practice the patent.

HIGH LEVEL HARDWARE'S ORION TO SUPPORT JAPANESE LISP

High Level Hardware has gone to Japan to get a version of Common Lisp for its Orion 1/05 Unix-based mini. The Kyoto Common Lisp was developed by the University of Kyoto in Japan and High Level claims that it is a cost effective and flexible programming system and adds that the Kyoto Common Lisp on its machine offers comparable performance and speed to the Symbolics 3640 specialised Lisp machine. The Orion supporting Lisp is intended for systems developers, Universities, research institutes and R&D departments wanting to develop expert systems.

ADVANCED MICRO HAS 16MHz VERSION OF 80286

Now that Advanced Micro Devices Inc is in bitter dispute with Intel Corp over the latter's refusal to hand over 80386 masks, it has little interest in being deferential over the iAPX-86 parts for which it does have the masks, and yesterday it made a pitch for leadership in the lively market for high-speed versions of the advanced 16-bit 80286. The success of the Compaq Deskpro 286 now that it is fitted with 12MHz 80286s shows that while many users want speed, they are not prepared to pay a big premium for 80386-based Persona-likes, and so AMD has come out with the first 16MHz version of the part. The 80286-16, matching the speed of the slowest 80386 - and, running MS-DOS, almost matching its performance - will be available in November, initially at $150, against $120 for the 12MHz version and around $60 for the original 6MHz version. The vitality of the 80286 market is indicated by figures from Dataquest, which suggest that in the first quarter of this year, 1.72m were sold, 1.2m by Intel, 400,000 by AMD, and 71,000 and 39,000 respectively by the other two second sources, Siemens and Fujitsu.

IBM PITCHES $1,350 PS/2 MODEL 25 AT SCHOOLKIDS' SATCHELS

IBM duly announced its long-forecast personal computer for the education market - as the Personal System/2 Model 25 - last week, but the rest of the announcement was a bit of a let-down with no diskless workstation or downsized version of the Model 50, only a 314Mb disk for the Model 80. The 512Kb 8MHz 8086-based Model 25 is 40% smaller than the original Personal and twice as fast, but at $1,350 with a single 720Kb 3.5" floppy and built-in mono monitor is not particularly keenly priced. It also comes in a Collegiate variant for higher education. It is derived from the Model 30, using the same motherboard with floppy controller, MultiColor Graphics Array, and serial, parallel, mouse and keyboard ports, but IBM says only that "most" applications that run on the 30 with two floppies will run on a similarly configured 25, which does have slots, two of them. The Collegiate Kit is $314, the second floppy is $170, 128Kb memory is $49, and the colour version of the Model 25 is $1,695. The box is available now in the US, with the Space-Saving Keyboard; those who want the Enhanced Keyboard will have to wait till October and pay an additional $45. The new 80386-based Model 80 provides 314Mb fixed disk storage, expandable up to a maximum of 628Mb using a new 314Mb Fixed Disk Drive Option, and a Model 80 with 2Mb CPU, 1.44Mb floppy, 314Mb 5.25" Winchester and seven slots is $13,995. The new disk costs $6,495, both from first quarter 1988 in the US.

TELEVIDEO CLAIMS CREDIT FOR UNIX-BASED WORKSTATION PRICE WAR

Most people thought the recent price cutting by workstation manufacturers was sparked off by DEC's new offerings. Not so, according to Televideo Systems Inc. of Sunnyvale, California - the bottom fell out of the market only after its Telstar 386 workstation was launched at Comdex in Atlanta during June - claimed to be the first engineering workstation to use the Intel chip, offering industry standards . Within four weeks DEC, Sun, Apollo and HP had all dropped their prices. The effect, says David Harris-Evans of recently launched Televideo International in Woking, Surrey, from which shipments will begin in anger next month, has been to halve the cost of entry-level workstations. Televideo Inc. owns three-quarters of System V suppliers Microport, and has done a lot of porting in Europe to get software up and running. Harris-Evans is now looking for distribution channels and vars.

X-WINDOW-BASED INTERFACE TOOL LATEST NCS COMPONENT FROM APOLLO

Apollo Computer has added another component to its Network Computing System (UX No 116) intended to allow applications developers to design common interfaces for a range of hardware platforms. The new product, Open Dialogue, uses the X-Window protocol and the company says that this its "first fulfilment of its commitment to build products on the X-Window standard". As well as Apollo's own Domain workstations Open Dialogue will run on workstations from Sun Microsystems, DEC and IBM. Apollo product marketing manager, Mark Hatch, says that the new[product complements NCS by giving developers a tool to create a common user environment across a multi-vendor network. Hatch adds that the company hopes that developers will include the new NCS component in new programs as well as adapting existing programs to the specification. Single copies of Open Dialogue will be priced at $2,000 with a source code license costing $30,000. Apollo in the UK says that source code licenses will be available with special discounts for colleges and universities. A version for the Apollo Domain will be available in October this year, with a DEC GPS version following next February. The IBM RT and Sun versions will be generally available in March 1988.

DISTRIBUTOR CONFUSION AS OPUS LOOKS TO UK MARKET

After creating a big splash in the States with the Opus boards, which convert PCs into 32-bit multi-user workstations by using them as an i/o processor and subsystem, Opus Systems is now looking to the UK and Europe to market its National Semiconductor and Clipper-based products. It has appointed the UK's major Wyse distributor Trinitec PLC in what is billed as an exclusive marketing contract with a net value of £5.3 million over the next three years. However, two established outlets for Opus boards already exist in the UK: French company Unixsys manufactures systems and kits using the Opus board which are sold through its UK arm in Warrington, Cheshire; and Arcaid Hardware Ltd in Maidenhead, Berkshire, which has built up a customer base of around 150 opus users over the past year. A spokesman from Arcaid said "Arcaid has no intention of pulling out of Opus, and has rights to continue distribution until October - we will be staying in the co- processor market". Trinitec has its own in- house engineering department, and will be integrating the Opus boards with Wyse IBM compatible PCs as well as offering existing PC users upgrades. Opus faces increasing competition from others entering the UK Unix coprocessor market, including the Zaiaz 910 from Pristine Electronics and the A/On board from Legend Data.

AI VENDORS GATHER AT AAAI SHOW UNVEILING A WEALTH OF C-BASED PRODUCTS

The recent American Association for Artificial Intelligence confrence although disappointingly attended produced a number of announcements showing that AI is now moving ever closer to more traditional computing platforms. Teknowledge Inc unveiled a C-based expert system development environment called Copernicus which supports the Informix and Oracle relational databases. Hewlett-Packard 9000 Series 300 and 800 is to get Lucid Inc's Common Lisp environment, replacing the proprietary Common Lisp environment that HP has been selling for two years. Franz Inc has moved into Unix by porting its Common Lisp environment, renamed Allegro C, to IBM 370 mainframes under Amdahl's UTS Unix implementation. Apollo produced an update on its Domain/CommonLisp caliming three times the compilation speed and 50 time the floating point performance of the previous version. DEC announced that it will distribute the C-based AI programming system, Nexpert Object from Neuron Data, and also - not to be outdone by Apollo unveiled an update of its proprietary Lisp implementation for Ultrix and VMS systems. The new version includes a facility that allows programmers to develop smaller applications, using a subset of Lisp features, that can be executed without a run-time version of the language.

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Sequent Computer Systems has hit problems with the cache on its new multiple 80386-based Symmetry machine and has put deliveries back two months to November, according to Computer Systems News: only the 10 processor configuration will be ready by then, and users wanting 30 CPUs will have to wait till April.

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Microelectronics Applications Research Institute, the non-profit making organisation set up in 1979 by Newcastle University and Polytechnic, local authorities, and CAP Group Plc, has warned Tyne and Wear County Council that a decision to withdraw £200,000 worth of funding could cause the North East region to lose its "best chance for future prosperity"; MARI employs 120, has 80 additional trainees and is currently involved in nine international research projects including three for the EEC Esprit programme.

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One of the quirks of share pricing which makes it clear that the whole business of buying and selling stock is far from purely scientific or rational is that shares with a lower unit price are perceived to have more potential to rise than those that already cost megabucks - and that when companies do split their shares to create a more manageable unit price, they perform better than they had been in the weeks before the split: latest to seek the benefits is Microsoft Corp, splitting its shares, now at $91.75, two for one, on September 18; the company says that the high unit price was making it hard to offer employees convincing stock options - if the price was $126 back in May, how much further could it be expected to rise? (Stock options allow usually allow holders to buy shares at some time in the future at the price when the option was granted, the idea being that when it comes to be exercised, the price will be in the stratosphere).

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Elxsi Ltd is changing its name a little: from being a faintly suspect Bermuda-registered company, it will become true blue Stars-and-Stripes-Forever Elxsi Corp with its registered office in Delaware.

Minigrams

National Semiconductor Corp is now seeing first silicon on its new flagship NS32532 microprocessor, and hopes to be sampling the 25MHz version of the part, which is stuffed with cache, the fourth quarter.

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Quad Design Technology is rather thrilled that the high-flying Sun Microsystems Inc will be using its Motive system company-wide for design automation and timing verification of its current and future products: Motive, it says, is an interactive timing verification tool for synchronous design that analyses circuits over the worst case range of component parameters without requiring test vectors for input; what's special about it? "Sun, like most companies involved in hardware design, has to consider printed circuit board interconnect delay", says Quad - "This is where our product leads the industry".

- o -

Innovative Software Inc saw fourth quarter net down 13.7 at $692,906, on sales up 34.9% at $5.9m; net profit for the year to June 30 was down 0.9% at $2.7m after an extraordinary gain of $679,000, on sales that rose 40.1% to $18.9m. Net earnings per share fell 29% to $0.17 in the quarter, 24% to $0.66 in the year, compared with figures adjusted for a three-for-two stock split in June 1987.

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Valid Logic Systems has reported a second quarter net loss of $3.8m, against a profit last time of $242,000, on sales down 18.5% at $14.8m; there was a six month loss of $27.2m, against a profit last time of $451,000, on sales down 25.5% at $27.5m. Comparisons are with 1986 figures restated to include the results of Telesis Systems Inc, acquired in May 1987 on a pooling-of-interests basis.

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Data General Corp has been awarded a $10m order to supply the Israel Ministry of Defence with a network of 50 32-bit Eclipse MV computers; the company has also sold an MV/15000 to the London Stock Exchange.

The agreement between Sun Microsystems and National Advanced Systems on implementing the SunOS version of Unix on the Hitachi IBMulators is only at the "in principle" stage, but Sun plans to put 10 systems engineers on it, NAS will put 20, and the effort is expected to take 18 to 24 months.

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And Following its $75m contract from Prime Computer Inc, Sun Microsystems Inc has signed a "multi-million" dollar agreement to supply 3M's Engineering Systems Division with Sun-3 and Sun-4 workstations for use in a new family of electronic document management systems.

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Kalamazoo Plc has followed BIS Group in selling a small hospitality systems subsidiary to a US company; Long Beach, California-based Computerized Lodging Systems is paying an undisclosed sum for Kalamazoo Hospitality Systems; last month, BIS, now owned by Nynex Corp, sold JBA Hospitality Systems Ltd to Hotel Information Systems Inc; Kalamazoo says the hospitality market has become too volatile and it now wants to concentrate on more stable areas.

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Elxsi Ltd has reported second quarter net profits of $266,000, compared with a loss last time of $10.9m, on turnover up 15.5% at $8.0m; net for the six months was $507,000, against a loss last time of $16.1m, on turnover that rose 2.9% at $14.2m. Net earnings per share were $0.01 in the half.

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Tigera Group Inc, the rump of Fortune Systems Corp after it sold of most of its business to SCI Systems Corp, has reported a second quarter net loss of $12.9m, against a profit last time of $253,000, after a tax credit of $116,000, on sales down 86.4% at $1.3m; there was a half year net loss of $14.4m, against a profit last time of $598,000, after a tax credit of $280,000, on sales down 57.8% at $8.6m.

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ALLIANT SETS UP IN EUROPE AND JAPAN - RESTRUCTURES APOLLO OEM AGREEMENT

Minisupercomputer manufacturer Alliant Computer Inc. of Littleton, Mass. is to set up direct sales and support offices in Europe and Japan, following a major restructuring of its OEM deal with Apollo Computer. The company has already appointed a President of European Operations (John Harte, former VP of sales and marketing with Floating Point Systems), and aims to have the offices up and running by January 1st next year. Apollo has since been looking to broaden its choice of compute servers for distributed networks, resulting in the signing recently of Multiflow Computer Inc. of Branford, CT. Alliant signed a three year, $35 million agreement with Apollo at the end of 1985 which made Apollo sole distributor of Alliant's FX/Series parallel processors in Europe and the Far East, where they were sold as Apollo DSP 9000 compute servers. Sales, however, have not been spectacular, and in an effort to increase its share of the international market, currently 20% of the installed base of 142 systems, Alliant will now deal direct with customers in France, Germany, the UK, Italy, and Japan, as well as establishing a direct service operation for Europe in Bracknell, Berkshire. Apollo will continue to sell and support Alliant products, under the Alliant label, in the rest of Europe, China, the Far East and Australia. The move, according to Alliant spokesman Graham Smith, was seen as inevitable by the both parties, and will be followed by further announcements concerning other countries next year. Alliant has been happy with its initial establishment in the international market, he said, but is looking to increase the percentage of international business to account for around half of all sales. Communications tools now include high performance connection with Cray supercomputers through Hyperchannel, and support for DECnet and NFS, as well as Apollo's Network Computing System (NCS). Bob Henson, strategic accounts Manager with Apollo, said that Apollo had wanted to gain technical and sales expertise of more advanced machines, with the expectation that customers would be looking for 40-50 MIPS workstations with higher floating point and integer point performance by next year. Meanwhile, Apollo has signed an agreement with Alliant competitor Multiflow Computer Inc for joint marketing of Multiflow's TRACE supercomputers as compute servers on Apollo networks, particularly for design engineers, where software has been specifically optimised to run under Apollo's NCS system. The agreement involves cooperation in selling, marketing and training. Multiflow systems use Very Long Word Architecture and Trace Scheduling, which compiles operations for simultaneous execution into very long instruction words from standard FORTRAN and C programs.

WHITECHAPEL SET TO LAUNCH IN HOUSE DESIGNED MIPS-BASED 10 MIPS WORKSTATION

Just over a year after Whitechapel Workstations emerged from its financial doldrums with new venture capital funding and a new board of directors, the results of a refocused commercial and technical strategy are about to emerge onto the market. Next month, the company is expected to announce the first product in a new range - a 10 MIPS desktop workstation based on the MIPS RISC chipset but using an architecture designed in-house - which serves to keep future processor options open. It will run Sun's NEWS and Version 11 X-Windows as well as Whitechapel's Oriel interface, and will support Cheapernet as standard and Ethernet as required. Entry level price should be around £20,000. Whitechapel is responding to the recent workstation price war by moving to the middle ground where pressure is less intense - and by going after volume OEM deals, especially in France (where it has a manufacturing agreement with Thomson CSF) and the US.

BT TRIALS DIRECT TERMINAL ACCESS TO DIRECTORY ENQUIRIES WITH UNIX GATEWAY

British Telecom has begun trials of a system that uses a Unix gateway to allow on-line access to directory enquiries. The trial, which runs until the end of the year, is part of BT's plans to expand services and revenues generated from its telecommunications network. It currently links a mere five business subscribers in London and the North by dialup or private lines and is described by BT as an engineering trial to test the feasibility of the on-line service, although it has already generated considerable interest and the number of subscribers is expected to expand over the next few months. Customers get on- line access to BT's Sheffield directories database, the largest installation in BT's £80m directory enquiries system - itself the largest of its kind in the world - which was supplied by STC using systems developed by Computer Consoles Inc. Access to the existing directories enquiries system is currently limited by the number of operators and local bureaux supporting the service; online access would allow BT to offer a potentially revenue generating service that bypasses the frustrations of the operator service, allowing business customers to browse database information with the 1.5 second response times guaranteed by the system. BT last week stated its intention of charging for directory enquiries in future, although it says there are no plans to do so within the current financial year and that there has been no decision on the timing of a full on-line service for business customers.

BANK OF SCOTLAND TAKES PHILIPS' UNIX AND SOFTLAB'S MAESTRO

The Bank of Scotland will be taking £11m worth of Philips Business Machines Unix-based systems for use in its Cabinet project. It was Philips' reputation for banking systems that won it this first UK order for the P9000, and amongst the first worldwide. Cabinet (Customer And Branch Information NETwork) will provide general information services to the bank's branches for customers and accounts and ultimately will include balance sheet analysis functions for loan activities with companies. The P9000 Financial Business Systems will be connected to the bank's IBM mainframes using SNA.

The Bank of Scotland decision to take Philips' Unix-based machines was based not only on its reputation but also because it could offer Unix and a system that could mesh with its existing computer systems.

The P9000 Unix implementation has been specifically developed for banks having security and data integrity features. Seven pilot branches are currently operational and from September 20 branches a month will have their systems installed.

Maestro for C code

he software for the IBM mainframe side of the project was developed using the Maestro IPSE. The Bank of Scotland is planning to use Maestro to develop C code for the P9000, which will be the first time C code has been developed using Maestro in the UK although it has been done a couple of times before on the continent. Cabinet is only one of the projects in which the bank uses Maestro and simultaneously announced that it is adding to its existing Maestro-IPSE by spending £550,000 on a further 80 Maestro terminals, bringing the total to 112. Maestro is the product of a West German software house and is distributed on an exclusive level by Philips in the UK.

In a market where some European software houses are finding it hard to make a go of their product side the Maestro developer, Softlab, achieves 55% of its DM55m revenues from Maestro and two other products. Philips in the UK reckons that it gained around £7.5m in revenues from Maestro alone last year. Maestro is a dedicated software engineering system based on the Philips P7000 minicomputer which provides: information management with multi-file access; syntax guidance and menu prompting; structured design aids and programming aids; code generators for various target languages; integrated tools links to target processors; machine testing support; and project management functions. Code development work is done on the dedicated Maestro machine, P7000, and then the generated code is sent to the mainframe where it is compiled and tested. With the advent earlier this year of Philips' first Unix-based machines the company is now discussing the feasibility of distributing the other two products from Softlab that are specifically intended for Unix and DEC environments, originally Maestro product was developed for IBM mainframes. Softlab reckons that this is the reason for its success - chosing what is, in its opinion the three most widely used operating environments - and being "totally opportunistic". Camic is the Unix-based software development environment that performs many of the functions covered by Maestro and Softlab estimates that as much as 80% of the code of the two software engineering systems may be the same. The reason for the second systems development, Softlab says, is because the company did not want to be hooked into one hardware supplier, in this case Philips, and chose Unix predictably because of its portability and popularity. Softlab says that in the long-term the two product may well become one. The DEC VAX/VMS product is Papics which is a project library for diverse development environments. Papics acts as an information centre for project development, arranges projects in a sensible order; copes with products with a long life-span and a number of different versions to help documentation and maintenance.

GENERAL AUTOMATION HAS LETTER OF INTENT TO BUY BRUMMIE ASTON TECHNOLOGY

General Automation Inc has a letter of intent to acquire privately-held UK Pick vendor Aston Technology Ltd of Aston, Birmingham, the Anaheim, California company announced yesterday. Since its formation in 1983, Aston has carved a niche for itself in several vertical markets, including the legal profession, the Health Service, school and university admin systems, and vehicle fleet management, with supermicros running the Pick and BOS Software operating systems and also Unix. Sales last year were about £3m. Terms of the acquisition were not disclosed. Aston Technology bought its 68000 family boards OEM from Pertec, but that agreement was put into question by acquisition of Pertec by San Optics Inc, and the hardware is likely to be replaced by General Automation's Zebra Pick supermicros and the fault- tolerant Unix machines from its Parallel Computers acquisition - BOS will no doubt run on the Zebras. General Automation is still in buying mode, and it now has its eye on a software company.

The UK arm with turnover of around £7m, says that it has been looking for a suitable acquisition to grow itself for a number of months and chose Aston because of its complementary nature. General Automation added that although Unix expertise within Aston was important, espescially in view of its previous purchase - fault-tolerant Unix machine vendor, Parallel Computers - if the Birmingham-based company had been totally dedicated to Unix the acquisition would probably never have been mooted. This, General Automation says, is because there would have been no 'synergy' between the two companies. Aston says that Pick currently accounts for around 60% of its business, with Unix and BOS sharing the remainder. Most of the BOS activity comes from a company that Aston acquired 18 months ago that had a number of legal systems based on BOS. Aston anticipates that demand for its Pick and Unix-based machines will even out over the next year. Synergy is also the reason that Aston gives for agreeing to the acquisition as well as its need to be a bigger company or have a bigger company behind them to successfully go after some of the larger contracts.

Although Aston's Pertec-based machines will continue to be manufactured, and marketed using its name both companies agree that in the long term a single product line, probably Zebra-labelled, will emerge. The two companies say that they first met competing with each other to obtain rights to the same new product, General Automation now has those rights and will be showing off the first fruits in about a year. General Automation says that it is possible that it may use the Aston's manufacturing facilities to do a greater degree of assembly in this country for the Zebra machines. No redundancies will be made and the combined staff of the two companies in the UK will be around 150.

ESPRIT PROJECT ALLOWS NON-FAULT-TOLERANT BOXES TO FORM FAULT-TOLERANT NETWORK

Fault tolerance is not easy to implement, and the problem becomes considerably tougher when you abandon the controlled environment provided by a proprietary architecture in favour of a standard, open systems approach. So far the market has been dominated by vendors such as Tandem and Stratus that have implemented fault tolerance within a proprietary, "closed" architecture. Recently a few manufacturers have opened things up somewhat by combining their own architectures with varying degrees of fault tolerance on Unix-based systems - Tolerant Systems, Parallel Computers and Computer Consoles are examples, while Stratus also offers a Unix implementation. But a project underway under the Esprit programme of collaboration between European companies and researchers is designed to open up the area completely by allowing replicated general purpose computer systems - regardless of architecture and operating system and not, in themselves, fault tolerant configurations - to be linked in an OSI-conformant network to provide a fault-tolerant distributed system.

The extraordinarily ambitious project is called Delta-4, for open Dependable Distributed computer systems architecture, and in addition to defining the required architecture will result in the development of specific configurations as demonstrations of the architecture in practice - and predictably, the project has settled on Unix as a common denominator for the demonstration systems.

Any project that is not only attempting to break new ground but to do so by combining the efforts of a large number of partners in different countries is up against every technical and organisational problem in the book, but an indication of the progress made so far and the faith in the project is that Delta-4 has just picked up £5m second phase funding from the EEC following the demonstration in April of a reliable file server. A further demonstration is due at the Esprit conference in Brussels at the end of September; this will involve Unix machines from the project's industrial partners Bull and Ferranti linked by an IEEE 802.5 token ring, according to Dave Drackley, Delta-4 project manager at Ferranti. Research bodies Inesc of Portugal, IEI of Italy, LAAS in France, IITB and GMD in Germany are also involved in the project. And if all goes well, it is hoped that future Esprit funding will support the implementation of a demonstration system at the gigantic BASF factory in Ludwigshaven, West Germany. The project involves the development of a computational model for a network where the interactions between processes active on different nodes in the network can be validated, to enable replicated systems to detect failures. The project members will be providing input to the recently established ISO Open Distributed Processing group and the project is likely to result in extensions to OSI protocols to support fault-tolerance in a network.

The current phase of Delta-4 incorporates not only the results of the first phase but also a parallel project, Concordia, which was led by the Microelectronics Advanced Research Institute, MARI, the Newcastle-based supplier of the Newcastle Connection Unix networking software; other partners are Jeumont-Schneider of France with Telettra and the University of Bologna in Italy. Concordia focussed on passive replicated services as opposed to the active replication - systems operating in parallel and continually comparing results - of the first phase of Delta-4; the combined project is intended to support both approaches.

NORSK DATA PROMISES POSIX, FLESHES OUT ND5000 MINI LINE

Determined not to get left out of the running for any contract Norsk Data A/S has decided to implement a Posix-conformant version of Unix on its ND-5000 series. Norsk Data is seeing more and more large contracts, particularly from governments, specifying Posix - even though the standard itself has not yet been finalised. Previously Norsk has offered its 4.2BSD-based version of Unix, NDIX, as a task running under its proprietary operating system Sintran III. The new operating system, as yet unnamed but due for delivery next summer, will run concurrently with Sintran. Sintran will run on what Norsk calls the command processor - front end processor - with the Unix implementation running on the 5000 processor itself. Posix-conformant Unix is promised for the entire ND-5000 series including those just announced - eight new 32-bit minis. When the ND-5000 series was launched in January it was described as a "compact" range but the ND- 5700, 5800 and 5900 introduced then are now considered "tall cabinet models" and the compact label has instead been given to five new machines. The five machines in the new compact 27" by 31.5" by 21.3", 30 to 40 lbs line are the 0.5 Whetstone MIPS ND-5200 Compact at £36,000, the 1 MIPS ND-5400 Compact at £55,000, the 2 MIPS ND-5500 Compact at £90,000, the 3.5 MIPS ND-5700 Compact at £130,000 and the ND-5800 Compact at £230,000. The three other machines take the 66.5" by 37.4" by 23.6", 115 lbs tall cabinet line - top-end 26 MIPS - down below the 3.5 MIPS 5700 introduced in January. They are the 0.5 MIPS ND-5200 at £50,000, the 1 MIPS ND-5400 at £75,000 and the 2 MIPS ND- 5500 at £110,000. All eight machines have a 1.2Mb floppy and are available in A and B models. The A models have one 125Mb 5.25" hard disk built-in as standard with the possibility of three further 125Mb disks being added internally while the similarly-priced B models include only a controller and no disks and can be freely configured. All ND-5000 models, new and old, feature a custom CMOS gate array chip made by LSI Logic Europe that ena-bles the 32-bit CPU to be mounted on a single board. Motorola 68020s are used as terminal, disk, tape and communications processors. All models in both the tall and compact lines are upgradeable to the next model up for almost exactly the difference in price. They come with Unix, X25 and Open Systems Interconnection support. Norsk Data says the lines will account for 85% of its UK revenue in the next 12 months and is forecasting unit sales of 250.

SEQUENT'S SEQUEL SYMMETRY BOOSTS BANG PER BUCK DESPITE PRODUCTION PROBLEM

Sequent Computer Systems' Symmetry machine that promises a peak performance of 80 MIPS has struck problems in the production process of implementing the cache in VLSI. The cache design is the part of the machine that gives it its improved performance and Sequent insists that there is no design problem and that the production problem will be solved over the next few months. The Symmetry machines with the new caching method are being used internally but the reliability of the machines cannot be guaranteed because of the production problems. The new machines will be delivered in November with the old caching mechanism which will only support the ten processor version. The new caching facilities will be available on the Symmetry next April which will then allow the 30 processor configuration. An upgrade path for users that take the intermediary path is being worked out.

The Symmentry ties together up to 30 Intel 80386 32-bit microprocessors and gets an linear rise in power as processors are added by providing each with its own cache memory, a clever memory management scheme bus as hardware assists for the Unix operating system.

Lucrative Commercial Marketplace

Sequent entered the parallel processing market in 1984 with the Balance, based on National Semiconductor 32-bit microprocessors and an efficient, custom-designed, low-cost system bus. Having sold 164 systems it is now established in the technical and engineering markets and with its new range it hopes to expand into the lucrative commerical marketplace. The Symmetry systems consists of central processing unit boards, global memory, dual channel disk controllers and Multibus adaptor boards, all tied together with the system bus.

Each cpu is built up from a 16 MHz 80386, a 80387 floating point unit, an optional floating point accelerator, a two-way set associative cache, and bus interface logic. Two complete cpus are packed into a 12.5 by 14 inch card: an 8-layer printer circuit board that holds the processors, a 64 Kbyte cache and three VLSI chips to manage the cache and oversee the bus. CMOS gate arrays are used for the cache-memory controller and the bus interface controller, while the bus data-path controller is fabricated from CMOS standard cells.

As the system expands from two to 30 processors, the memory expands to keep pace: each memory controller board can handle up to 40 Mbytes of memory using 1 Mbit chips. A full system uses six controllers to give 240 Mbytes of global memory. And the cards have been designed to cope with the forthcoming 4 Mbit memory chips: when these are available the system will support almost a gigabyte of global memory, together with all the logic for error detection and correction, automatic initialising and interleaving between memory controllers.

Each processor delivers 3 mips and operates with zero states when it has a cache hit - when the data it requires is in the cache memory. And this is the problem. Mircroprocessors are now so powerful that designers must either use expensive 50- to 60-ns (nanosecond) static random access memories or use commercially priced 100- to 120-ns dynamic RAMs and introduce wait states - that is deliberately halt the mircoprocessor for a few cycles every time it requests data from memory. Or use a cache and devise a complex cache managment scheme to ensure that when one processor alters the data in its cache, another processor does not use the unaltered data in the global memory. The Symmentry designers chose the last option, partly because they could integrate the cache-management logic with the logic necessary to prevent contention for memory between the multiple microprocessors, and partly because they had decided to use an upgraded version of the bus developed for the Balance machines.

The data highway they developed is a 10MHz synchronous bus with a 64-bit data path and a 32-bit address path multiplexed with the data on the lower 32 lines of the bus. It has an overall sustained bandwidth of 53.2Mb/sec, which means that bus traffic had to be kept minimum. The cache management scheme has to guarantee that the data in the cache (a copy of portions of the global memory) remains current, or coherent; ensure that any changes made to data in the caches are reflected in the main memory when another processor or i/o device wants to access the data; and react correctly when more that one processor tries to write to the same memory location. And it must do all this while holding down bus traffic to aviod congestion and contention and idle processors waiting to use the bus.

The Snoop

Most multiprocessors use the write-through technique: this guarantees cache coherence by following every write to a cache with a write to the corresponding main memory location. Every other cache watches the bus with a "snoop" to read the addresses of all the writes: if the caches contains a copy of that data, the snoop signals the processor to invalidata it. Although this guarantees coherence, it generates a lot of unnecessary bus traffic as the memory is updated every time the cache is written to, even if no other processor is using the data.

Sequent use a copy-back scheme that it claims cuts the number of writes to the global memory by 50 per cent. Tne block of data in the cache are all tagged either "private", "modified", "shared", or "invalid". When there is a cache miss - a processor requesting data that is not in the cache - it is read from the main memory and, if no other copies exist,tagged as private. The processor can then write over the data as many times as it likes without updating the global memory and generating bus traffic, if just changes the tag to modified.

The data in the main memory is now stale, and if another processor requests that data, the snoop monitoring the bus for the cache that owns the data intercepts the request. It then copies the modified data to the requesting processor and updates the main memory with a single bus transaction, and the data in both caches is tagged as shared. This is all done by the cache memory management and bus interface hardware without stealing time from or slowing up the processors.

The first time on of the processors writes over the shared data in its cache, it changes the tag to modified and tells the others caches sharing the data to change their tags to invalid with a single bus transaction. It can then repeatedly write over the data without using the bus. The designers also exploit the bus characteristics to cut the bus traffic still further: for example, the bus protocol is much mor efficient at reading than at writing, which occupies the bus for far more cycles. So, if a processor tries to write over data in the global memory that is not held in the cache, the memory management systems turns it into a read from main memory and then overwrites the data that is read into the cache, tagging it as modified.

Also, the bus itself can handle and queue multiple requests to the memory and i/o devices - three reads, two writes and an i/o request - and will not accept requests from cpus when the queue is full, cutting down on a lot of "request - request denied" bus traffic.

If the Symmetry works as well as the Balance has, Sequent should have little trouble breaking into the commerical market if its price per mips figures are true. They claim a price per mips of between $8,000 and $14,000 for their own machines; $90,000 to $100,000 for the DEC Vax; and $130,000 to $170,000 for an IBM 3090.

DATAVISION TARGETS "WIDE OPEN" DEC PDP-11 MARKET IN US FOR UNIX MIGRATION TOOLS

Ever on the look-out for those desperate DEC PDP-11 users who wish to transfer their Basic-Plus software on to Unix hardware, Blackpool based software house Datavision has established a US sales office in Chicago, Illinois, from where it will sell on the Universe Basic compiler to systems houses and vars. First to cash in on what is, according to US coordinator Tim Fitzpatrick, "a massive and still wide open market over here", are the Chicago-based Intel oem ICOM Systems, Altos' mid-west regional distributor Responsive Computer Systems from Dallas, and systems integrator Zaiaz International from Alabama - Zaiaz produces co-processor boards, based on National Semiconductor or Fairchild chips, which upgrade an IBM PC or compatible to workstation-like performance levels. Datavision, which already has deals with Unisys in Canada and Genroco in the States, has also signed an agreement with Digital Computer Exchange of San Francisco, which will use Universe Basic to sell its Omnix Basic-Plus applications software into the US Unix market. Datavision is currently talking to other Altos distributors, and expects the deals already struck to yield around $300,000 by the end of the year.

MULTIVIEW FOR X-WINDOW COMPATIBILITY AS 80X86 DEALS ROLL IN

JSB Computer Systems Ltd reports high demand for its Multiview windowing system from hardware manufacturers and distributors of Santa Cruz Operation (SCO) Xenix following its deal with SCO earlier this year. The small software house from Cheshire has announced £1.25m worth of bundling deals, including agreements with Altos to supply Multiview on the recent 80386-based Series 2000, and Equinox for the Stride computer, popular in government and health authority markets. £400,000 of the money will come from a joint bundling agreement with SCO's Xenix for Philips' yet to be announced Xenix version of the P3202 IBM AT compatible, due out in November. Also announced was a deal with Softools of Rotterdam, a distributor of applications software, system software (Unix V, Microport V) and hardware, which will supply Multiview with "the majority" of the 1000 or so Bell Technology micros it ships every year in Holland, and through associated companies in Germany, France and Belgium. Softools will also be selling Multiview as an off-the-shelf product. JSB is currently working on Multiview-X - a version of Multiview that will be fully compatible with the much talked-of X-Windows proposed standard. The new version will take advantage of applications written to conform with X-Windows (as well as software without any windowing provision), while still able to run on the dumb terminals used in most commercial installations. A graphics version of Multiview, still running text type applications, is also in the pipeline.

BRITISH NEWCOMER PERIHELION WINS ATARI TRANSPUTER PACT

A new company that brings together some of the leading UK players in microcomputer hardware and software design has won a research and development pact from Atari Corp that could lead to a design contract to create an Inmos Transputer-based personal computer that would also include the Motorola 68000 from the Atari ST line. The company - actually two sister firms, Perihelion Hardware Ltd in Cambridge and Perihelion Software Ltd in Shepton Mallet, Somerset - was formed by Jack Lang, who did substantial development work for Acorn Computers Plc. The seven-strong hardware side includes Richard Miller, who was part of the team that designed the Z88 for Sir Clive Sinclair's Cambridge Computers, and Hugo Davenport, also from Sinclair. The 20-strong software team is led by Tim King, who designed AmigaDOS for Commodore when he worked for Metacomco Ltd in Bristol. The Atari machine will contain most of the components of the current ST: 68000 processor; 3.5" disc drive; keyboard and mouse. Additionally the new machine will have a 32-bit RISC processor, 4Mb memory, and 1Mb double-ported video memory - which will hold two video images, one on display and the other ready in memory to make for rapid animation. The graphics will be handled by a blitter array which uses its own 32-bit bus and also has access to the 4Gb Transputer memory. Tim King and the software division is responsible for developing the operating software for the machine which will be written in C and called Helios. Perihelion intends to develop a system that not only takes advantage of the Transputer's parallel architecture but is also easy to use for traditional programmers. Perihelion is designing the machine so that another Transputer can be put into the micro or connect machines together across a LAN.

MOTOROLA GOES AFTER COMMERCIAL MARKET WITH MBS AS DISTRIBUTOR

Motorola Computer Systems is attempting to take its 32-bit Series 8000 machines into the commercial market by appointing a new commercially oriented distributor in the UK. MBS plc joins Thame Microsystems as the only two Series 8000 distributors in the UK. Thame Microsystems joined the Computer Systems camp in May and its role is to target the technical and industrial segment of the marketplace with the 8000. Motorola has ten VARs for the Unix-based micros and does no direct selling at all in the UK. Motorola's intention in the UK is to continue to market packaged products through third party vendors and sell system components to the OEM and system integrator market. Although Motorola's first foray into the world of complete computer systems marketing was with Convergent Technologies' machines the company does not anticipate taking on other manufacturers' hardware. Motorola no longer sells the Convergent Technologies machines but still supports some of that customer base - although some of its VARs were lost to Convergent distributors, TIS and Star. Motorola intends to develop the Series 8000 by using higher I/O and faster disk and by implementing the 68030 processor as soon as possible. Motorola Computer Systems says of the 68030 that "it does not intend to be second" in bringing out a machine that uses the processor but adds that even though it is part of the same corporation that produces the chips it will not be given any preferential treatment in early delivery terms.

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DEC last week took its complaint against the **US Air Force Computer Acquisition Centre** to the General Services Administration Board of Contract Appeals: DEC's lawyers anticipates that a month will elapse for discovery purposes before a hearing is set for around the end of September.

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The **Concurrent Japan** joint venture with **Nippon Steel** has released Japanese versions of its Xelos Unixalike and its own OS/32, and hopes that it will help lift sales this year to $1m from $570,000 in the year to March: the Japanese functions are said to be the minimum required to "Nipponise" a system, providing Kana to Kanji conversion, a system and user dictionary and an editor; Concurrent Japan began selling its minis in Japan last September.

- o -

Locus Computing Corp's Merge 386 Unix+PC-DOS environment for the 80386 will be marketed by major software house **Nippon SE**: the source will be sold to local workstation and personal computer makers for porting to their CPUs.

- o -

Convergent Inc of San Jose has completed its acquisition of **Bidtek** in a share exchange to be treated as a pooling of interests: Bidtek, specialised in construction systems, will join the **Convergent Business Systems Inc** subsidiary which services selected vertical markets.

- o -

Altos Computer Systems Inc has reported fourth quarter net profits up 275% at $3.0m after a gain of $1.1m from sale of its Informix shares, on turnover up 40.6% at $40.5m; net profit for the year to June 27 was down 52.2% at $9.7m against a period that included a gain of $11.4m on sale of its Wyse Technology shares, on turnover that rose 15% to $153.9m. Net earnings per share rose 283% to $0.23 in the quarter, fell 48% to $0.73 in the year.

- o -

SCI Technology, the proud owners of Fortune Systems has signed an agreement with **HCR Corp** under which HCR's UX-Basic has been ported to the Fortune Formula 4000 and 8000 supermicros.

Minigrams

Apollo Computer Inc, Chelmsford, Massachusetts seems to protest too much, taking a poison pill anti-takeover measure while giving the impression that in certain circumstances it might be quite willing to be acquired: all shareholders will get rights to buy additional shares at $90 a shot under certain conditions which would arise in the event of an unwelcome takeover bid; Apollo says the rights distribution is being made to ensure that all holders receive "fair treatment and maximum value" if a "hostile, unsolicited" takeover should occur, although none is on the horizon - but it would not interfere with any tender offer or business combination approved by the directors.

- o -

As **DEC**'s stock continues to soar - up 19 bucks to around $183 last week while **IBM** shares are only just above where they were 20 months ago, others are beginning to echo our view that there has been a fundamental change in the way IBM is viewed by users, and that more and more of them are beginning to suspect that the emperor has no clothes: with reports that IBM UK is coming under such fierce competition from the likes of **Amdahl**, **National Advanced Systems** and **Comparex** that it has had to tear up its price list for 3090s, leaving users to haggle over terms, Amdahl's president Joseph Zemke told **InformationWeek**, "There is not less Fear, Uncertainty & Doubt, there is greater FUD resistance among users".

- o -

Compsoft Plc is determined to merge to create a stronger group, and after talks with **Sagesoft Plc** broke down, immediately turned to **Multisoft Ltd**, £3m-a-year Alton, Hampshire upmarket Unix-based accounting pack specialist, with which is says talks are in an advanced stage: talks with Format Products for Computers Ltd are also continuing.

Hewlett-Packard Co is tipped to enter the 80386 lists this week with a family of machines that will not only extend its Vectra AT-alike line upwards, but also run its HP-UX implementation of Unix, thus be ing able to run both the technical applications written for the the HP9000 series workstations, but al so HP3000 business applications that are being converted to run under HP-UX: Hewlett-Packard is also expected this month to come out with a new version of its laptop Personalike that will include a floppy disk as an alternative to the present plug-in ROM cartridges.

- o -

ECLips is the name **Motorola Inc** has chosen for the follow-on for its widely-used 10K and 100K ECL technologies for high-speed logic applications: ECLips has typical propagation delay of 350pS with 500pS maximum, and dissipates less power than the previous generations - it has a 600MHz flip-flop toggle rate and offers overall performance of three times that of 10K and 100K circuits - the first parts are glue logic for use with ECL gate arrays, and 14 will be out by April 1988.

- o -

Pyramid Technology has entered an agreement with **Professional Business Computer Systems Inc** - a Scottsdale, Arizona-based reseller of turnkey solutions to the distribution, accounting and legal markets: PBCS will become a Pyramid VAR putting its software on the manufacturers minis.

- o -

America's ubiquitous music television channel **MTV** is now available in the UK (for those with cable TV or a satellite dish!), and in the next two weeks the London offices will be installing a computer system from **Basys International Ltd** to compile scripts and feed them onto the teleprompter - the system will be based around two Wyse 286 PCs with 80Mb disc, 2Mb memory, and Basys' own concentrator units which allow the connection of up to fifty devices, and will eventually also be used for archiving all the videos.

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EDGE SIGNS MAJOR OEM DEAL WITH OLIVETTI

Edge Computer of Scotsdale, Arizona, has signed what is thought to be a major OEM deal with Olivetti, only a month after setting up its first European offices in Lucerne, Switzerland, and promises that two more big deals are on the way - each are said to be worth somewhere in the magnitude of 20-50 million dollars per year. Edge designs and manufactures high density CMOS VLSI supercomputer engines that use the same instruction set as Motorola's 68000 series chips, and Olivetti is to use the engine as the heart of a new high-end machine due out in November.

Started by a team of mainframe designers who learnt their trade at Honeywell, Edge Computer has been funded by $34 million worth of venture capital, and is now preparing to go public. The company plans to open subsidiary operations for the major European markets in the near future. Edge recently acquired 51% of Pick specialists Toltec, and is currently working on Symmetrix - an implementation of Pick and Unix running concurrently - which it says will allow it to address the high end of the Pick marketplace, claiming that the 11 MIP dual-processor Edge 1200 supermini has already been tested with over 1000 users connected.

Olivetti is an investor in Enmasse Computer Corporation of Acton, Massachusetts, which recently licenced Edge/Toltec for the use of its transaction itensive Unix implementation.

DEC SETS THREE MICROVAX III VARIANTS FOR SEPTEMBER 9

The silly season is coming to a close, Labor Day is fast approaching and with it the hectic season of new product launches in the US. One of the first out of the slips promises to be DEC with the first three products to be built around the forthcoming C-VAX MicroVAX III CMOS microprocessor chip set, which is rated at some 2 MIPS. The launch is set for the DECworld show on September 9, and as well as the Q-bus MicroVAX III itself, and the VAXstation III variant, Electronic News looks for a BI bus VAX 8400 built around the new processor; the 8400 is expected to include microcode and other enhancements to lift performance to 3 MIPS and to sell for just less than a similarly configured IBM 9377 Model 90 of the same performance, with a base price of around $180,000. DEC is also expected to come up with microcode changes for the VAX 8700 and its 8800 dual processor variant, increasing their performance from the present 6 MIPS and 12 MIPS to 7.5 MIPS and 15 MIPS respectively.

OMRON-IBM FACTORY VENTURE BEARS FIRST FRUIT

Omron Tateishi Inc has released the first fruits of its collaboration with IBM Japan in the computer- integrated manufacturing field, in the shape of a 68020-based workstation that is designed exclusively for factory automation. Called the FX 9200, it will run a real-time, multi-tasking variant of Unix called R-Omronix, and costs about $13,700 with 1Mb. It will be available in October, runs assembler, C and Basic, and is designed to survive temperatures down to -50 centigrade and voltage swings of 85V to 132V on a 100V AC.

POSIX STANDARD LATE - BUT ISO STOPS RIVAL JAPANESE STANDARD

The Posix 1003.1 trial use standard for a Unix system interface will be about three months late in being approved as an IEEE standard. At the beginning of this year (UX No 110) projections were made for the end of the year but the 1003.1 working group encountered a number of unforssen minor tidying up problems that have taken longer than anticipated and the new date is set for March 1988. The International Standards Organisation (ISO) has approved the initiation of a new work item to address Posix and set up a working group and has also squashed an attempt made by a group of Japanese manufacturers to develop a rival standard to Posix. System Software Interface - the Japanese Standards group wanted to devlop a standard that covered more ground than Posix but was deemed to similar to the Posix effort to be taken up by ISO.

HITACHI HAS RT UNIX CPU

Hitachi today announces in Japan a new top model in its Hidic 5 line of process control computers. The Hidic V90 Model 65 is rated at 8 MIPS, 10 times the performance of the Model 25, and runs under Renix- V, a real-time variant of Unix System V. The machine comes with data input-output interfaces to international standards, including the IEEE 796 bus. Aimed at large- scale use, such as control of power stations, hydroelectric dams or large scale production management and control systems. The machine faces stiff competition from Toshiba, Mitsubishi, Fuji Electric, Fujitsu.

SOUTH AFRICA BACKS UNIX TO AVOID ECONOMIC SANCTIONS

At the first AGM of the South African Unix User Group a plan was hinted at to prevent South African Unix users being affected by users. The idea is for a computer scientist to write a Unix operating system from scrtach following the IEEE Posix and SVID standards. The Unix market in South Africa is put at R60m, or about £17m, over the next two years according to Universal Computer Services' Managing Director, John Bright. Currently there is an estimated 1,000 Unix installations in the country. Bright also thinks that Unix's value is enhanced because of its ability in coping with economic sanctions because of its ability to run on a wide range of manufacturers' hardware.

HP CUTS 9000 WORKSTATION PRICES: APPROVES CMC's DRN-3200 DDN

No major manufacturer can afford to ignore the workstation price war, which was triggered by Sun Microsystems and quickly followed by DEC and Apollo Computer. Accordingly, Hewlett-Packard has slashed the price on its 16.7MHz 68020-based HP 9000 Model 318M monochrome workstation by 36% to $4,990. On the 330s and 350s, the company has also increased the polygon line speed to 80,000 two-dimensional vectors a second from 15,000. On the colour versions of the 16MHz 68020-based 330CH and 25MHz 68020-based 350CH, the resolution has been increased to 1,280 by 1,024 pixels from 1,024 by 768. They also now have eight colour planes plus two overlay planes for text, up from six colour planes and no overlay planes. And on the monochrome versions of the same stations, the 330MH and 350MH, the screens are 19", up from 17". Separately Hewlett-Packard has approved the CMC Distributed Resource Node 3200 Defense Data Network Ethernet Gateway for use with the HP 9000 Unix-based technical workstation family. The CMC product will be included in HP's Information Networks Group list of approved third-party products. The list, used by HP sales representatives, documents third-party products that have been tested for compatibility by the company. Sales and support of the CMC product remains the responsibility of CMC. The DRN-3200 DDN Ethernet Gateway is a high-performance network node that gives Ethernet-TCP/IP users access to the resources of the DDN, ARPAnet or compatible networks. Messages from either the DDN or Ethernet are addressed to the DRN- 3200, which reformats the communication for transmission over the other network.

SUPERCOMPUTER PROCESSOR HAS THE EDGE OVER MOTOROLA 68000

Supermini specialist Edge Computer has been quietly building up its operation in Europe over the last few months, working towards the OEM deals it needs to establish itself over here (see front page). Edge produces complete systems for VARs, such as the 11 MIPS dual processor Edge 1200 for up to 512 users, as well as working with systems integrators. Edge's 32-bit processor is a proprietary CMOS VLSI implementation of an architecture close to the so called Harvard Architecture, which uses parallel fetching of operands and addressesover multiple 32-bit buses, effectively achieving a memory bandwidth that is 64-bits wide. Interestingly, the processors implement the same instruction set used in Motorola's 68000 chip, which allows Edge to target customers who have reached the limits of 68010/68020 processing and are looking for more powerful, but still compatible machines for the top of their range. The company claims that its cpus have a 3-5 times performance (and 18 to 24 months time) advantage over Motorola, and are likely to maintain that advantage even as successive generations of the 68000 family are released (performance of the 68040 is likely to be in the 10-15 MIPS range). Motorola, said a spokesman from Edge, are not too upset by this strategy - after all, it keeps users Motorola compatible, and with RISC competition coming from all quarters its just possible that Motorola could give Edge its blessing with a joint promotion, which would tied power hungry users over until its own technology (namely the 78000 RISC chip) was ready. Meanwhile Edge is working on other projects. It is currently in the process of acquiring one of its own VARS, Toltec Computers (it already has 51% but is aiming for complete ownership), which specialised in running Pick on Edge hardware. Toltec has been working on Symmetrix, a concurrent implementation of Unix and Pick (not an emulation, such as VMark's version of Pick under Unix). Given Pick's acknowledged efficiency with high numbers of users (Edge claims that the maximum number of users on its machines running Pick would be "practically unlimited"), this could be the product that Edge will be using to increase its direct share of the market, especially in the States, where it already has a foothold in the Pick market through Toltec.

ENCORE WINS $4m GOULD PACT

Encore Computer Corp, the Marlboro, Massachusetts start-up-of-all-the-talents that so signally failed to live up to its promise, at last seems to be on its way, and after that major coup with Matra SA in France, has won a $4m five-year OEM contract from Gould Inc. Gould wants to integrate the Encore Annex NS32016-based Ethernet terminal server into its Unix-based Power-node product line. The Annex uses the TCP/IP Transmission Control Protocol/Internet Protocol to link terminals, workstations, Personals, hosts and printers on the Ethernet.

UNIX WORKSTATION PLATFORM - IMPORTANT TO IBM

"The Unix workstation platform is driving many of our decisions at IBM" revealed an IBM vice president of Advanced Engineering Systems at the recent Computers in Engineering Conference held in New York. Andrew Heller also said that "workstations are the most explosive part of the computer industry" and pointed out that IBM's Scientific Division has been moved to the Entry Systems Division in order to accelerate the porting of IBM's Unix operating system, AIX, to the PS/2 Model 80. "The PS/2 is an important part of our product line," said Heller, "but visibly slower" than the desktop systems that will appear later in this decade. (IBM chose not to display PS/2s at the exhibition but to emphasize its 3090 supercomputer processing family.) Heller said there are "three truly exciting" developments in computer architecture: RISC, vector processing, and multiprocessing.

Engineers "will all have the equivalent of a Cray-1 on their desks within this decade," Heller told the American Society of Mechanical Engineers. He projected that "between 1985 and 1990, the price per megaflop will drop by a factor of 100"; clock speeds will approach 75 MHz on CMOS processors, 500 MHz on ECL processors, and 3 gigahertz on GaAs processors; distributed systems with centralized data access will no longer be a feature but a requirement in workstation systems, and they'll be used to design software so that data-intensive parts of a program can be executed separately from screen-intensive parts, allowing applications to transcend machine boundaries. "Engineers won't need balsa wood or clay anymore. You'll be able to visualize, design, and develop a model directly on the computer."

ENMASSE INVESTORS MAKE AGREED BID FOR POINT 4 DATA CORP

Point 4 Data Corp, the privately-held Irvine, California company that builds Data General Novalikes on which it runs the respected but not widely-known Iris operating system, has been desperate for an acquisition that would take it closer to the mainstream for some time now. It was an unsuccessful bidder for Pertec Computer Corp, and reached the point of calling the banns with Alpha Microsystems before the talks broke down. Now it is the subject of what is in effect a reverse take- over bid from a non-operating shell company, EnMasse Computer Corp, a move first mooted here in May. EnMasse, Acton, Massachusetts, ceased operations in January when its venture capital backers refused to put good money after the $18m already spent. They sold a licence to the fault-tolerant transaction-intensive Unix implementation developed by EnMasse to the Toltec-Edge Computers combine, but retained ultimate rights to the development. Now they are proposing to acquire Point 4 Data with a view to Point 4 applying the EnMasse software technology in a new line of Unix machines to sit alongside its Iris machines. The Point 4 managers, who would take control of what is left of EnMasse, including the technology and name, are recommending the $18.7m bid, but the final say is with the venture capitalists who own Point 4. They are J H Whitney, Oak Partners, Hambrecht & Quist and Morganthaler ventures. Oak Partners is also an investor in EnMasse Computer, along with Hambro International, Olivetti International Technology, GE Venture Capital and Oxford Partners.

ICL TEAM REPORTS MILESTONE IN ALVEY PARALLEL PROJECT

The ICL-led Alvey Graph Reduction In Parallel project will produce a parallel processing machine designed for declarative languages by the end of the year. The project collaborators: High Level Hardware; and University College London; along with ICL last week announced that the group now has a fully simulated design with prototype components working. ICL says that the difference between this development and the existing parallel procesors around is the way that it has been modified to specifically run declarative languages: avoiding the usual stumbling block with parallel machines - that they are difficult to praogram. Graph reduction is a process that generates a number of tasks or branches from one instruction, which can be carried out in parallel - unlike traditional programming methods which use a sequential approach with only one instruction being carried at out at a time. Although sequential machines can run declarative languages the attraction of parallel machines is that they usually offer better price-performance. The GRIP has four Motorola 68020 processors on each processor board, and ICL says that prototype boards are already working. Eventually the group intends to plug in up to 20 boards but initially only ten will be used. When the parallel processing machine is ready it will be front-ended by a High Level Hardware Unix-based Orion system. This prototype will be the basis for a programme of experimental work on the capabilities and use of this type of machine which will be carried out at University College London during the remaining year of the project. A second prototype will be used by a research group at the University of Essex which is developing a logic language for parallel processors and will port it to the GRIP. ICL anticipates that customers with decision and financial modelling problems as well as CAD applications will be the main users of the product.

GEI ADDS COUNTERPOINT TO MULTIFLOW AND CELERITY LINE-UP

COunterpoint Computers has signed a marketing agreement with GEI Rechersysteme GmbH of Aachen in West Germany. GEI will market the Counterpoint products under the name GEI 19K and will distribute them exclusively receiving support from the UK base but buying from the US. Adding to its Multiflow and Celerity products GEI will develop the Counterpoint range for scientific and research markets.

SCHLUMBERGER-FAIRCHILD: SIX WEEK DEADLINE

Schlumberger Ltd doesn't want the uncertainty over the future of its Fairchild Semiconductor unit to drag on indefinitely, and according to Electronic News has set a deadline of September 30 to settle its future. On the table is an offer from the management, backed by CitiCorp, which would set the unit up as a freestanding company. Intergraph Corp in Huntsville, Alabama had wanted to be a part of this bid, but there has been some opposition from within the company, and its present position is uncert ain. Its main aim in getting involved was to ensure the future of the Clipper 32-bit chip set used in its top-end workstations - but it is now reportedly evaluating the Sun Microsystems SPARC chip as an alternative - ironically supplied to it by Fujitsu, one of the several sources: Fujitsu originally was to have taken an 80% stake in Fairchild, but backed off after political opposition in Washington, and decided a month ago not to have any involvement at all in the buyout. The other company named as interested in at least a part of Fairchild is National Semiconductor which is said to have made the "best offer".

AUSTEC GETS ITS LARGEST LICENSING CONTRACT FOR RM PRODUCT

Austec Inc announced the signing of the company's largest product licensing contract for a product out of the recently acquired Ryan McFarland. The contract for Austec's RM/COBOL-85 language compilers, valued at around to $1m, was signed with existing customer Hospital Corporation of America of Nashville, Tennessee. According to John Bauer, HCA assistant vice president of systems development, RM/Cobol-85 was chosen because it has the built-in network capabilities needed to enable any machine on the network to read data from any other machine's files. So that the doctor can access records directly from the radiology department of the hospital via the network. HCA intends to use RM/Cobol to provide a technology base for its network of 25,000 affiliated offices.

ALTOS HELPS MICROSOFT WITH UNIX

Microsoft Corp last week announced that Altos Computer Inc will be assisting it in its Unix implementations. Altos clarified the announcement by saying that it was more a matter of making a relationship more official that had been continuing for about five years. The two companies will collaborate on a project to develop the operating system specifically for the Altos' new 386 machine.

THEOS SOFTWARE's THEOS 386 EXPLOITS FULL POWER OF 80386

There may be many out there who believe the world needs another 32-bit operating system like it needs another gang of mine-sowing Ayatollahs, but Theos Software Corp, Walnut Creek, California is pressing on with a 32- bit version of its Theos operating system, for Intel 80386-based computers. Theos 386 runs in 80386 protected mode, so it can address the full 4Gb of physical memory and up to 64 Terabytes of virtual memory. It can therefore support as many as 128 users, each with 4Gb of addressable memory, and also handles up to 999 tasks, each with up to 23 files. The system includes a debugger, linker, and Exec job control as standard while Basic and C compilers are optional. Although Theos 386 is not directly compatible with either MS-DOS or Unix, it is Unix and C source code-compatible with minor modifications. It has a new C compiler that includes functions and utilities for creating a data bridge between Theos 386 and MS-DOS, and as well as meeting ANSI C standards, it includes bridging utilities called Put File and Get File, as well as 250 functions for VDI graphics, multitasking, and file access. Developers will typically have to remove components like file and terminal system dependencies from existing C applications before recompiling them to run under Theos. Unlike previous versions of the Theos operating system, Theos 386 will use a Unix- like hierarchical directory structure, according to Microbytes Daily. A windowing environment is said to be under development for future releases of the OS, and a compatible version of Ryan-McFarland Cobol is promised soon. The operating system will be available to OEM customers by October with the final version set for January 1988.

MISSION TO HAVE XENIX ON 386 SOON PLANS TO MANUFACTURE IN THE UK

Flavour of the month - Mission Electronics, first out with a 20MHz 80386 machine earlier this month, expects to have a Xenix available on the machine in the not too distant future, and is currently working on a prototype version of the SCO Xenix 386 while it waits for delivery of the real thing. Technicians from the ten year old British hi-fi company, which developed the box in conjunction with Advanced Logic Research in California, where it is being manufactured, expect 10 to 12 users to be adequately supported on a xenix version given a suitable 16 port add-on card, for which they are now searching.

APPLE COMPUTER PUTS UP $1m PLUS FOR SMALL STAKE IN DATABASE DEVELOPER SYBASE

In a move clearly intended to lock up a relational database management system for its 68020-based Macintosh II, Apple Computer Inc is participating in the second round of venture financing for Sybase Inc, of Berkeley, California, putting up a sum reportedly in excess of $1m for a 5% stake in the company. The investment is being made through Apple's Strategic Investment Group. Sybase markets a distributed SQL-based relational database management system and says that it intends "to integrate Macintosh into the Sybase distributed product line". Apple is co-investing in the current $3.3m round alongside Sybase's previous backers, which include Hambrecht & Quist Venture Partners; TRW Corp; Kleiner Perkins Caufield & Byers; Charles River Ventures; and Oak Investment Partners. Sybase was founded only in November 1984; its database is built on a requester-server architecture designed for high volume performance, enforced integrity, high availability, distributed data management and windowing tools. It consists of a DataServer for all data management, and a DataToolset of visual tools for building and running applications on character or bit- mapped terminals. Sybase is currently available for DEC VAXes and Sun Microsystems stations.

MINISTRY OF DEFENCE CONTRACT WILL BE BIGGEST EVER FOR UNIX IN THE UK

Four consortia are bidding for the multi- million pound 10-year Unix-based office automation contract with the Ministry of Defence, which is thought to be the biggest Unix order in the UK to date. The contract is heavily focussed on Open Systems Interconnection standards as well as tight security. Each of the four consortia which have been chosen to bid for the contract have been briefed to set up a prototype system, which involves two manufacturers' kit. The four consortia are as follows: a group led by British Telecom, including Systems Designers, Honeywell Bull and Nixdorf; a group led by GEC Telecommunications including DEC, GEC Computers and ITL Plc; a group made up of ICL, Coopers and Lybrand, Data Logic and Hewlett-Packard; and a fourth led by Software Sciences, with British Olivetti, Datasolve, Gould Electronics, IBM UK, Logica Space and Defence and Scicon. The Ministry is linking 40 of its buildings and it will narrow its list to two consortia, which will be expected to build two prototype systems each to support around 500 users with 12,000 terminals and 3,000 printers.

PLEXUS LAYS OFF 20 AS IT MOVES AWAY FROM STAND-ALONE UNIX

Plexus Computers has laid off 20 of its 278 employees as it cuts down on its stand-alone Unix-based computer offerings and starts to push its Extended Data Processing system. The 20 members of staff to go are from engineering, sales and field service operations dedicated to Plexus' Unix offerings. Plexus says that a company of its size only has limited resources and so has to put them into areas that offer the greatest possible return. Although Plexus admits that some of the 20 employees could have been kept and retrained for the XDP side the company believes that hiring new people is more effective. The company adds that it will be hiring replacements for all the 20 lost.

LONDON's POLICE SPEND WITH SYSTEMS DESIGNERS TO CLEAR THEIR PAPERWORK

The Metropolitan Police has enlisted Systems Designers Plc as prime contractor in a £17m project to provide it with a computerised Crime Report Information System, CRIS. The system, to replace the Met's current paper- based crime report system, will used an array of DEC VAXes and MicroVAXes running Relational Technology's Ingres/Star. Some 30,000 police officers and civilian staff will have continuous access to the report system, rated at 19,000 transactions an hour, drawing information from 233 DEC MicroVAX IIs situated in 75 police divisions throughout London. Each MicroVAX will in turn be linked to a VAXcluster of eight VAX 8700 minis running the Ingres/Star database under VMS. Links will be made via the existing MetNet X25 network. Ingres/Star allows users to access data from any of the processors without saying where it is located. Each VAX 8700 will have 64Mb memory and access to 56 622Mb disk drives. The database will hold six years' reports from all divisions involved, allow cross-divisional searching and updating, and back-up if a divisional processor fails: Systems Designers has a contracted switchover time of 10 minutes but expects it to be done in two - coordinate computer operations and produce central statistics. Divisional stations will store two years' data on their 16Mb MicroVAX IIs with one to four 159Mb disks. Local police stations will get smaller MicroVAX configurations. System Designers won the pact in competition with CAP bidding IBM software, and Data Logic with Siemens kit. Terminal Control Units will come from Lynwood Scientific Developments Ltd, Alton, Hampshire.

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Minigrams

Nippon Apollo Computer over in Japan is as active in seeking to expand into the general purpose business computing market as are its siblings in the US and Europe: the Tokyo firm is setting up a business software development organisation, sending technical staff to the US to participate in the design of key system software such as database managers, communi cations control software, and Japanese language processing with a view to winning business with applications such as stock control, sales order entry, and office automation, in-cluding decision support and word processing.

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Sign of the times? A travel and expense account management package for larger firms, called Capture, to be marketed by a new American Airlines unit also called **Capture**, is written to be run under Unix.

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AT&AT Co is tipped to bring out its version of Olivetti's 80386-based AT-alike on September 2, and will also add the dual processor.

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Underlining its ambitions to stand out from the pack and be perceived as a major player in the computer industry, **General Automation Inc**, Anaheim, California has applied for and received approval to have its shares traded on Amex, the American Stock Exchange, in New York: the company's shares were admitted to the lists on Tuesday this week.

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Printing and publishing house **EMAP** has awarded **Microdrive Systems** of Hampshire a contract worth £200,000 to install advertisement sales and accounting systems at three of its regional companies - based on the Altos 3086, 2086 and 1086 machines.

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ISI Inc distributor in the UK, **CPU Peripherals** of Woking, Surrey, is marketing a Xenix compatible version of the ISI WORM to give Xenix users what it terms "a low- cost permanent optical archiving facility".

Informix Corp in Japan has teamed up with **Ascii Corp** to develop a kanji version of its relational database manager for Unix and MS- DOS for next May: development of an MS-OS/2 version of In-formix is due to get under way any day now.

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NCR Ltd has won a £1.5m order from the **House of Fraser Group** for the first phase of its national merchandising computer system: the group's 46 largest stores will be equipped with the 32-bit Unix-based Tower 32/600, which will be networked to a central mainframe - the system will help control goods ordering and receipts, and produce local management information.

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Car rental company as well as department stores are also getting in on the Unix act - **Guy Salmon** has placed an order with IBM dealer, **Care Software Technology** for a £450,000 wide area network system using the IBM 6150.

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Unisoft the US subsidiary of **Root Computers** has opened its fifth technology centre in Boston, Massachusetts: the centre will be headed up by Reuven Koblick, previously a supervisor of Unix development at AT&T - who oversaw work on the System V Verification Suite.

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Hawke Systems of Slough, Berkshire has launched Eurocom 5 from Eltec Elektronik - a 68020 VMEbus module running Unix System V.3.

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Pafec , Nottingham CAD/CAM supplier, has ordered £300,000 worth of workstations from **Apollo** for use in its finite element division - its Prime 9955 mainframe has been dumped in favour of the Apollo Domain network, according to Apollo.

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Apollo also announced that Modula-2 will be available on its complete line of workstations.

IBM's new Personal System/2 and its OS/2 operating system have gone down like a lead balloon with the Japanese software industry, which shows no inclination whatsoever to develop applications for it: a survey of 80 software developers conducted by the Japan Personal Computer Software Association evinced comments such as "development of software for PS/2 will be difficult because of the open system architecture in which only the interface is disclosed" and "the PS/2 excludes third parties through copyright laws because OS/2 conforms to System Applications Architecture, IBM's own application software standard"; seems IBM has a big educational job on its hands, because if PS/2 is to succeed, it will need all the applications it can get.

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Olivetti's Ivrea, Northern Italy plant has taken on the **Softquad** publishing software to help produce documentation for its product range: Unixsys in the UK sold the product and is tailoring the product for Olivetti's specific needs.

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The annual Board of Director elections have recently taken place for /usr/group: new to the nine- member board are Heinz Lycklama of **Interactive Systems Corp** and Donal O'Shea of **Unisoft Corp**: Bob Ackerman now of **X/Open**, Pamela Gray from **Sphinx Ltd** and Doug Michels of **SCO** have all been returned for additional two-year terms.

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BF System, part of the Swiss **BF Group** and a **Unisys** and **NCR** VAR, has signed an agreement to distribute Uniplex-II Plus throughout Switzerland.

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And Uniplex-II Plus from **Redwood** is also available on **Systime's** Unix- based machines.

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Sphinx Ltd will be marketing Micro Focus Cobol compilers throughout Europe using its ICUS partners.

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UNIX/XENIX MERGE "NOT EXPECTED UNTIL LATE 1988

Originally scheduled to appear at the end of this year, it now appears that delivery dates for the promised Unix/Xenix merged operating system implementation has slipped into the second half of 1988, delegates at the Santa Cruz Operation's Xenix Developer's Conference in San Francisco were told last Thursday. First announced at the beginning of the year by Microsoft and Interactive Systems, the merge was later endorsed at Uniforum by the participation of AT&T and the Santa Cruz Operation; the intended result being an operating system providing binary compatibility for both Xenix and Unix for Intel-based hardware, marketed under the Unix banner. More recently, in a letter sent out to developers, AT&T revised the expected date to "mid 1988". Microsoft's Paul Maritz, quoted in Microbyte Daily, said at the Conference that with SCO, Microsoft would ensure that all extensions of Xenix would be compatible with the new standard. In London, SCO's Stuart Hooper expressed little surprise at the delay. "With four companies involved, you might expect timescales to slip", he said. One reason, he suggested, might be due to discussions over whether features such as graphical interfaces and windowing should be generic features or left as "added value" for individual vendors. Microport Systems President Charles Hickey pointed to recent reports in the U.S. press indicating that SCO themselves might not begin shipping the product for another two years. "The main work for the 386 is being co- ordinated through Intel", he said "and no other vendor should receive any major advantage over the others".

...BUT SCO PROMISES SOFTWARE BRIDGE WITH OS/2[

While reaffirming SCO's plans to release versions of Xenix for IBM's PS/2 range, which are currently at the beta test stage, by the end of the year (UX 138), SCO's David Bernstein said that both Microsoft and SCO are working on "a bridge to OS/2 for software developers". Consisting of compatibility libraries that map system call between OS/2 and Xenix, the product "will also provide compatibility between the OS/2 LAN manager and Xenix- net". The approach follows on from VP/ix, a product used by SCO for running DOS under Xenix, developed jointly by Phoenix Technologies and Interactive Systems for running DOS under Unix. Rivals Locus Computing signed a joint development contract with IBM recently (UX 136) for the development of a subset of AIX for the PS/2.

PYRAMID AND SYBYSE IN OEM AGREEMENT

Announced to the UK last night at the Very Large Database Conference & Exhibition in Brighton was an OEM agreement between Pyramid Technology and database specialists Sybase Inc of Berkeley, California (as predicted in UX No 136). Pyramid is to sell and support Sybase's relational database management system for on-line transaction processing applications. Sybase runs across a variety of operating systems, but company President Mark Hoffman said "Unix has now emerged as an important departmental and mid-size system standard in the commercial market - to be part of that market we selected Pyramid as our high-end platform". Pyramid will be offering hardware and software support for the product as well as setting up a set of database training courses for customers.

AT&T ADDS TOP-END TP MULTIPROCESSOR AND 80386 WORKGROUP SYSTEMS

AT&T's big Data Systems launch yesterday extended the 3B range up to a 15-processor system claimed to offer up to 43 MIPS and aimed at transaction processing applications, and included two Olivetti-designed 80386 machines launched by Olivetti back in June. The new 3B4000 uses a master-slave arrangement - as opposed to the fully symmetrical multiprocessor some observers were looking for - using processors from AT&T's WE32100 family, with a master processor dynamically allocating tasks to other available processors, and also able to run jobs itself. The system, which in its full configuration is claimed to support up to 300 users, follows the trend of allowing processors to be added to give progressively more powerful systems. Prices for the 3B4000, which runs System V.3, start at $187,000; AT&T is promising to ship in March. AT&T produced not only vice-president of Data Systems Vittorio Cassoni but also Microsoft's Bill Gates at the launch, which included some 40 computer and networking products overall. The 6386 WorkGroup System 80386-based machines, launched as the M380 by Olivetti in June, are promised to be able to run the major operating systems written for the chip, including System V concurrently with MS-DOS, and OS/2. AT&T claims the machines will support up to 32 users. The desktop 6386 model has from 1Mb to 48Mb RAM, while the floorstanding 6386E has from 2Mb to 64Mb; both machines come with either 5.25" or 3.5" floppies and prices range from $4,899 to $10,395. AT&T is also promising the ability to run Xenix tasks when the merged Unix/Xenix product - looking further away every day - finally becomes available.

NATIONAL SEMICONDUCTOR's $122m PAPER BID WINS FAIRCHILD C

Confirming reports that have been circulating for a month (CI No 751), National Semiconductor Corp announced yesterday that it has definitive agreement with Schlumberger Ltd to acquire its Fairchild Semiconductor unit for about $122m in shares and warrants which, if fully converted, would give Schlumberger about 8% of NatSemi. The deal does not include certain unused Fairchild facilities, including ones in West Germany and Japan, and related indebtedness. Schlumberger will report Fairchild as a discontinued operation, and the French company says it expects to post a third quarter loss of approximately $220m in connection with the deal. Schlumberger reported a loss of $25.6m in its third quarter to March 8, including a $15m charge tied to restructuring. NatSemi's president and chief executive, Charles Sporck, was exuberant about the purchase, say- ing, "In acquiring Fairchild, National becomes America's best technolog ically balanced semiconductor supplier with leading-edge capabilities in CMOS and bipolar products across a broad line of proprietary offerings." NatSemi does about $1,000m a year in chips, Fairchild about $500m. Sporck noted that Fairchild's strength lies mainly in the mainframe mar- ket, while National Semiconductor excels in the computer peripherals business. Among the more recent offers for Fairchild was a management buyout, backed by CitiCorp, that would have left the unit as a freestan ding company. Intergraph Corp, Huntsville, Alabama, had reportedly wan- ted to play a part in the management's bid, but sources indicated that opposition from within the company may have put a stop to that. Inter graph wanted to ensure the future of the Fairchild Clipper 32-bit chip set used in its top-end workstations, but the company is now reportedly evaluating the new Sun Microsystems SPARC RISC chip as an alternative.

NIXDORF UNVEILS DUAL PROCESSOR UNIX AND MS-DOS PROFESSIONAL WORKSTATION

Nixdorf Computer has extended its Professional Workstation range with the dual processor PWS-X running Unix and MS-DOS simultaneously. System V.2 and MS-DOS 2.11 will each run on one of the two processors an Intel 80186 and 80286. The operating systems will, says Nixdorf, run simultaneously in separate windows. The PWS- X has a 15" monochrome screen and uses a modified multibus which gives it up to 32-bit addressing and provides 8Mb of RAM. Up to 40Mb hard disk and 0.8Mb floppy disk drive.

EUUG PLANS FUTURE STRATEGY

The European Unix User Group is holding a meeting of National Group Representatives this weekend to discuss long-term objectives and services, in order "to better coordinate, anticipate possible future problems and be in a position to develop an overall strategy and action plan". Working Groups will concentrate on topics such as publications, conferences and exhibitions, and the EUUG User Network.

SEQUENT ENTERS LIBRARY AUTOMATION MARKET IN CLSI OEM AGREEMENT

Library automation systems supplier, CLSI, has gone to Sequent for hardware for its LIBS 100 database management systems. CLSI says that it chose the Sequent machine because it satisfies the demand for a large number of terminals without performance degredation. CLSI sees systems supporting over 100 terminals in liraries being commonplace over the next few years. The software for the sequent Balance has been specifically designed to suit the parallel architecture of the Sequent machine. The new Sequent OEM has been in library automation since 1971 and has 282 systems installed worldwide with around 1,200 libraries on-line.

ALTOS BUYS INTO CHINA

Altos Computer Systems has acquired a majority interest in Chinese applications specialist Hi-Rel Ltd of Honk Kong, renaming the company Altos Computer Systems Far East Ltd. It has offices in Peking and Shanghai, China as well as in Honk Kong.

NEW 386 OPERATING SYSTEM "WILL EQUAL UNIX/XENIX SALES OVER THE NEXT THREE YEARS"

A new multi-user, multi-tasking operating system that runs DOS programs is hoping to take advantage of the lack of operating system software available for Intel 80386-based machines. PC-MOS/386 was developed by The Software Link, of Atlanta, Georgia, and now available in this country through East London distributors Intercompany Communications Technology Ltd. According to ICCT, the product has advantages over both OS/2 and Xenix/Unix in that it can run most DOS programs, including new software written in 32-bit mode. ICCT expects sales to be at least "on a par with Unix/Xenix over the next three years".

The Software Link have worked on similar products over its six year existence - Multilink sat on top of DOS and provided multi-user/multi-tasking capabilities for PCs; more recently Lanlink provided the software facililty for up to 16 PC users to connect up with a file server. With appropriate serial port boards such as the Specialix AT8 or Stargate a 386 machine can support up to 25 users, and multi-tasking up to 4 Gb. File and record locking is handled with standard file-sharing calls. Users see a similar environment to DOS with most of the same commands, except where Microsoft got touchy about the copyright. PC-MOS runs on all 386 machines that use the Pheonix BIOS, and in tests in the States, 93 out of the top DOS software products ran (although the operating system does have problems with "terminate and stay" residents such as Sidekick. PC-MOS costs £195 for the single user version, £595 for the five user version, and £995 for 25 users.

HEWLETT-PACKARD VECTRA CS LAP-TOP "THIS WEEK"

Hewlett-Packard's "imminent launch of an 80386 model in the Vectra Personalike line" turned out to be premature, and that machine is not expected for a month or two now, but in the meantime, the enhanced lap-top is now expected from Hewlett-Packard this week, probably appearing as the Vectra CS. Expected to use a NEC V30 8086-compatible microprocessor - the 17 lbs 10 oz machine is said to have a 12" full screen LCD, and full- size keyboard, and to run eight hours between battery charges. With 640Kb, two 3.5" 1.44Mb floppies and four slots, it is tipped to cost $2,500, rising to $3,600 with 20Mb hard disk. Expected soon after is a version of the 80286 Vectra with 3.5" drives; the 80386-based machine is expected to come in a tower housing and to run the HP-UX Unix V as well as PC-DOS.

STAR COMPUTER GROUP ACQUIRES PINNACLE COMPUTER SYSTEMS FOR FIELD MAINTENANCE OPERATION

In a bid to broaden the base of its commercial systems business, Star Computer Group PLC, which claims to be the largest supplier of computer systems to the UK accountancy profession, has acquired systems house Pinnacle Computer Systems Ltd. Pinnacle markets field service maintenance systems largely to the computer industry itself (it boasts custom from Motorola, Torch, Harris Systems and ICL Jamaca, as well as Star itself), using software written in the Sculptor fourth generation The successful bid, which gives Star 51% of the issued share capital of Pinnacle, comes after an unsuccsessful approach by competitors Optim last November.

According to Pinnacle's Ian Cauldwell, privately owned Pinnacle was too small a company to take advantage of the increasing number of major accounts emerging. Pinnacle currently has 23 systems installed, and says it is adding more at an average rate of two a month. Recent research puts the size of this market at up to 3,500 systems over the next five years. The main competition comes from DEC suppliers Compustatic, and Unix systems house Optim. Although Star is a distributor of Convergent Technologies machines, Pinnacle says it will continue to offer customers a choice of boxes, including Altos and Honeywell, as well as the IBM 6150 recently taken on by Star.

OWL TO PRODUCE UNIX-BASED HYPERCARD SOFTWARE: OTHER VENDORS DISPLAY WARES AT MACWORLD

At the recent MacWorld Expo vendors were showing off their HyperCard products and promising more for the future. Owl International said that it will bring out a version of its hypertext system, Guide, for IBM PCs and compatibles. Alan Boyd, president of Owl, said the program, currently called William Tell, will bring both Apple HyperCard and hypertext capabilities to a wide variety of non-Macintosh personal computer users. William Tell will be written for PS/2s and PC ATs. It will run under Microsoft Windows 2.0 and will provide all the functions of Guide 2.0 plus the ability to do randomly shaped windows and documents, full-motion video inside windows, and hook to SQL-type databases. The package will be able to use Guide or HyperCard files. It's supposed to be ready by the end of the year. Version 2.0 of Guide for the Macintosh, to ship in September, will have improved formatting, network support, and "command buttons." Command buttons permit any Mac program to be integrated into or driven from Guide 2.0. Boyd said version 2.0 will make Guide the "industrial-strength hypertext product." Asked what advantages Guide 2.0 will offer over Apple's soon- to-be-bundled HyperCard program, Boyd pointed out that a HyperCard application requires the 380K HyperCard engine, while Guide 2.0 applications can be run from the 40K Guide desk accessory, Guidance. "We have a two-year technology lead over Apple in hypertext," Boyd claimed. "We plan to use this lead, in conjuction with Apple's endorsement of the concept, to create new markets on other hardware." Guide 2.0 will be available in September for $199.95; $40 upgrades for 1.0 owners, Owl said. The company plans versions of its products for Unix and OS/2 and for the Atari ST, Commodore Amiga, and Apple II GS computers. Data Desk International claims to be shipping its HyperDialer now. According to the company it's "a $29.95 box that plugs into the audio port and will dial a telephone from a HyperCard dial command through the phone itself, not the line that it is connected to." Solomon said that with this device, "multiline business users" do not "have to tie up an expensive modem or a serial port on the Mac to have the functionality available to them." Data Desk is no stranger to the Macintosh market, having developed a similar product, PhoneLink, that is used for the same purpose with Borland's SideKick for the Mac. Loretta Stagnitto of Activision said the company will be shipping two HyperCard products in the fourth quarter. Business Class is an "electronic travel assistant" that provides facts about 60 countries. Focal Point is a time and information management system that can link with other HyperCard information stacks, such as appointment calendars, she said. Laserdisk players will also be controlled by HyperCard, with firms such as Optical Data and the Voyager Company already selling customized laser videodiscs for use with Apple's new product.

WHITECHAPEL LAUNCHES NEW GENERATION WORKSTATIONS AND LOOKS TO EUROPE AND THE US FOR OEM DEALS

When Whitechapel Computer Works (since renamed Whitechapel Workstations) launched its original MG-1 in September 1984, the idea had been to fill the gap between personal computers and scientific machines with a National Semiconductor 32016 based virtual memory graphics workstation priced not far above a PC-AT. Costs were reduced by using a single board VLSI design and PC style engineering and manufacturing techniques, and the MG-1 was one of the first workstations to include an AT bus, now a common feature amongst competitors. But with PC users ever hungry for more power, and the prospects of high volume, low-end workstation sales becoming more evident, the MG-1's chosen market began to be squeezed from both above and below. In 1987, a small company such as Whitechapel can only watch from the sidelines as the established workstation vendors such as Sun and Apollo prepare to fight it out with the new generation of 80386-based personal computers.

A change of stategy, originating from the time in July 1986 when Whitechapel went briefly into receivership, only to be refinanced by its principal venture capital investors, is unveiled by the company this month in a bid to retain its competitiveness. Whitechapel has sidestepped the fierce low-end pricecutting by launching a new mid-range workstation, the W-10. To be launched at the end of the month, this is the first of Whitechapels new generation of machines, and utilises the RISC-based R2000 chipset with integral floating point accelerators from MIPS Computer Systems of Sunnyvale, California, giving a claimed performance of around 10 MIPS for an entry-level price of #20,000. MIPS has recently unbundled its cpu technology and put prices in line with Intel's 80386 microprocessors, allowing companies such as Whitechapel to buy chip level products and design the architecture themselves. This gives a certain degree of microprocessor independence, protecting them from unforseen swings in the marketplace. MIPS' reduced instruction set processors have been used as the basis for machines from Prime, Silicon Graphics, Cadnetix, and Recal Redac in recent months, and MIPS are currently carrying out an aggressive software program in the States. The W-10 incorporates cpu, fpu, mmu, instruction/data cache and write buffers contained on Whitechapel's own-designed modular board.

Commercial attitude

W-10 workstations will come in either desktop or deskside versions with 16 or 20 inch high resolution (1280x1024) colour monitors, and again include an AT Bus for standard add-on boards such as modems and frame grabbers. Either 95, 170 and 320Mb hard disk options are available with an MS-DOS compatible floppy disk drive. 60Mb backup via tape cartridge is available as an option, and 8 Mb standard memory can be expanded up to 40Mb. Whitechapel's new found commercial attitude is shown by it's willingness to adopt standards: both Unix 4.3bsd or Unix V can be supported, as can both X-Windows from MIT and Sun's NeWs distributed window management. And in case you prefer Whitechapel's own Oriel windowing system, that's there as well. The systems can be networked via Ethernet, with support for TCP/IP and NFS protocols, and there is an onboard Cheapernet transeiver for low-cost LANs upgradable to Ethernet. The machine has been designed to be as attractive as possible to oems, a strategy that even extends to the packaging - two designs will be produced, one with a standard IBM type casing, the other with a more individual design for Whitechapel to sell on itself. One of the primary goals set for Whitechapel by its new board in July 1986 was a significant percentage of volume oem business, an important factor in the future profitability of the company. Accordingly, Whitechapel has been gearing up for oem deals in both Europe and the States, initially by setting up a manufacturing agreement with the giant Thomson CSF, and a third party maintenance agreement with Control Data, both in France. Offices have already been set up in France and Belgium, and more are to follow. There are attractions, according to Malcolm Barnes of Whitechapel, for oems dealing with a small, local equipment supplier - they can deal direct with the system's engineer at Whitechapel, rather than through a UK or European subsidiary mediating for the American head office. Whitechapel can also offer an oem customer flexibility to adapt the product to particular requirements. Oem deals from America sound like an entirely different story, but Whitechapel is in the process of setting up an office, and says it is talking to three US companies (announcements promised at the Computer Graphics Show). Here, the company is targeting those trying to break into European markets that feel a machine of European origins would give them an advantage.

Network strategy

The new product, and future systems (more announcements are expected early next year) are designed to fit in with Whitechapel's distributed graphics networking strategy, announced in June at the European Unix User Show in London, using the standards mentioned above, in particular NFS for the integration of multi-vendor hardware. At the same time, the MG-300S RISC-based compute engine was launched, a box manufactured by MIPS Computer Systems and sold by Whitechapel as an oem. This, and MIPS' own recently launched 10 MIPS applications servers, will be reccomended by Whitechapel for implementation on workstation networks.

What will happen in the workstation market over the next six months is anybody's guess. Malcolm Barnes points out that so far the workstation price war has been limited to the low-end machines, with manufacturers trying to protect their margins higher up the range. Soon, however, Japanese "clone" machines will come onto the market, hitting the major manufacturers where it hurts. In a reversal of roles, Sun and Apollo have now become "the establishment". Just as they tracked the efforts of minicomputer manufacturers in order to sell into their extensive user bases, so now their own user bases are vulnerable to attack. That's one area Whitechapel will be looking to when it begins shipping W-10 workstations on the first of January, 1988.

COMPUTER CONSOLES OFFICEPOWER 4.0 INCLUDES ACCESS 20/20

Computer Consoles Inc, Waltham, Massachusetts, will have a new release, 4.0, of its OfficePower Unix office automation software, on the market next month. The product, which runs on the complete line of Computer Consoles Power5 micro and Power6 minicomputers, is sold it the UK by ICL. New features include document conversion facilities to the US Navy DIF Document Interchange Format, and a program that converts OfficePower documents into standard ASCII. Documents can be transferred to a stand-alone PC-DOS word processing package for formatting and revision and a conversion program brings ASCII-formatted documents created on many popular word processors into the OfficePower word processor with Office Power format codes. It also features an integrated version of Access Technology's 20/20 spreadsheet, with a business graphics package; proportional spacing with support for popular laser printers; automatic font conversion; a redundant file system for file protection; and a Table of Authorities feature that automatically compiles citations in a legal document into an alphabetically sorted list, added at the request of law firm customers. Because 20/20 is the only spreadsheet that runs on micros, minis and mainframes, standardised modelling can be used. The proportional spacing is supported on Xerox 2700/3700 and 4045, Imagen 2308, Dataproducts 2630 and all Hewlett-Packard LaserJet laser printers.

APOLLO SIGNS JOINT MARKETING PACT

WITH RIDGE; NETWORK COMPUTING SUPPORT

Apollo Computer Inc, Chelmsford, Massachusetts , and Ridge Computers of Santa Clara, California, have entered into a joint marketing agreement under which the two firms will work together to offer Apollo workstations and Ridge RISC-based superminis as an integrated network computing solution. The companies will attempt to distribute third-party applications across networks of Ridge superminis and Apollo stations, with the help of Apollo's Network Computing System and other specialised computing resources. Apollo describes NCS as the industry's first system that can distribute modules, or parts, of an application to the most appropriate computing resources on the network - for example superminis, supercomputers, artificial intelligence engines, and database management machines. In particular, Apollo and Ridge will target companies that require high-performance graphics, networking, and powerful computational capabilities in electronic design automation, mechanical computer-aided design, and other engineering and scientific markets. The companies will work with third-party software vendors to tailor their applications to the use of Ridge superminis in a networked environment. The marketing agreement also includes co-operative advertising and corporate technical support.

DATA GENERAL EXTENDS MV LINE BELOW $10,000 WITH MV/1400

Data General Corp has extended its MV Eclipse minicomputer line further doiwn with a new MV/1400 DC, which brings its entry-level price below $10,000. The company also announced enhancements to some office system and workstation products. In addition to its function as a low-cost 32-bit business automation system, the MV/1400 DC can also be configured to act as a low-end file server in a Data General Personal Computer*Integration - DG/PC*I - environment, as well as a protocol converter in a multi-vendor communications environment. The system's CMOS gate array processor is rated at 958K single-precision Whetstones. A basic configuration costs $9,995, which buys 4Mb of memory, a floating point co-processor, a 30Mb hard disk, floppy disk drive, two RS-232 modem ports, eight selectable ports, and a parallel printer port. The high-end system package combines the same 4Mb of memory on the system board with a 160Mb Winchester disk and 21Mb cartridge tape. Users can double main memory in two or four megabyte increments. The price includes one operating system from the various AOS or real-time operations, or the DG/UX Unix implementation. The MV 1400/DC supports between four and eight users depending on the application, says Data General, but the company also sees the machine as a low-end file server and protocol converter, both for its own and multi-vendor environments. The company also enhanced its MV/2000 office system and its DS/7500 graphics workstation by increasing the base memory of the system boards from 2Mb to 4Mb, allowing a maximum of 12Mb of memory. All three of the new products use 1M-bit dynamics for the first time on Data General products. The base system price of the new MV/2000 DC with 4Mb memory, 38Mb hard disk, and 737 Kb floppy disk drive is $19,150. The DS/7500 monochrome systems start at $15,400 not including the monitor. For colour, the starting prices is $23,000 with 4Mb of memory, 70Mb hard disk, floppy, and monitor.

MKS TOOLKIT IS FIRST PRODUCT FOR NEW SOFTWARE DISTRIBUTORS

MKS Toolkit - a product providing an emulation of the Unix V.3 shell for MS-DOS users - is amoung the first deals to be struck up by brand new software distribution company Systems Marketing Ltd, set up by long time Unix marketeer Les Ferrington. Ferrington, who left Redwood International to establish the company, will also be distributing the Uniplex office automation suite for his old employers. He insists that the company will not be in direct competition with Sphinx, and that the market is growing fast enough to support other players. The company will target VARs, dealers, OEMs and major accounts, and will concentrate initially on a small number of packages in order "to maximise support" .

CONVERGENT HITS THE DEC

Edwin P Lees, an electrical goods retailer from Bolton has replaced its DEC PDP-11 computer system for a Convergent Technologies S/320 from systems house TIS. The company was running software written in Micro Focus' Level II Cobol under Xenix on the PDP-11. The cost of upgrading to the CT system, valued at #90,000, was estimated to be a 50% saving on the equivalent DEC upgrade.

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NCR has signed up another 'Partner in Business' in the shape of **RAM Computer Systems**: RAM expects to sell around 25 NCR Tower systems in its first year.

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DEC distributor **Hawke Systems** has announced that it will now distribute the Unibus product range from DEC.

- o -

The VMEbus has been approved by the **International Electrotechnical Commission** and the **Institute of Electrical and Electronics Engineers** as an international standard.

- o -

Systems Union has launched a Japanese version of its accounting software - Sun-Systems - and claims that the English version has already sold well in Japan.

- o -

Goods Retailer **Edwin P Lees** has replaced its DEC PDP-11 system with a **Convergent Technologies** S/320 from TIS.

- o -

Pamela Gray of **Sphinx Ltd** has been re-elected as president of /usr/group for a second year.

- o -

Although **ABS Computers** has been supplying **Quadraton** software for the last eighteen months it has now been appointed an authorised distributor by Quadraton.

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Pyramid Technology has added to its list of third parties (UX No 141) with BRS Europe, developers of BRS/Search.

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National Semiconductor Corp has now confirmed that, as reported, it has had talks with **Schlumberger Ltd** about its buying parts of **Fairchild Semiconductor**: NatSemi is thought to be interested in the analogue and digital logic divisions and the semi-custom business.

- o -

CSK Ltd, the big Japanese software house which is the agent for **Intellicorp's** KEE Knowledge Engineering Environment expert system shell, will begin selling a Japanese version of KEE for the Sun-3 workstation line from next month: the move is in response to demand from users who want to use KEE in Japanese on general-purpose workstations alongside applications like CAD/CAM and general software development applications, rather than lashing out on the specialist Lisp workstations from **Symbolics** and **Xerox**.

Minigrams

Mark Hoffman, chief of **Sybase Corp**, where **Apple Computer** is investing for a stake of about 5% (UX No 143) says that while the Mac II will be needed to run full Sybase, a cut- down version will be developed for low-end Macs; he formed the company in 1984 with three other **Britton- Lee Inc** alumni, and reckons that products like Sybase on general- purpose hardware will obsolete specialist database boxes like those made by Britton-Lee.

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A new version of the Cgen Basic to C translator from **MS Associates** is now available for users of IBM ATs or clones running Xenix, and in line with MS-DOS pricing, the package costs only £345 including the ISAM file access package.

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Ambitron Ltd has announced a video interface to support hard copy plotting from the **Sun Microsystems** Series 3 workstation range's video screen - the D-SCAN 5300 series.

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DEXPO Europe 88 is expected to produce a number of Unix/Ultrix applications products believes organisers **Montbuild**, which adds that it has received reservation enquiries from most of Europe's major Unix hardware and software houses: the show will be held at Olympia in London from the 1st to the 3rd of March 1988.

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The **EUUG's** tenth anniversary will be celebrated at the group's autumn conference to be held at Trinity College, Dublin, from the 21st to 25th September - more information from the EUUG on 0763 73039.

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On October 8th **The Instruction Set** will host a one-day seminar in London in conjunction with **Sun Microsystems** addressing the subject of how NFS fits into Open network Computing environments and the likely future directions of the technical development of NFS and related network services: for further information contact Jacqueline Wright at The Instruction Set on 01-251-2128.

Multisoft Systems and **Compsoft Holdings plc** are currently negotiating over whether to merge the two companies - Multisoft says it is keen on the deal as it wants to diversify from accounting software into office automation, and feels that the financial and publicity benefits resulting from a merger would increase its market share in both DOS and multi-user markets.

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Oracle has announced the availability of its relational database management system for the IBM 6150, a product that was previously available only as an IBM badged product called SQL/RT, and based on an earlier version of Oracle without distributed capability - price, depending on options and number of users, starts at £3,000.

- o -

From today, **Compaq** reduces the suggested retail prices of its Portable II, Deskpro 286 and Deskpro 386 models by an average of 19% - biggest cuts are at the top-end of each range, with the Portable II Model 4 now costs £2,395 (was £3,150), while the Deskpro 386 Model 130 will be reduced from £7,495 to £5,695.

- o -

Natural Language Incorporated of Berkeley, California, has signed a joint marketing agreement with Apollo Computer for the availability of NLI's Data-Talker natural language interface for relational database management systems, which supports most SQL database products - the system is also available on DEC VAX and Sun workstations.

- o -

Honeywell has spent $1 million on a CAE/CAD/CAM system from Cadnetix Ltd, for electronic design automation for use in multiple site applications including military avionics, air transport systems, test instrumentation and defence systems - the Cadnetix systems, including 4 CDX 50000S workstations, 4 CDX 75000 route engines, 12 PC-based CAE software packages, and a RISC-based configurable analysis engine, will be used for schematic capture, digital and analogue simulation of ASIC and PCB designs, and advanced PCB designs such as dense multilayer boards with a high proportion of surface mount technology.

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TOLERANT TARGETS EUROPEAN TECHNOLOGY AGREEMENTS

Tolerant Systems Inc, whose transaction processing and fault tolerant technology has already attracted Bull and RC Computer into technology exchange agreements, has set up a European subsidiary operation based in Slough, Berkshire with the main aim of interesting other European manufacturers in its skills. The move was prompted by increasing interest in Tolerant's TX Unix implementation, which embeds tp and ft facilities within the operating system, from European companies such as RC Computer A/S in Denmark and Honeywell Bull in France, both of whom are porting the software to their own machines as a basis for systems development. Tolerant has also become involved in the X/OPEN Group's efforts to establish standards for transaction processing, and has contributed to the forthcoming X/OPEN white paper on the subject. Allan Fleming-Hubertz, heading the three strong team at Tolerant Systems Ltd, claims that TX already conforms to ten of the twelve standard interfaces specified in the paper. The company expects to close two technology agreements worth $5 million each, as well as $5 million revenue from sales through distributors and VARS, in its first year in the UK. Main competition comes from Tandem and Stratus. Tolerant has recently signed a sole distributor agreement with Metrologie S.A. of France, aimed at the videotex, telecommunications, and financial services markets in France. Other successes include being chosen to provide hardware for a $176m administration project for the Korean Government (UX NO 140).

US ARMY BACKS OFF ON SVID STIPULATION AS DEC READIES AIR FORCE APPEAL

With DEC's appeal over the decision of the US Air Force to specify SVID compatibility for the 20,000 system AFCAC 251 project now due to be heard on September 16 - and DEC's stand rumoured to be backed by other manufacturers - a further indication of manufacturers' discontent and its potential effect on US Government purchasing comes from news that the US Army has backed off on a similar SVID stipulation. The Army is in the process of redrafting the specifications for standards connected with a worldwide command and control system, following objections from vendors to the SVID compatibility stipulated in the original specification released last June. The redrafted spec is not expected till next Spring, according to US press reports. DEC's objections to the USAF have so far fallen on stony ground.

ARETE HITS LONDON AND COURTS VARS

With the marriage to Plexus off, multi-cpu Unix systems maker Arete Systems Corp, San Jose, has opened a UK office in Henley-on- Thames, Oxfordshire, apparently with the intention of reducing the company's dependence on OEM sales to the Unisys Corp, which is looking in danger of severe overcrowding at the top end of its combined Sperry/Burroughs Unix line. Heading the UK team will be David Bethel, formerly of Zilog, and the company is also reportedly looking for an office on the continent. In the States, Arete has appointed Mike Lambert from Convergent Technologies as new vice president of marketing, and has recently signed 12 new VARS in its efforts to open up distribution channels. US direct sales staff have also been doubled to 30.

FOR REDWOOD, READ UNIPLEX LTD; COMPANY STEPS UP US EFFORT THROUGH ACQUISITION

For St Albans-based Redwood International, the fact that the Uniplex office automation software is much better known than the name of its developer has become not so much a joke as a serious headache and the company has now taken steps to solve the problem, announcing at the same time that it has acquired a ready-made US distribution network to boost its growing efforts across the Atlantic. The company has bought out the Uniplex distribution arm of its Dallas-based distributor and will fit the business into a newly-formed US company, Uniplex Distribution Inc. The acquisition provides Redwood with "three or four" regional distribution centres and a network of 20-plus dealers. The decision to take matters into its own hands reflects the company's disappointment with US distributors in the past, despite the fact that it derives over 50% of its income from the US, largely through its Uniplex Integration Systems direct and OEM sales subsidiary. The UK name change means that Redwood International now becomes a holding company, with newly formed Uniplex Ltd now the trading company responsible for the office automation products.

McDONALD IS FIRST CUSTOMER FOR 6386 WORKSTATION SYSTEMS - AT&T PLANS RISC 3B4000

AT&T's new Olivetti built 6386 systems, announced last week (UX No 144) have found their first major customer - hamburgur giants Mcdonalds, who will be installing the systems in each of their 1,875 fast-foot outlets in America. Meanwhile, AT&T, which is planning two major computer launches a year in order to keep pace with the march of technology, is tipped to come out with a version of the new 3B4000 next year, replacing the WE32100 microprocessors with a RISC-based CPU (codenamed Crisp!) offering higher performance than the 3B4000.

FUJITSU, NEC LEAD WAY WITH UNIX-WITH-EVERYTHING STRATEGY FOR JAPANESE MARKET

European computer manufacturers may have embraced Unix with some enthusiasm, but their Japanese competitors have left them way behind, a study by the Japanese trade paper Denpa Computer claims. Denpa reports that Fujitsu now has implementations of Unix for its entire product line, from mainframes - it signed to market Amdahl's UTS - through minis to workstations. Its new Facom G series of workstations, which are designed to be used with its A-series superminis, run Unix, and the A-series machines themselves run versions of Unix with Japanese support - SX/UTS or SX/AR. Both are compatible System V.2, but are merged with Fujitsu's own real-time operating system and they have a commu nications gateway function that links Unix on the FNA Fujitsu Network Architecture response to IBM's SNA. And although, so far, there has been little sign of the Japanese in the workstation market over here, the likes of Sony, Toshiba and NEC - spurred on by the massive Sigma software development project - are all building machines to challenge Sun and Apollo. NEC Corp now also supports Unix on its full range of machines, from the Acos mainframes down to the EWS 4800 workstations and PC9800 personal computers. Remembering that the Acos machines are variously compatible with Honeywell Bull's DPS 8 and Bull's DPS 7, perhaps this will provide a short cut to main- frame Unix throughout the Honeywell Bull empire. In May, the company also introduced a new version of its N5300 office workstation series with UX/V, compatible with System V.3 as an alternative to its own PTOS-III/AS. Japanese manufacturers are proselytising for Unix with the pitch that it provides a common link in multi-vendor environments, it rel eases a wealth of available software; its widespread use will encourage the still fairly embryonic packaged software industry in Japan, and that it will encourage software houses to expand the range of applications. And anyone thinking that the Japanese threat is still far away should perhaps remember that ISO had to squash an attempt by Japanese companies to introduce their own rival to the POSIX standard(UX No 143).

DEC OFFERS FASTER, CHEAPER IMPLEMENTATION OF VAX LISP

VAX Lisp applications can now be written and delivered without having a separate run-time licence, using the new DEC VAX Lisp version 2.2 - its version of the Lisp artificial intelligence programming language - for VMS and Ultrix. It says that the added System Build utility allows more efficient and smaller codes to be generated containing only the Lisp parts that are necessary for the application and code. It also gives VAX Lisp/Ultrix users access to the Ultrix-32 Graphics Library, the DEC implementation of X-Windows. DEC can now offer a VAX system with Lisp development language for under £12,000 - that's down from £50,000 last year.

CONCURRENT, SUPERTEK JOIN SUPERCOMPUTER FRAY AS CRAY DROPS PARALLEL PROJECT

Twin trends in the supercomputer market are an inexorable shift to Unix and a a fierce increase in the competition and the past few weeks have seen the emergence of several new players, while Cray Research has dropped a multiprocessor development project because it was running late and overbudget. Due to join Scientific Computer Systems in marketing a Cray-compatible minisuper next May is Supertek Computer Inc, which is looking to produce a 64-bit, 40MFLOPS machine starting at $250,000. The US Government's Lawrence Livermore Laboratory, looking to run its supercomputer applications under System V in future rather than Cray's CTSS, is funding a $2.4m development at Supertek and the San Diego Supercomputer Centre of an implementation of System V that will host CTSS, reports Electronic News. Concurrent Computer Corp, meanwhile, plans to enter the supercomputer business by way of an agreement with Princeton University. It has signed for rights to build the Navier-Stokes Computer, development of which was funded by NASA. Princeton is making two prototypes for NASA, which wanted the development for simulation of air flow over aircraft and spacecraft during flight. Concurrent has not yet given dates for planned products but is due to set launch plans by year-end. And Steve Chen, designer of the Cray X-MP supercomputer, plans with his design team to form a company to complete a parallel processor following Cray's decision to abandon the project, which it said would have cost at least twice the $50m budgetted and would have taken far longer to briong to market than the targetted "early 90s". Cray adds that a complete Y-MP system, successor to the X-MP is due for installation at the end of the year, with a full scale prototype of the Cray 3 due next year. Aa result of cancelling Chen's project to design a successor for that machine, Cray will have to lay off more than half the 180 people assigned to the project, and take an "insignificant" write-off with its third quarter figures; its shares saw a two-day $15.25 slump to $97.75.

HEWLETT PACKARD SIGNS FOR POSTSCRIPT

In amove that reinforces the claims of PostScript as a de-facto standard, QMS Inc of Utrecht in the Netherlands has signed an international agreement with Hewlett Packard for the supply of its QMS JetScript controller, currently under development, for use on Hewlett Packard laser printers. The controller will give Adobe-licenced PostScript capabilities to users of HP LaserJet Series II printers operating with IBM XT, AT or compatibles. Hewlett Packard said that although its main focus would remain the development and extension of its own PCL printer language, it wanted at the same time "to provide our cstomers ith complementary alternatives that address specific needs". The deal should generate $50 million in extra sales for QMS when the product begins shipments at the end of the year.

ALTOS "TO MERGE UNIX/XENIX BY END OF YEAR" - SIGNS TECHNOLOGY AGREEMENT WITH MICROSOFT

Adding a little meat to the bare bones of that Altos/Microsoft technology exchange (UX No 143), Mitch Bishop, Altos Computer Systems software director has been quoted in Computer Systems News saying that Altos will begin shipping Unix/386 on its 80386 computers by November of this year. Altos claims to have the largest installed base of generic Xenix,which it has licenced from Microsoft for a number of years, and the new implementation is expected to be a merge of Xenix and Unix V.3. Under a technology exchange agreement signed last month, Microsoft has obtained the code of an early version of the Altos implementation, which it will use to aid its own efforts to produce a merged Unix/Xenix version. However, as revealed last week (UX No 144), this version, developed in conjunction with AT&T and Interactive Systems, is unlikely to be available until late 1988. Barry Forrest from Altos UK would not comment on unannounced products, but did point out that the large Xenix team at Altos had been working closely with Microsoft for the last four and a half years, and had "very good personal contacts". He said the purpose of the agreement with Microsoft was primarily "to allow Altos to share its Xenix marketing expertise with Microsoft".

INTEL "SETS 80388 TO COUNTER ADVANCED MICRO'S FAST 80286"

Intel Corp is working on the 80388, a 16-bit bus version of the 32-bit 80386 microprocessor, which could be out as soon as the first quarter of next year, according to Electronics News. Such a part would provide Personalike builders with most of the performance benefits of the 80386 while enabling them to use much cheaper support chips, and its existance would go some way to explaining why Intel is not keen to see 80286 parts clocked faster than 12.5 MHx - the highest speed offered by Intel itself on the 80286. Its US second source, Advanced Micro Devices, last month announced a 16MHz version of the 80286 and is now deep in litigation with AMD, trying to rescind its second-source agreement and prevent it selling any further parts made under the agreement in the meantime. According to the US trade weekly, IBM would also not want to see AT-alikes running any faster than existing ones, but if that is so, an 80388 would not meet with IBM's approval either. Since the 32-bit mode of the 80386 is hardly used in 386 machines running MS-DOS, there would be very little difference in performance between one based on an 80386 and one using an 80388. Intel is also thought to be working jointly with Harris Corp, its partner for CMOS iAPX-86 parts, on a CMOS version of the 80286.

MANNESMAN KIENZLE ACQUIRES HALLMARK IN PUSH FOR UNIX SOFTWARE

Already gearing up for its switch to Unix- based hardware, scheduled for the end of 1988, Mannesmann Kienzle is currently rationalising its software policy Europe-wide by setting up "centres of excellence" from which to focus individual market sectors for the whole company. For its manufacturing business, this has taken the form of the acquisition of long-term business partners Hallmark Associates of Woking, Surrey. Hallmark has jointly marketed its Manumark production management system with Mannesmann Kienzle since 1982; now the package has become the central element in the West German company's KIMAN CIM product range throughout Europe. The main reason for the acquisition, in which Mannesmann Kienzle has bought all Hallmark's shares, appears to be the added demands that this will place on Hallmark, which is to take responsibility for MK's own KIFIS shop floor data collection and CAD/CAM software in addition to Manumark. It will also be responsible for the translation of the software, written in Microfocus Level II Cobol, to run on the new Unix machines currently being designed at PCS Cadmus in Munich. Despite making a lot of noise about its new policy, Mannesmann Kienzle still appears worried by the performance penalties of Unix when compared with its proprietary Series 9000 minis running MTOS: however UK Managing Director Phil Claydon pointed to Computer Consoles hardware as an example of recent performance improvements (MK has recently set up a deal to supply third party maintenance for Computer Consoles Europe). Hallmark software is currently used in around 250 of the 600 Mannesmann Kienzle installations in manufacturing plants around the UK. Other "centres of excellence" are likely to be set up for other vertical markets such as banking, printing and the professions.

APOLLO WINS BOEING/NASA $6 MILLION CONTRACT

Despite a distinct lack of success in recent years, and the waning interest of the American public, NASA (the National Aeranautics and Space Administration) is still out there, and to prove it comes a contract for $6 million worth of Apollo workstations from Boeing Computer Services in support of NASA's space station program. Boeing has responsibility for the space station's Technical and Management Information Systems (TIMS), and will buy over 400 Apollo DN3000 workstations to support a number of applications for the program, including engineering applications, document management, project scheduling, and performance management.

TIDY CACHE AND LOW BUS TRAFFIC SIGNALS UNIX AND MULTI-PROCESSOR SUCCESS FOR NAT SEMI's 32532

For years companies have been boasting that their technology allows members of a team working together to be scattered around the world, with all their workstations linked to a common server and the team members communicating by electronic mail, fax, telephone, telex and possible telepathy. But in almost every case their own design teams have been crowded into a single office or building, just as in the good old days when they used slide rules and paper. An honourable exception is National Semiconductor, which has scattered the designed team for its second generation 32-bit chip, the 32532, not just around the U.S.A. but across the Continent and ocean from Silicon Vally to Israel. NatSemi was the first company to market a commercial 32-bit microprocessor, back in 1983, but the 32032 and 32332 series were never as popular as Motorola's 68000 family. The new chip has a completely new internal architecture, but is software compatible with the earlier designs. Two versions of the 370,000-transistor chip will be available later this year running at 20 MHz and 30 MHz. The 20 MHz version will be built with a 1.5 micron double metal CMOS process and will deliver a peak execution rate of 10 million instructions per second and a sustained rate of 6 to 8 mips. NatSemi will shrink the process to 1.25 micron for the 30 MHz version, which it claims will deliver a peak of 15 mips and sustain an execution rate of 8 to 10 mips - way ahead of any of its complex instruction set micriprocessor rivals, (Exotic throughbreds such as AMD's "enhanced RISC" microprocessor, which claims a sustained throughput of 17 mips and a peak execution rate of 25 mips, may be faster, but they are no more intended for the mass market than a Ferrari is). The 32532, like its predecessors, has been designed as a high- performance Unix engine, and the company hope it will break into the market for transaction processing and fault-tolerant systems and improve the 32000 family's share of the market for military systems, embedded controllers in laser printers and robotics. NatSemi will also be pushing it hard in the fast-growing multi- processor, parallel processing field. The designers have used all the extra transistors on the 32532 to extend the pipeline to four stages, provide separate on-chip instructions and data caches, move on board a paged memory management unit, and improve the bus interface unit. Cache coherency (the process that ensures that the data held in the caches is always either a true copy of the data held in the memory, or invalidated when the memory location is overwritten) is also implemented in hardware rather than software. This allows it to operate in parallel with the other chip functions and speeds up applications running on the processor, as a [software implementation would have to steal cpu cycles with an interrupt every time a read or write operation to the main memory [was performed. The cache controller is also connected to a port that allows off- chip monitoring of the internal operations of the data cache: in multiprocessor applications the caches need to monitor each other to ensure global cache coherency. With multiple 32532 systems, the designers will be able to connect the caches directly, freeing valuable cycles in the external data bus. Overloading the data bus is one of the major problems with multiprocessor systems and maintaining cache consistency over multiple caches is a major source of bus traffic. The 32532 uses a write-through-with-invalidation strategy to ensure cache coherency: every time a write is made to a location in main memory, the memory management unit/cache controller checks to see if the data held in that memory location has been copied into the cache memory. If the data is in the cache, it is flagged as "invalid" to prevent the processor using stale data. And every time the processor tries to read data from a location in memory, the cache controller must check to see if the data has been copied into the cache and updated, leaving the data in memory stale.

If this has happened, the read request must be intercepted and the data from the cache returned to the processor. In a multiprocessor systems it becomes even more complicated, as each processor has its own cache, and they all have to be checked each time a read or write request is made - a process that generates a lot of unwanted and often unnecessary bus traffic. Systems designers have developed a number of complicated strategies to try and cut down the unnecessary bus traffic while still maintaining multiple cache coherency, but with variable success. The 32532's separate port for the cache controllers should enable them to be connected directly via a separate, dedicated bus, allowing all the caches to be checked and coherency maintained without increasing traffic on the data bus. The instruction cache contains 512 bytes of very fast, direct- mapped storage and a 16-byte buffer that can transfer an instruction to the pipeline's loader each clock cycle. The separate data cache can hold 1,024 bytes with a two-way set- associative organisation. Three separate buses connect the cache and memory managment unit, while three more connect them to the external bus interface and control logic has its own three-entry buffer to allow it to simultaneously accept and hold requests for memory reads and writes of instruction fetches while it is busy controlling the current bus cycle. The four-stage pipeline - instruction loader, address unit, register file and execution units - can operate on seven instructions simultaneously. By extending the pipeline (while maintaining the 32000 series register structure to ensure software compatiblility with existing applications) and efficiently integrating the memory management unit and twin caches, the designers have cut down the average number of clock cycles needed per instruction. Earlier architectures executed the basic instructions -add, subtract, move, load and store - in 2.4 to 2.8 cycles. The 32532, with the help of three key piece of systems software, achieves a throughput of 2.1 to 2.15 cycles per instruction. Two of the key software refinements operate within the pipeline: branch prediction logic and a hazard detection mechanism. The third is a set of efficient, high-level-language optimising compilers for applications written in C, Fortran, Pascal or Modula-2. These "smart" compilers generate efficient machine code by optimising the use of the chip's pipeline structure, branch-prediction logic and dual caches. The branch prediction logic is used to select between sequential and non-sequential instruction streams whenever a branch instruction is decoded. Natsemi will only say that it choses between the two possible destination addresses calculated by the loader using criteria "based on branch condition and direction". However, it claims these criteria correctly predict the next instruction in 80 per cent of all branches, cutting the average delay from four cycles to two cycles. The hazard detection mechanism in the address unit helps avoid data loss due to read and write overlaps in the pipeline. As the separate pipeline stages operate in parallel, at some point, if nothing is done to prevent it, the instruction unit will read ahead for the next instruction at the same moment that a later pipeline stage is performing a write operation to memory that crosses a page boundary. This means that the write operation will have to access two separate pages of virtual memory. But a read operation pre-empts a write operation, which can only remember one of the two pages of virtual memory when the "read" pushes past it. And in the resulting confusion data is lost or the pipeline locks or the system crashes. None of which improve the performance of the chip. This sorry state of affairs can be avoided by building in an automatic delay, even though it will be rarely needed, but this also degrades the performance. The hazard detection mechanism, however, is able to steal cycles from a pipeline stage that is waiting for the "write" to complete without affecting the performance. It checks the page tables in the memory management unit for non-aligned data crossing page boundaries, and only if it finds any does it delay the "read" operation. Thus it has to take evasive action that degrades the performance of the chip only when absolutely necessary to avoid data being corrupted. Natsemi is taking a gamble by introducing all these untried innovations at the same time on the same trip, but if they work reliably it may just be the winning design that has eluded it so far.

ZILOG FOUNDER FAGGIN HELPS FORM NEURAL NETWORKS FIRM

You can't keep a good engineer down, and the peripatetic Federico Faggin - founder of Zilog Corp - has resurfaced again, this time as co-founder of Synaptics Inc in San Jose, California. Synaptics, as its name sugg- ests, is into the hot new computing science of neural networks, but Faggin's partner this time around is a California Institute of Technology computer science professor, Carver Mead, who believes that the key to artificial intelligence is to mimic the way sensory stimuli are process-ed in sentient beings. A key to Mead's approach, according to the New York Times, is a 1959 Massachusetts Institute of Technology paper, What the Frog's Eye Tells the Frog's Brain, which reported the finding that the retina of the eye does not simply send a snapshot of what it sees to the brain, but preprocesses the image, rearranges it, and sends only what is useful to the brain. Among the functions it performs is compen-sating for light levels. Another is comparing points in an image to their neighbouring points to detect edges of objects. A third is detec-tion of motion. Mead has developed a basic chip that performs some of the same functions as the retina and has started work on a similar pro-ject to mimic in Silicon the working of the cochlea or inner ear. His Silicon Retina follows the motion of a moving fan - but can't "see" it if it is stationary. The circuits mark a return to the early days of the computer when digital and analogue computing vied for supremacy - they are in general analogue. While following the general direction of neural network research, emulating the operation of vertebrate brains, Synaptics also intends to couple it with Mead's pre- processing approach.

TIGERA AGREES TO SETTLE FORTUNE SUIT

Tigera Group Inc., the Belmont, California company that was formerly called Fortune Systems Corp, has at last won agreement in principle to settle the Fortune Systems securities litigation filed against the company following its initial public offering of shares in 1983. The proposed settlement of claims calls for a payment of $12m to the plaintiff class, the sum to to be substantially by insurance policies in place during 1983. The company's own contribution to the settlement than $1m. "Given the expense of litigation and the distraction of management time required by such litigation, we are very pleased with the outcome", says chief operating officer Allen May. "This settlement presents a practical and immediate solution to what has been an issue for some five years. It will allow the company to concentrate its resources on the implementation of our announced strategy of acquisition and diversification. And clearly it will enhance the position of our subsidiary, Tigera Corp, as a Unix office automation software vendor." Tigera Corp continues to develop office products to run under Unix, and the company is now looking for related acquisitions, following the sale of its hardware business to SCI Systems Corp (UX No. 123). Fortune generated such large accumulated losses that Tigera now has very substantial tax credits available to maximise the benefits from any highly profitable company it may choose to acquire.

INTEL SCIENTIFIC LAUNCHES SECOND GENERATION 386-BASED HYPERCUBE AND COMMERCIAL APPLICATIONS

Intel Scientific Computers, a division of Intel Corp based in Beaverton, Oregon, has launched a new version of its iPSC family of parallel computers, using 80386 processors and improving processor communications and software. The original iPSC was based on 80286 chips, expanded by extra memory on each node (for artificial intelligence work) or with vector processors (for numerics). Based on feedback from users (mostly involved in parallel processing research themselves), Intel has re-vamped the new iPSC/2 in three main areas: firstly by upgrading the processors, with each node now consisting of an 80386, 80387 maths co-processor and from 1Mb to 16Mb memory; secondly by implementing improved packet switching communications facilities in the hardware with the Direct-Connect router which, says Intel, boosts short message communications between nodes by 3 times and long messages by 10 times; and thirdly by providing a software front-end called Concurrent Workbench, which runs on a Unix-based Intel 301 micro and provides facilitie such as the DCON concurrent debugger for C and Fortran. There is also facility through the software for remote hosting, for those who wish to work from a workstation. The iPSC 2 remains compatible with earlier versions, and is now attracting interest from those wishing to develop commercial applications: one, the Nekton package for fluid dynamics and heat transfer from Nektonics Inc. has already been unveiled, alongside claims that it will run tasks in three minutes that took four hours on a VAX: other areas where work is carrying on include molecular modelling, extruded materials modelling, vlsi device simulation, and discrete event simulation. Priced from under $200,000 for a 32 processor version to around $2.5 million for 64 processors, volume shipments will begin in December.

UNIVATION INTRODUCES NEW ETHERNET CARD BUNDLED WITH TCP/IP SOFTWARE

Univation Inc of Milpitas, California has expanded its line of LifeLink Ethernet net work interface cards, introducing LifeLink NC516UT, a new Ethernet card bundled with TCP/IP communications software. LifeLink NC516UT includes a fast Ethernet card and an abbreviated version of TCP/Link, Univation's software for PC-DOS-to-Unix connectivity. The LifeLink Ethernet board uses an Intel 82586 co-processor chip to control access to the local area network. Additional hardware features include dual port memory and 16Kb of onboard memory for multiple-packet buffering. TCP/Link enables networks to communicate with Unix-based systems. With LifeLink NC516UT, personal computers can function as indepen dent workstations, as part of a local area network, or as terminals to Unix-based mach ines. It is one of three Ethernet boards manufactured by Univation and all are compat ible with Univation LifeNet and Novell Advan ced Netware local area network operating systems. LifeLink NC515U provides an Ether net network interface for $399 but TCP/IP software is not included. LifeLink NC516U offers Ethernet network communications and compatibility with Univation's full-featured TCP/Link software. LifeLink NC516U is priced at $595 and TCP/Link software retails for $400. The new LifeLink NC516UT provides Ethernet communications and the most commonly used TCP/IP software programs for a total price of $595. TCP/Link software features not included with LifeLink NC516UT but available with LifeLink NC516U are SMTP electronic mail and a printer spooler enabling files to print on the host printer.

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With over 10,000 characters from which to choose, it's no wonder that Chinese typesetters are looking for computerised alternatives to labour intensive manual methods - an **Alvey** funded project at the School of Oriental Studies in London is working on the problem, attempting to print Chinese text directly from spoken Manderin with the help of the Royal Signals Radar Establishment and Sindex Speech Technology, using a **Bleasdale Computeri** with 510 Mb high- speed disk which, when connected up to a voice analyser via Ethernet, allows up to 100 minutes of Chinese speech to be stored in digital format.

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Apollo Computer Inc has withdrawn the protest it filed with the General Accounting Office after the Maryland Procurement Office ordered a workstations contract to **Unisys Defense Systems**: Apollo was drastically undercut by Unisys bidding Sun Microsystems workstations, but it now says an agreement has been reached allowing only the original products bid, at the original bid prices, to be provided; Apollo is also withdrawing a related suit filed in US District Court, Boston.

- o -

AT&T CO's 100%-owned **AT&T Unix Pacific** has released an improved version of Unix System with enhanced Japanese language processing, and also has a version that can do Korean language processing to meet demand from Korean computer manufacturers: the new releases are Japanese Application Environment R 2.0, Stream Base Japanese Input-Output Subsystem, and Korean Application Environment R.2.0.

- o -

Oki Electric has introduced the 32-bit if1000 Unitopia Model 20 Unix workstation, which costs $13,570 with monochrome display and comes with 4Mb memory, 40Mb Winchester, expert system shell option, and will also run the Sigma Project Unix variant; Oki looks to ship 5,000 of the workstations over the next two years.

Minigrams

High Level Hardware has released an optimised version of the Prolog AI language for its Orion supermini, which it claims runs 15 times faster than previous versions, and is compatible with the Warren Prolog PDP-10 compiler: the implementation takes advantage of the Orion's microcoding facilities, and was developed with the aid of a grant from the Alvey Directorate, whose IKBS sector has standardised on Orion hardware for research and development into knowledge-based systems architecture.

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And the **Alvey GRIP** (Graph Reduction in Parallel) project is also using High Level Hardware boxes, in the second stage of its efforts to produce a parallel processing machine to run fifth generation languages such as Hope and Parlog, and which is expected to achieve graph reductions at up to 100 times the speed of a supermini.

- o -

Sequent Europe Ltd has extended its Balance B8 range of multiprocessor parallel computers from the 16 user entry-level system introduced in May to configurations with up to 12 National Semiconductor 32032 processors, supporting 100 users: Sequent has also reduced the price of add-on memory for the systems by 25%.

- o -

Northern Ireland's Unix market is six months to a year behind mainland Britain, according to Xenix and Informix specialists **CEM** from Belfast. Strategic acccounts manager Richard Fulton said "the market is beginning to take off but there is not the level of expertise now available on the mainland". CEM has been appointed as the main Northern Ireland dealer for **Sphinx Ltd**, providing Sphinx services on a local basis to dealers, ARS, and end-users in the province.

Expanding into new territories is the **Oracle Corporation**, which has announced three new distributors: **Data S.A.** in Buenos Aires, Argentina; **RT Data Base** in Caracas, Venezuala; and **China Software Development Coproration** in Taipei, a DEC OEM and one of the larger software houses in Taiwan, employing around 100 people.

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Root-Unisoft, US subsidiary of **Root Computers Ltd**, has opened a new technology centre in Boston, Massachusetts - the fifth in the States - which will be headed by ex AT&T supervisor of Unix development Reuven Koblick.

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Nixdorf Computer Ltd has set up a specialist marketing team to push sales to the UK insurance industry, and has adapted a set of German software modules for use in this country.

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Jarogate, of Surbiton Surrey, is filling out its mid-range systems with the Sprite 386 V8, an eight user desktop micro with SCO Xenix 386, which fits between its single user 386 PC and the 8-32 user tower 386 system, and has from 1-8 Mb of RAM memory, high resolution EGA screen and keyboard for an entry-level price of £6,490.

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Informix Software Inc has expanded its customer services group in the States, adding a consultancy services team to deal with general technical business support, and a "regency support team" for more complicated applications support.

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Cadnetix Corporation, the publically quoted US supplier of CAE/CAD/CAM equipment for electronics system design, has reported a 68% growth in profits, and 43% increase in sales revenue for the year ending 30 June 1987. Net income totalled $6,357,000. The UK and Europe now accounts for 20% of its total business.

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AT&T PICKS INFORMIX AS CORE OF ITS AOE ANSWER TO IBM SAA

AT&T has come up with an answer to IBM's Systems Applications Architect-ure to provide developers with applications for its 3B supermicros and Olivetti personal computers with a common development interface and set of tools - and has made Informix Software Inc's Informix SQL-based rela-tional database a core product within the new Application Operating Env-ironment. The announcement - which saw AT&T apparently switching from its earlier emphasis on Relational Technology's Ingres for the 3B line - also saw the introduction of a new transaction processing system, development of which AT&T claimed was initiated at Bell Laboratories. Tuxedo, for the 3B line from the new 3B4000 downwards, has four components - the System/T development tools, runtime system and "basic architecture", the System/T "high performance" SQL relational database, System/ESQL for allowing embedded SQL calls in C programs, and System/4GL. All are generally available next March, but will be ready in december for the 3B2/500, a newcomer to the 3B line that fits between the 3B2/400 and the 3B2/600. AOE is tied to a specific set of products - Unix System V.3, needless to say, plus MS-DOS and OS/2, MS-DOS as a guest under Unix; X Window; common networking and communications software; and standard lan guage implementations. AOE covers the 80286-based PC6300 Plus and 80386-based WorkGroup 6386 machines from Olivetti, and the 68010-based Unix PC as well as the WE32000-based 3B c family. Unix System V.3 is promised for the 6386 in November. Computer Systems News reports that AT&T and Microsoft have also agreed to build compatibility between OS/2 and Unix networking utilities, with common user interface and network services for both Unix and OS/2 servers. The 3B2/500 is claimed to give twice the CPU performance of the 3B2/400 and takes up to 8Mb RAM: with 4Mb memory, 2.1MIPS CPU, 10 ports, SCSI interface, 60Mb tape, 147Mb disk and floppy it comes in at $28,000. Like the 3B2/600, there is a $4,500 coprocessor claimed to add 50% performance. The pact between AT&T and Informix Software Inc, Menlo Park, California is extremely comprehensive, covering the database itself; the Informix- 4GL applications generator; Informix Turbo fault-tolerant database server; ESQL/C and Co-bol for interfacing C and Cobol programs to SQL commands; the C-ISAM library of C functions for in-dexed file manipulation; and Infor-mix 3.3 non-SQL relational database. Networking standards within SOA include X25, Ethernet, TCP/IP, Starlan Network OSI and AT&T Mail.

MOTOROLA PROVIDES FIRST SILICON AND SAMPLES OF THE 68030

Copies of Motorola's next generation MC68030 32-bit microprocessor are now available as evaluation samples in limited numbers. Announced a year ago, and developed at the company's Austin, Texas plant, the 68030 first achieved silicon on April 16th, 1987, Motorola revealed last week. At the same time it also announced silicon for the MC68882 enhanced floating point coprocessor. Although wary of giving the chip a MIPS rating, Motorola says it should provide up to twice the performance of the MC68020 in similar configurations, while retaining 100% upward compatibility with the complete 68000 family, which, says Motorola, represents a $2 billion base of 32-bit software. Development of the 68030 is apparently on schedule. "We're on track for delivery of the chip in the fourth quarter of 1987" said Motorola Semiconductor Vice President Jim Norling. Performance improvements are attributed to its high degree of parallelism; the chip uses a Harvard style architecture with dual internal data and address buses. The 68030 has an on-chip instruction cache and data cache, improved bus interface, and on-chip paged memory management unit. The MC68882 offers double performance of the 68881 while remaining software and pin compatibles.

PLANS TO ASK ISO TO ADD SECURITY LAYER TO OPEN SYSTEMS MODEL

Plans to add a data network security architecture to the seven layer mo- del for Open Systems Interconnection are due to be revealed by the US National Security Agency later this month, according to Computer Systems News. The paper reports that at least 10 major computer and communicat ions companies, including IBM, DEC, Motorola, Xerox and BBN Communicati ons, have been working on development of the architecture and protocols under contract to the US Federal Government, and suggests that manufacturers that have already begun writing Open Systems code may have to re- write their software if they want to continue to do business with the US intelligence and defence agencies. The National Security Agency will provide details of the architecture, developed under a year-old Secured Data Network System programme, at the National Computer Security Conference in Baltimore, September 21, making specifications available so that vendors can make preparations to implement it in their products. The intention appears to be to add an eighth, security, layer to the seven layers of the model rather than try to tack security protocols onto any of the existing layers, thereby minimising the disruption caused by the move. The US govern ment hopes that the International Standards Organisation will incor porate the security measures into its definition of the OSI model.

INSIDE THIS WEEKS ISSUE

SOFTWARE LABS WINS "LARGEST EVER SOFTWARE CONTRACT" - LOOK FOR UK PATNERSHIP

Irish software developers Software Laboratories, from Bray, Co Wicklow, has won what it believes to be Europe's largest ever software contract, by selling distribution rights for its Unigem software to NEC Australia - the contract is estimated to be worth £17 million pounds in end-user terms , £6 million revenue to Software Labs - for exclusive distribution in Australia and New Zealand. The company is currently looking for a similar distribution agreement with a UK based company. Unigem is a "general environment manager" which provides a development base for administration and accounting software under Unix that supports real time transaction processing using a single thread processing approach. Software Labs founder Tom Leonard claimed that NEC would be aggressively marketing the product in Australia, where it is currently running a £3 million television advertising campaign to push its PC and minicomputer products. It is thought that NEC might be testing the ground for the product before taking it to a wider marketplace. Software Labs is now looking for a UK partner with marketing and development resources in order to expand its operations to the mainland. "We do not feel competent to control a distribution network in the UK from Ireland", said Leonard.

HOPES POSTPONED AS OLIVETTI'S ACORN TURNS IN ANOTHER LOSS

At the buffet luncheon - "we're not rich enough to afford expensive meals" - announcement of its int erim results, Acorn Computer Group Plc yesterday reported a pre-tax loss of £1.4m, up from a loss last year of £140,000, on turnover down 3% at £19.0m. Managing Director Brian Long didn't find the loss surprising. He put it down to interest in the Master series of microcomputers tailing off in the first half, following the distribution of the new 32-bit Archimedes computer system to local education authorities for assessment. The General Election was also blamed since the tightening up of budget procedures meant delayed contract announce ments. The sales figures however were lower than anticipated even though Acorn had allowed for the heavy costs of manufacturing and marketing the new Acorn RISC Machine-based Archimedes and expenditure on continuing research and development. It reckons its overdraft has remained stationary at £2.8m, well within its £16m facility. Long proclaimed his commitment to getting Archimedes properly estab lished in the market - volume shipment begins this month - adding that this was more important than forecasting when the company will be in the black again. He said Acorn's strategy had been to launch new products and now that it is coming to the end of its investment, the results should improve al though he declined to comment on an actual figure. None the less, a top-end Archimedes machine config ured to be a Unix workstation is expected some time next year. This could herald Olivetti's share in the company, currently standing at 79%, being redu- ced to 50% by way of a share issue to outsiders to fund further investment. This is in line with the agreement made between the companies when Olivetti bailed Acorn out for the second time just over two years ago. Over the next six months Long sees the Master and Compact series taking the lead in sales terms whilst Archimedes will account for the lion's share by September next year. Although Acorn was to have been the third partner with Olivetti and Thomson-CSF on an OS/9-based educational micro for Europe, nothing has materialised, but Acorn is still looking for a French software house partner.

ICL BACKS ITS TURNKEY QUARTET TO PLAY SWEET MUSIC IN THE CITY OF LONDON

Yesterday saw the London launch of ICL's "new" Quartet range of systems for financial services, in conjunct ion with software houses Unioned, Pentagram, MSC Software Ltd and Solvit. This new range in fact comprises the established ICL Clan Unix machines and DRS 300 departmental and office system ranges, bundled together with an array of software packages from the "quartet", to cover money purchase administration, unit trust customer service management, mortgage application processing and life and pensions. Solvit's new database, imaginatively dubbed Solvit, is designed to sell financial advice. It can be used for mailshot identificat ion, weeding out unprofitable clients by cross referencing and for tracking new product buying trends and the selling record of financial advisors. To buy the database alone will set you back £1,000 on a single user installation basis. Additional modules cost extra. The Money Purchase Administration System from Unioned has been developed to comply with the 1988 Pensions Legislation, effective as of January 1988. It will allow companies to plan business for April 1988 when contracted money purchase plans will be launch ed. Prices are not available as thay are entirely dependant on the needs of the client. The new Unit Trust Customer Service Management system, Fundman, from Pentagram however has a price tag of £12,000 for the networked version. It apparently enables the Unit Trust manager to improve customer service and increase administrative efficiency. The MSC package - ranging from £2,000 to £2,500 for single user software to £15,000 to £20,000 for a full networked system - includes mortgage application administration, life and pensions administration, deeds control and mortgage arrears administration. All four run on the DRS 300, the last also runs on the Clan machines. Prices for the DRS 300 ICL hardware vary from £10,000 to £20,000 depending on the application. ICL reckons its systems are now used to settle 75% of all UK equity bargains - at NMW Computers, Chase Manhattan Securities, Morgan Grenfell to name a few - and to register all gilt trades. It also claims that its machines are used to process 75% of UK credit insurance, and to administer client accounts at 30% of all Building Societies.

NEW ULTRIX VERSIONS FROM DEC

DEC announced two new versions of Ultrix at DECWorld on Monday for the new VAXStation 3200 and 3500 workstations (see full report on page 5). Ultrix-32 Version 2.2. supports Sun's Network File System and Unix System V Release 2.X., and will be available in October for existing Ultrix machines as well as the new VAXStations. The second version, Ultrix Workstation Software (UWS) Version 1.1 adds X-Windows support, including an "Xtoolkit", and enhanced graphics performance, and will also be available next month.

VISULA ON THE SUN AS REDAC GAINS STC COMMITMENT

Recal-Redac, one of Apollo's largest customers, has made its Visula computer-aided design package available on Sun workstations, just as telecommunications giant STC announced that it would be standardising on Visula software as its preferred product for computer-aided engineering. Recal-Redac will be buying Sun workstations through STC-owned ICL to sell on to their customers, and has placed an initial order for 30 workstations. In return, ICL will be buying copies of Visula for its in-house printed circuit board design, as well as marketing it as part of its CAD/CAE range on the Suns. STC Telecommunications director Peter Gershon announced his company's decision to buy #500,000 worth of Visula software at a customer event put on by Recal Redac at the Savoy last week - with the promise of further "substantial" orders to follow. But interest in Visula on the Sun is not exclusive to STC/ICL, with an initial order of four systems from Toshiba in Japan. Racal Redac, which currently ships the majority of its systems using Apollo kit and also has a deal with DEC, says that it expects Sun business to contribute more than £15 million to worldwide sales revenue over the next two years. Sales revenue figures released for the finacial year ending March 1987 saw the company achieve 45% growth to £47 million, a figure targeted to rise to £60 million worldwide over the next year.

MICROBEL DEAL SIGNALS MICROPORT PUSH TO WIDER MARKETS

With its eye on vertical market business in recruitment and marketing firms, Microport International has signed an agreement with small UK software house Microbel Ltd of Newark in Nottinghamshire to distribute its <<STRIX>> free text retrieval system for System V ATs. The agreement is worldwide, although discussions to determine whether or not the US arm of Microport will distribute the product have yet to take place. Without that business the deal is valued at $500,000 over the next few years, and marks, according to Microport's UK MD Ian Richmond, a broadening of the company's focus from primarily a supplier of Unix to that of a "technology and volume marketing company", marketing products for technically oriented companies through its European network of distributors. <<STRIX>> has so far been installed at around 200 UNIX, VMS, and MS-DOS sites in the UK and Europe, and has been marketed into defined niche markets such as executive recruitment, marketing, museums etc - Microport will also look to these areas, hoping to sell both <<STRIX>> and Unix System V/AT for a combined price of £800.

WORKSTATION PRICE CUTTING SPREADS TO JAPAN

The price war in the low-end Unix-based engineering workstation market has spread to Japan, where Yokogawa-Hewlett Packard Co has reduced the price of its low-end HP9000 model 318M - 2.3 MIPS, 4Mb main memory, expected sales 2,000 this year - by 20% to $10,468, which is still high by US standards: Nippon Sun Microsystems has dropped its prices by 10% to 25% across the range, with the low-end Sun 3/50M coming down to the equivalent of $6,918, and top-end Sun 3/260 down 10% to $65,199; Nippon Apollo has gone even further, reducing he price of its DN3000L by 43% and hoping to sell 1,500 machines to universities. From a standing start three years ago, the engineering workstation market in Japan has grown rapidly, and with tags now coming down into the personal computer price bracket of under 1m yen - thats $7,000 - demand is expected to grow even more.

LOGICA CLAIMS TO OFFER PEACE OF MIND WITH FLEXIBLE X.400 KERNELS

Logica's involvement in software systems kernels contributes only about 3% of its overall turnover, but it is a growth area set to dramatically increase and one which the company claims is giving it competitive edge. The company has released the first of a series of four X.400 kernel software products, called CPLEX.400, the first of which was released yesterday as the X.409 presentation syntax kernel, which will cost you somewhere near to £40,000.

Its most immediate attractive feature is that it claims to offer developers of Open Systems Interconnection, OSI, software insurance against any changes to OSI protocol definitions. That is partly because Logica sits on the CCITT X.400 committees and claims to have implemented a large body of the new ammendments to the 1984 published recommend ations, which are due to be issued in 1988, into the CPLEX range. Another reason is that CPLEX was developed under the Unix operating system and written in C and is designed to be portable. Logica intends to offer the kern els for a range of hardware environments and including personal computer-based versions.

Product manager Vincent Kelly also stresses that the X.409 compiler takes the definition of the protocol as written in a standard text and produces data structures that the program uses. To produce the data structures that the program uses, it is not necessary to write a special code, you just alter the input to the compiler. The presentation syntax kernel also includes a coder and decoder, which work off the data structures without having to change the software.

Logica has just issued its latest Telematica report, which forcasts that the number of electronic messaging connections in Europe will increase to three million in 1993 from one million in 1987. It also reports that unit shipments of dedicated telex and teletex terminals will decrease by over 50% over the same period, with X.400-compatible electronic mail and facsimile absorbing that market. "We made the decision two years ago not to buy in an existing X.400 product because we wanted to move with existing standards and make our product as flexible as possible," says business manager John Keith. The company has had a team of 20-25 developing the CPLEX software, which he reckons is the largest X.400 development project being carried out by a systems house in Europe.

Three big computer companies are now carrying out technical reviews of the products, which have led to commercial negotiations. The other three kernels will be released as follows: the message transfer agent will come out in October; the reli able transfer server in December; and the X.400 user agent in March 1988. Logica has set up a support centre in Newman street, London, within a dedicated division of Logica Communications and Electronic Systems Ltd.

BERLIN INTRIGUE - BEHIND THE SCENES AT NIXDORF RESEARCH AND DEVELOPMENT

A discussion by Nixdorf board member Hartmut Fetzer on the perils and potential rewards of research and development - which included more than a snippet of news on the company's activities - enlivened a rather lacklustre "technology forum" held by the company in Berlin last week (organised with tremendous precision, pity about some of the tired presentations).

Fetzer provided a Nixdorf's eye view on the company's involvement with ill-fated Auragen, Pyramid Technology and other suppliers in the course of justifying some of the company's more superficially surprising decisions on how to use its R&D cash - which amounted to DM426m, some 9.6% of revenues in 1986. And talking of surprising attitudes, what about the decision to go into disk drives? At a time when many disk drive suppliers are going to the wall and prices are still falling, Nixdorf is ploughing cash into producing a range of slim-line 80Mb and 170Mb drives for its own consumption - and may even offer them OEM in future. Even given the foresight of late lamented founder Heinz Nixdorf - whose influence after death was emphasised by the number of times his name came up during the day's presentations - it seems a surprising decision. But Fetzer took pains to justify it on two counts. First, economically "it makes sense", he claimed - the proportion of the total cost of a system accounted for by disk drives is high enough to justify having the technology under your own control. Contrast that with semiconductors, the total cost of which in a computer system is equivalent to some 3% of the revenues derived from selling the system. Second, the highly demanding technology involved in disk drive manufacture - he compared the sophisticated mechanics involved in controlling read/write heads to "flying a Jumbo jet 3mm off the ground" - would produce spinoffs in other areas. And if that sounds like a dubious assertion, Fetzer was ready with a nice example of the benefits. One result of the development was a very small drive motor - and the retail systems developers just happened to be racking their brains for a way to adapt a new range of under-the-counter bar code scanners to be small enough to to allow the person operating the till to get their knees under the counter. The disk drive motor, he claimed, turned out to be just the thing - and the scanner is now the basis of Nixdorf's new range.

Fault tolerant tales

Another rather less cheerful tale - but one that may yet turn out to have a happy ending for the company - concerned the Targon/32, based on the fault-tolerant Unix technology originally devised by US company Auragen.

According to Fetzer, the impossibility of judging whether software will work as promised - in contrast to the relative ease of judging the state of hardware developments - meant that Nixdorf believed the future delivery dates being put out by Auragen, and rather rashly passed them on to its customers. The result, when Auragen finally threw in the towel, was that Nixdorf ended up developing the thing itself according to Auragen's principles, making the Targon/32 horribly late. And the happy ending? The Targon/32 is at last starting to ship - and was the basis of that huge contract shared with rival Siemens to supply systems to unemployment offices throughout Germany.

The sad state of software development generally, in fact, was an area where Fetzer didn't have any firm answers - or at least wasn't talking about them. Some 4000 programmers, he said, are employed writing applications within Nixdorf's sales divisions in Europe alone. In software development, he pointed out, "we try to be very deterministic" - the opposite of the changing requirements of real life systems. He could only comment on the need for developing more "flexible" software.

Sore point

Fetzer also attempted to deal with what appeared to be a rather sore point when he emphasised that the primary reason for basing systems on other people's technology - such as the Pyramid Technology-based Targon/35 - was not, contrary to common thinking, because Nixdorf doesn't have the development resources to go it alone, but rather to gain time in bringing products to market. Using Pyramid's products, he said, saved the company two years development - but typically, the development cost of bringing a system to market initially is only 10% of the expenditure on development over the life of the product line.

Fetzer also outlined three areas where Nixdorf has been expanding its research efforts - communications, following Heinz Nixdorf's wish to extend the company into a major communications supplier - office automation, and retail. Although the majority of the company's R&D efforts are still based in Germany, he claimed that there were some 240 developers in the US, a small group in Ireland and a hardware group due to be set up in Singapore where Nixdorf already manufactures and does software development. The company also operates technology centres in Santa Clara and Tokyo whose brief includes scouring local markets for likely technologies for licencing.

DEC INCLUDES VAXSERVERS WITH MICROVAX, VAXSTATION 3000...

Claiming that "the summer silly season is officially over", DEC UK yest- erday staged its "biggest ever" launch. In addition to the expected new family of MicroVAXes and VAXstations, the company also introduced three VAX-servers, two Winchesters, a high performance cartridge tape, and sev- eral new networking products including twisted pair Ethernet at 10Mbps. The MicroVAX products and the VAXstations all have new DEC designed and built two micron CMOS microprocessor, memory management chips and input- output processor. The new chips is claimed to offer three times the performance of the three micron NMOS - ZMOS in DECspeak - chips used in the MicroVAX II at twice the price. The MicroVAX 3000 has twice the storage capacity of the MicroVAX II and comes in two models, both with up to 32Mb of memory. The 3500 office system and the 3600 computer room system also include the new 296Mb TK70 cartridge tape and up to two of the new 19mS access time, 280Mb formatted RA70 5.25" disk drives. The TK70 has three times the capacity and twice the speed of the old TK50, but is supported by the PDP-11/83 and the MicroVAX II and can read TK50 cartridges. The MicroVAX 3600 additionally includes another new disk drive, the 14" 622Mb RA82 which has a data transfer rate of 2.4Mbytes- per-second. Up to four can be fitted. A 16Mb MicroVAX 3500 with RA70, TK70, Ethernet interfaces and full operating software licences costs from £62,000 - $74,000 in the US, while the MicroVAX 3600 starts at £82,000. The three VAX-servers - the 3500, the 3600 and the 3602 - are essentially lower-priced single-user versions of the MicroVAX 3000s. The 3500 and 3600 come in the same packaging as their MicroVAX counter parts while the 3602 consists of two 3600s in one cabinet. The servers start at £42,000. The new VAXstation 3000 series consists of the pedes tal-mounted model 3200 which has 1,024 by 864 resolution mono or colour screen, 8Mb of memory and Ethernet interface, starting at £16,000, $19,900 in the US, and the similar 16Mb, expandable cabinet, model 3500 also offers RA70 and TK70 support. Both stations support X-Window, TCP/IP and DECnet protocols and are claimed to offer 2.5 to 4 times the power of the II/GPX; the new machines will be available here in January.

APPLE TEAMS UP WITH PHILIPS FOR $800m US ARMY PACT

It may not go down too well with the company's peace-and-love fans, but Apple Computer Inc, Cupertino, is donning khaki to bid 18,000 Macintoshes for an $800 million contract with the US Army for a battlefield command and control system due to be let next spring. The original specification for the contract, released last June, called for Unix System V compatibility, but following objections from some would-be-vendors the Army is redrawing its standards specification (UX No 145). According to the Newsbytes newswire, Apple has teamed up with the Magnavox subsidiary of North American Philips to give its bid greater credibility in what would be a virgin market for the company. Others expected to bid include Hewlett Packard and Unisys.

JOBS' NEXT INC TO USE ADOBE POSTSCRIPT FOR VDU GRAPHICS

The PostScript page description language from Adobe Systems now has a screen-based brother - and Steve Jobs' Next Inc will be using the new Adobe product as the basis of the screen graphics on his forthcoming scholar's workstation. The interactive Display PostScript was jointly developed by Adobe and Next, and is due out next summer. It will offer true WYSIWIG, and be windowing system independent. Other features will include outline fonts, arbitrary line widths, rotation, and colour. Jobs, talking at the Seybold desktop publishing conference in San Francisco, gave few further details on the workstation beyond saying that it is being designed to run under Unix and will include an Ethernet interface. Rumour has it that the box will look startlingly different from anything we are used to - it will appear as a jet black cube, and will include an 8" loudspeaker built-in to deliver sound to match the all-dancing graphics. It is not now expected to arrive until next year.

COMPUTER CONSOLES TO CUT UNIX UNIT STAFF BY 20%

Computer Consoles Inc, Waltham, Massachusetts, announced last Friday that it was restructuring and refocusing its Computer Products Division, based in Irvine, California, to achieve profits in the division sooner, with a major cut in operating expenses that will lower break-even levels. The division will now concentrate its development and distribution activities on the Power6 Unix mini line and OfficePower software. The move by the $60 million a year division will mean a reduction in development of systems around standard processors (rumours of a 68020-based addition to the Power5 line now appear unlikely), but full funding for the high-performance RISC processor project to develop a next generation Unix family with 25-40 MIPS performance will continue. The staff cut, combined with projected increased sales in 1988 from its indirect outlets will allow the division to near break-even point next year. The charge to be taken for the restructuring means that the company will not now meet its projected profit goals for 1987 - but it will still be profitable.

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Minigrams

Arete Systems Corp is tipped to unveil a new line of multiprocessor Unix systems based on the top-speed 25Mhz version of the 68020 next month - the new line should more than double the performance of the 12.5.Mhz Aretes, to between 4 and 5 MIPS.

- o -

Venturecom Inc, the privately held Cambridge, Massachusetts company best known for squeezing its Venix implementations of Unix into less memory than Bell Labs ever believed possible, has introduced the Venix System V.2.3, and claims that the implementation represents the highest-performing real-time version of Unix for Personals: it conforms to the SVID, and ships this month; no prices given.

- o -

Sony Corp is to combine its 32-bit NEWS workstation (UX No 140) with Compact Disk Read Only Memory technology in a new model, the NEWS-891, which will be shipped from April next year with a CD- ROM retrieval system called KRS in conjunction with California software house **Knowledge Set**: KRS already has a high speed retrieval function for documents and graphics, and will be suitable for desktop publishing; it is being implemented under Unix and a Japanese version created; the NWS 891 will have 4Mb main memory, 86Mb fixed disk, and sell for $10,839.

- o -

Staying with Japan, **Toshiba Corp** has introduced eight new models of its A300 series of engineering workstations, which run Japanese Unix combining System V and Berkeley 4.2: the new models are rated at 4 MIPS (twice the power of their predecessors), and run Japanese versions of Prolog and Lisp; prices range from $31,300 and $110,000, and Toshiba looks to sell 4,000 machines from the ten-member line over the next three years.

- o -

Rapitech Systems Inc. has appointed Edinburgh software house **Management Analysis Systems Support Ltd** as sole UK distributors of its Conversionware range of products, which include conversion translation programmes to convert Fortran and Cobol code into C - (the Cobol converter is still on Beta test at the moment): the company already distributes CGEN products from MS Associates.

Word of another large deal in far off places has come from **Tolerant Systems Inc**, this time in Taiwan, Republic of China (ROC), where the **Everdata International Corporation** in Taipei will exclusively market Tolerant's Eternity fault tolerant systems in a three year deal valued at $6 million - according to Everdata president Albert Chang, online transaction processing and data communications are the fastest growing market segments in China, and the ROC Government is making Unix compatibility one of its purchasing critera - Everdata will be selling turnkey systems to its customer base of banks, government agencies, and research and educational organisations.

- o -

ABS Computer of Brighton has sold a C-Horse 900 supermini (based on the Pyramid 9820) to Lister Locks in Ipswich, the wholesale distributor of locks and buiding accessories - the system is intitially installed with 45 colour terminals and 10 printers, and the order is valued at £260,000.

- o -

C programmers fed up with the grind of day to day commercial programming can now unwind by trying their hand at computer games with a new Games Toolkit from compiler writers **Zorland**, which includes three ready to play games and full source code, plus a book explaining how to write games full "of skill and strategy": the kit costs £29.95, and a graphics toolkit can also be had for the same price.

- o -

The next major Unix show and conference in the diary is New York's Unix Expo, to be held at the Javits Convention Centre between 27th-29th October, and for the really brave there's always the chance to stay in the States for Comdex/Fall in Las Vagas the following week: a discount travel package to Unix Expo, which includes entrance to the conference, has been organised by Eaglehead Publishing - contact Philip Flaxton on 04862 27661.

On the subject of travelling, potential Posix implementors are likely to cover a few miles in October, when two Posix workshops are being held one after the other, but on opposite coasts of the USA. The first (October 20-21, in Rockville, Maryland) is a presentation by the American National Bureau of Standards on their proposals for Posix as a Federal Information Processing Standard (FIPS) for discussion: then it's pack your bags for the west coast to Berkeley for the Usenix workshop (October 22-23), where application and interface implementors are expected to swap ideas and provide feedback for the P1003 working group- after that it's the weekend to recover!

- o -

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- o -

Tektronix UK Ltd, of Marlow, Buckinghamshire, has announced UTek, (its implementation of Unix) on the 4400 Series AI 68020 based workstations: the move, it says "provides an insight into the way Tektronix is thinking".

- o -

Star Computer Group has developed an interface between the TetraPlan range of accounting software and its own accounts production software. By providing an interface, says the company, they aim to bring commercial accountants closer to their professional counterparts: the idea being that professional accountants will pull data direct from their clients' Tetraplan nominal ledger to the Star accounts production system.

- o -

Access Technology has made its 20/20 spreadsheet, release 2.1, available to run on the NCR Tower, and introduced two new types of site licence for the product: unrestricted, for any number of a specific processor type, and restricted, for a specified number of processors. a

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MIPS FINDS UK PARTNER IN TIS FOR BUSINESS MARKET ENTRANCE

Already making considerable inroads into workstation and technical markets with OEM deals with Prime, Racal-Redac and Whitechapel Workstations, MIPS Computer Systems is seeking to get into rapidly expanding business markets and has found a UK partner in the shape of TIS Ltd of Bourne End, Buckinghamshire. TIS, which has already demonstrated its ability to shift Unix boxes by selling a claimed 600+ Convergent Technologies systems, will be using the MIPS M/800 and M/1000 systems - rated at 8 and 10 MIPS respectively - as the top end of its range. TIS reckons an M/1000 complete with 300Mb disk, 16Mb RAM and 32 terminals will come in at under £100,000 - and with pent up demand for large systems from its corporate and VAR channels is looking to shift as many as fifty in the first year of the agreement. It claims the systems will support 100 users - and is looking for future MIPS systems to take that up to 200 users. The vital third party software is also on the way, with TIS saying that Uniplex, Quadatron, Unify and Ingres packages should all be ready for shipment next month.

NCR MARRIES ITS TOWER UNIX BOXES WITH FAULT-TOLERANT 9800

Despite abandoning its effort to implement Unix on its NCR 32 chip set, NCR Corp did not abandon its ambition to bring Unix into the mainstream of its mainframe product offerings, and the company last week launched a facility whereby its top-end multiprocessor Series 9800 fault-tolerant mainframes can be used as servers to a network of 68020-based Tower Unix supermicros. The facilities come with Series 9800 Release 2 coupled with NCR 9800/Tower Union - created when a Tower 32/600 is connected to the fault-tolerant 9800 as an Extended Service Processor - allowing Unix and proprietary VRX software to run concurrently in an integrated environment. NCR reckons users 9800 users will have a greater ability to develop systems using the tools available under Unix. NCR also unveiled DBSR, which it thinks may be the first commercially available relational database with SQL running in a fault-tolerant environment: NCR plans to borrow Oracle Corp's SQL/Form and SQL/Report to develop tools for DBSR. The Union opens up 9800 connection via the Tower to local area networks, and additional languages and specialist applications will be available on-line via application-to-application communications facilities between VRX and Unix. By putting in a 9800, Unix users will be able to add that machine's high volume transaction processing capability to their systems. NCR also announced the VRX/E 1.1 release of the Virtual Resource Exective operating system, which supports the Union and a new System Bus Adaptor, which links the previous generation Criterion V8500 processors into multi-processor configurations with the 9800. Initially, it enables the connection of the V8500 providing an access and migration path for software and peripherals. V8600 and V8800 support will be added latter. Series 9800 Release 2 includes the Multitran high volume transaction monitor; the DBSR relational database, and Cincom's Mantis applications generator, and a new version of Cincom's Total database is to follow. Based on multiple NCR 32 processors, the Series 9800 main hardware elements are Application Processors, Data Storage Processors and the Inter-processor Bus, each running under its own copy of the VRX/E operating system. Its base system is the twin-CPU NCR 9811.

ENCORE SIGNS FOR VMARK's PICK-UNDER-UNIX BUILDS UP OVERSEAS PRESENCE

Encore Computer Corporation has hardly had the flying start that many expected, but the company has been gradually building up its overseas presence and with Matra Data Systems of France this week announcing the fruits of the $30m OEM deal signed earlier this year (UX No 126), Encore says it is also in negotiations with potential UK distributors. Matra unveiled Encore's Multimax systems as the XMS 7000 and is planning to sell them into both technical and commercial markets. Encore, which reckons it will turn a profit this quarter, already has one system installed in the UK at Newcastle University. And the company reckons that its DARPA research contract to build a 1000 MIPS system by 1989 will yield a 150MIPS Ultramax - basically several of the NS32332-based multiprocessor Multimaxes linked together - by early 1988. Encore also plans downmarket Multimaxes, taking the entry price below the current $112,000 to take on the entrenched opposition. In order to boost its efforts to move into the commercial market, Encore has signed to offer not only Oracle, Ingres and Informix but also VMark Software's uniVerse Pick-under-Unix. uniVerse is priced on a per user basis starting at $9,600 for a 32-user package. The uniVerse shell and other processors are implemented in C and run as standard Unix processors and other Unix shells or processes can share the system with uniVerse applications, while uniVerse Pick applications can take advantage of all the Unix capabilities.

SUN "TO DO SPARC-BASED WORKSTATION FOR AT&T"

US companies that agreed to develop and manufacture computer equipment for AT&T Co - Convergent Inc, Counterpoint - have not had too happy a time of it, but it seems that Sun Microsystems is undaunted. According to the San Francisco Examiner, it has agreed to develop a line of high-performance workstations built around its 10 MIPS SPARC RISC chip set, to be marketed by AT&T. Neither company would comment on the report.

DEC EXPLAINS ITS STRATEGIC NETWORK VISION AS DNA PHASE V BEGINS

Two years ago, DEC undertook a survey of Fortune 1000 senior non-technical managers and their European equivalents. The results made depressing reading for a company committed to networking. One of the managers stated that "any vendor who claims to deliver network capability is clearly lying", and, according to DEC UK's market development group manager David Clarke, the other respondents were equally cynical about being able to tie their computers and telecommunications equipment together in the foreseeable future. Worse still, when asked who they thought offered the best hope of eventually delivering networking capability, the US managers' named IBM and AT&T, while their European counterparts went for IBM and the major local supplier - ICL in the UK, Siemens in Germany, Bull in France. DEC hardly rated a mention. Now, says Clarke, the managers, although still sceptical, recognise that "networks and networking are a corporate necessity", and they now perceive DEC as the market leader because of its "demonstrably superior products".

Grandiose

Customers, in Clarke's view, want a free and easy flow of information in a transparent network that is easily controlled and easy enough for users to understand without retraining. The answer, he says, lies in standards. One, at least, of the respondents to this year's survey agreed: "standardisation is essential if the true potential of multi-vendor networking is to be realised". The DEC solution lies in the integration of the ISO Open System Interconnection standards into the Digital Network Architecture. Layers one to four of the OSI model have already been incorporated into DECnet - DECnet is the implementation of DNA - and in the next phase of DNA, to be known as DNA/OSI Phase V to reflect the importance of OSI, DEC aims to work primarily on layers five, six and seven - session, presentation, and application. In its somewhat grandiosely entitled Strategic Network Vision, DEC has broken down Phase V into four categories: Unrestricted Connectivity, Interoperability, Distributed Capability and Manageability.

Developments in the first category are designed eventually to deliver networks with millions of nodes, rather than with the upper limit of 64,000 as at present. The latest stage towards this end is the introduction of twisted pair Ethernet. Developed by DEC in association with 3Com Corp, twisted pair Ethernet allows users to choose any wiring scheme, including existing telephone cabling, to connect workstations while preserving the 10Mbits-per-second transmission rate of Ethernet. At a stroke, it will cut the cost of networking dramatically although it might also upset customers who have already installed expensive co-ax. Later this year, DEC will launch a server that links private telephone switches to Ethernet via an S2 interface. The first version available in the UK will connect Plessey's ISDX to Ethernet. Eventually, DEC aims to support all PABXs with an S2 port. Other new products in the Unrestricted Connectivity category already announced are a European version of the Satellite Equipment Room Rack and an office communications cabinet. The Open Systems Interconnection model will not be fully defined until at least 1991. Indeed, that date is already beginning to look extremely optimistic and any move by the US National Security Agency to ask the International Standards Organisation to add an eighth, security, layer is likely to delay completion further. DEC, however, is not waiting for the full model even though it is one of the 10 companies that Computer Systems News says is helping the NSA development the security protocols. Instead, it is intending to offer proprietary solutions in the areas where standards are still missing. As the gaps are filled in, DEC will bring out sep- arate OSI-conforming products. In time, it hopes to be able to merge the proprietary and OSI versions. Last month, ISO published standards for layer six and, at layer seven, for Association Control Service Elements and File Transfer Access and Management. And earlier this month, despite having its own proprietary packages in both areas, DEC promised to deliver products implementing those standards within 12 months. VAX FTAM will allow transfer and management of files between VAXes and the outside world, while version 2 of Osak will implement presen- tation at layer six and ACSE at layer seven. Version 1.0 currently covers only layer five - session - protocols. DEC has also announced an improved version of its ISO transport implementation, VOTS, for early delivery. DEC is determined not to be left behind in the increasingly desperate battle to attract customers to distributed pro- cessing. At the introduction of DNA/OSI Phase V, DEC announced electronic mail links between its All-In-One package and IBM's SNADS and PROFS office system. Unix users on other vendors' hardware will also be supported even if the eMail system they are using does not conform to X400. DEC also announced procedures, documentation and management services for implementing large global mail networks.

Anytime, anywhere

DEC also outlined DECnet System Services, a set of products designed to offer transparent access to data wherever it is on the network. Included in DSS are distributed file sharing; a sharer and manager of printing resources; a consistent file-naming programme; and a new version of the Remote System Manager which extents RSM capabilities to VAXes running over wide area networks or under DEC's Unix offering, Ultrix. RSM obviously falls into the Manageability Category as well. In that category, DEC has also announced an Ethernet Encryption System consisting of a hardware controller and a layered VMS application that manages the operations of the controllers. So, where do all the announcements leave DEC? Definitely with one of the strongest product offerings in the networking field which, allied with the ability of all the VAX processors to run the same operating system - VMS - is likely to lead to DEC considerably extending its market share over the next few years. There are already 100,000 DECnet licences out there - more than three times the number for IBM's SNA - and Ethernet, with which DEC is closely associated, is growing rapidly. Up until now, DEC's networking strategy has been market driven. Now, however, it is promising to lead customer requirements. According to David Clarke, DEC is determined to provide customers with "the ability to connect anything, anywhere, anytime".

INTERACTIVE TO LAUNCH SUBSET OF UNIX/XENIX MERGE EARLY NEXT YEAR

Interactive Systems Corp is to distribute its own version of the Unix/Xenix merged operating system it has been working on with AT&T and Microsoft by the first quarter of next year, according to Interactive President Ronald Fisher during a visit to the UK this week. The new product will be a subset of the eventual AT&T certified version due out towards the end of 1988 (UX No 144), not including some of the Xenix functionality that will eventually appear, but allowing "ninty percent of Unix applications to run unchanged". Interactive will issue a list of working applications. The version is based on a Unix model, with a Xenix emulation providing compatibility at a binary level. But, says Fisher, many software vendors are not waiting for the merged version, and are already porting their applications to Unix V.3 in anticipation of the merge. The emulation approach adopted for the merged product might result in some performance degradation when running Xenix applications, but was felt to be the most flexible approach - and contrasts with the Altos' merged Unix/Xenix due out at the end of this year for its own hardware, which has been implemented mostly in the kernel. Interactive's own implementation of Unix V.3 for the Intel 80386, 386/ix, ships this month, and will be distributed in Europe through Sphinx and the ICUS network, already distributors of the VP/ix combination of DOS and Unix developed in conjunction with Phoenix Technologies, which will now be marketed as an extension of 386/ix. Also included is the Ten/Plus user interface, and in-built networking including Streams and RFS. Fisher believes that Unix will soon account for between 20% and 40% of the total 80386 market, and that similar bridge products to VP/ix, linking DOS, Unix, and OS/2 on the same network will play an important role. "We see the 80386 running at 16 Mhz as about equivalent to the 68020, a 4 MIPS chip", he said. "Already some 20Mhz machines have been released, and Intel is promising 24 Mhz chips by the end of the year.

UNISYS: 138 A-1 MEXICO PACT; UNIX FOR BRITISH AIR

Unisys Corp has landed a $6m order for 138 of the new A-1 48-bit processors from Banco Nacional de Mexico, Mexico City, for use as branch processors; and in the UK, it has penetrated British Airways with an order for a 5000/50 Unix system to run ALPPS aircrew planning system.

DEC CUTS VAXSTATION II TAG

DEC has followed announcement of the VAXstation 3000s with US price cuts on the VAXstation II-GPX. The diskless colour workstation falls 8.3% to $21,900, while the high-end colour model with 150Mb disk drive is cut by 7.5% to $36,850. A VAXstation II-GPX for use in VAXclusters and Network File System nets is $28,950.

INTERGRAPH TO BUY ALL RIGHTS TO CLIPPER CHIP SET FROM NATIONAL SEMICONDUCTOR

Last month's announcement that National Semiconductor had agreed to buy Fairchild Semiconductor from Schlumberger Ltd certainly seemed to suggest that Intergraph had given up on its desire to buy an interest in the ailing company itself and ensure its own supply of the Clipper chip set, but, in fact, the story did not end there: Intergraph last week signed an agreement to buy the Clipper microprocessor set, including licences and inventory, from NatSemi. Financial details of the agreement were not disclosed, although the purchase price is thought to be under $10m. The acquisition is contingent upon regulatory approval of National Semiconductor's purchase of Fairchild. Intergraph, Huntsville, Alabama uses the Clipper 32-bit RISC architecture chip in its top-end workstations, and when uncertainty over Fairchild's future became rampant, Intergraph reportedly began evaluating the Sun Microsystems SPARC chip as an alternative. Fairchild Semiconductor's Nagasaki, Japan plant was not included in the businesses that are to be sold to NatSemi, and now Sony Corp has agreed to buy the plant from Schlumberger Ltd: the plant currently employs 230 on assembly only; no price details have been given.

X/OPEN ANNOUNCES INCORPORATION - PLANS SOFTWARE VENDOR AND USER COUNCILS

With the perception lingering that open systems manufacturers club X/Open was rather more of a closed shop consisting of only the most wealthy and well connected, the Group has now announced its long expected incorporation as an independent, non-profitmaking company, X/Open Limited. The move, says the company, "will make its independence tangible", with the aim of encouraging a greater participation in X/Open activities from independent software vendors and users. The new company, which is to set up offices in the UK away from its current base at ICL in Bracknell, Berkshire, plans to spend £4 million next year on building up stronger relationships with both software vendors and users, by establishing councils to allow each group to put over its particular priorities on standardisation. Each of the 11 members (AT&T, Bull, DEC, Ericsson, Hewlett-Packard, ICL, Nixdorf, Olivetti, Philips, Siemens and Unisys) has an equal shareholding in X/Open, which will be funded by membership fees. Geoff Morris, President and CEO, said that its independent footing would encourage other hardware manufacturers to become involved - either as full members or by implementing the X/Open interface on their hardware. A further priority will be to step up its profile in the US, where offices will also be established. Bob Ackerman, ex-Unisoft and now Chief Marketing Officer with X/Open will push the X/Open's Common Applications Environment (CAE) more aggresively to government and corporate users - Ackerman feels the CAE should be specified by users such as the U.S. Air Force and Army as an alternative to System V, the subject of recent objections by competitors of AT&T. X/Open now claims to represent around 25% of the world market, and will have spent £21 million on specifying the CAE between 1986 and 1990, not including the efforts to implement the standard by individual members.

PARADOX CO-DESIGNER RAISES DOUBTS ON NEED, DEMAND FOR OS/2

There are few easier targets in the computer business than vapourware, and hordes of pundits are ready to rush forward and badmouth Microsoft's and IBM's OS/2 operating system. The problem with OS/2 for anyone without a vested interest in its success, is that it is remarkably difficult to defend. It has that uncomfortable air of a product that has been created not because the market was crying out for it but because its vendors - or at least IBM - felt it needed it in order to regain its hegemony over the single-user desk-top computing market. But of the user? Rob Shostak, co-developer of Ansa Software's Paradox program reckons that many users will want to think twice before switching to the future operating system. First of all, he told Microbytes Daily, it will be expensive to make OS/2 work. You'll need at least a couple of megabytes of memory, in addition to the cost of purchasing OS/2 and the Presentation Manager, which are substantially more expensive than MS-DOS. Since there is no upward compatibility between MS-DOS and OS/2, users will need to maintain two sets of applications: all those existing programs running under MS-DOS and new programs running under OS/2. "It's not like moving from DOS 2.0 to DOS 3.0," says Shostak. "Users will not have upward compatibility with the applications they're currently using. OS/2 represents a big discontinuity. I think there will be a big resistance to that. Since Big Blue has decreed that OS/2 is the new standard, it probably will be," Shostak acknowledges. "But because of mitigating factors, it might take years to happen." He points out that a major alternative to OS/2 for PC-DOS users will be applications written specifically for the 80386 "based on technologies like Phar Lap." The only thing missing will be multitasking, but that may not be that important to many users when weighed against the costs of switching to OS/2, he reckons.

Big users buying clones

Applications written specifically for the 80386 will be able to run in '386 protected mode. "I wouldn't be surprised if a '386 version of Paradox is available before a version for OS/2," he adds. The problem for IBM in all this is that it has effectively burned its boats with the Personal System/2. Apart from the embarrassing Models 25 and 30, the machines are designed for OS/2, and users who decide they will wait and see about OS/2 will reckon they don't need PS/2s and will settle for cheaper AT-alikes in the meantime. Electronic News reports that major US customers are still evaluating the PS/2s before committing to buying them in quantity, and in the meantime are buying clones. The paper cites Merrill Lynch & Co, an enormous IBM user, as a clone-buyer, and reports that General Instrument has put orders for PS/2s on hold and is also buying clones. Companies like Western Digital and Chips & Technologies are rushing out emulations of the PS/2 graphics for AT-alike builders, and if you don't need the Micro Channel for graphics, what other benefits does it offer users rather than IBM over the AT bus?

ANOTHER PUBLISHING SYSTEM FOR UNIX

FB Technology has developed a new 32-bit Unix-based multiuser publishing and typesetting system. The EasyType system features an NS32000 CPU with cache memory, 2Mb of main memory - expandable to 16Mb, and a graphics controller with 2Mb of memory space for storage of bit-mapped fonts. The set-up includes a two-button mouse, alphanumeric keyboard, 80-meg hard disk, 1- meg 5.25-inch floppy drive, and a 12- by 17.5-inch monitor with a resolution of 768 by 1024 pixels. The Santa Clara, California company claims that the system comes with "wysiwyg" software that supports standard desktop publishing features as well as typesetting functions like kerning and leading control. EasyType can import ASCII files from other word processors. The operating system is System V and supports other Unix-based software applications. EasyType comes standard with nine RS-232C ports for additional terminals and other peripherals and may be expanded to a total of 17 RS-232C ports. Also included are two DMA host adapter boards for intelligent SCSI subsystems. The system can be interfaced to any PostScript-compatible printer or typesetter. EasyType can also be linked to a Linotype 100 or 300 typesetter or a Microtek scanner for importing graphic images. The EasyType system, including software, is priced at $12,800. Additional workstations including; keyboard, mouse, and monitor, are priced at $1500.

FUJITSU, CLEARED OF WRONGDOING, WINS NEW RIGHTS FROM IBM

Fujitsu Ltd has won a clean bill of health from the American Arbitration Association, and major new rights from IBM in settlement of IBM's complaint against the Japanese company for alleged infringement of IBM copy-right in the MVS and MVS/XA operating systems. The settlement frees Fujitsu to market its OSIV family of more efficient rewrites of MVS to IBM users, and opens up the possibility of fierce price competition in mainframe operating software. The company has felt so embattled by the pressure from IBM that it was talking last year in terms of abandoning the policy of IBM compatibility, and some observers had looked to it to try to establish Unix as an alternative mainframe standard. Fujitsu can now press ahead with its battle plan to compete fiercely with IBM, and may well now want its 47%-owned Amdahl Corp to start marketing its alternative to MVS; up to now, Amdahl has firmly turned its face against running anything other than IBM operating software or its own on the machines it sells. Under terms of the Association's order, the royalties Fujitsu agreed to pay IBM in 1983 on each sale of its OSIV operating system are replaced by a single, as yet unspecified, lump sum payment, to be determined during the coming year. The payment will buy Fujitsu the right to access IBM programming information through a procedure that will protect IBM's copyrights. The facility to examine IBM software in a secured environment will be open to Fujitsu for from five to 10 years.

BORLAND's ANSA POSES PARADOXES FOR OS/2, UNIX, 80386

Borland International Inc and its Ansa Software acquisition have revealed plans to do versions of the Paradox database system for MS-OS/2 and Unix operating environments and for 80386 hardware, and promises 100% compatibility with applications developed under Paradox 2.0 for MS-DOS. Ansa is also going after big IBM users with the promise of a Paradox product that will enable users to access SQL-stored data directly from within Paradox - without the need to know SQL commands. The intention is that a workgroup should be able to run a networked Paradox information mangement system, sharing database files and applications across a variety of 80286- and 80386-based machines, MS-DOS and OS/2 environments. Paradox for 386 machines will break the 640Kb memory barrier, increasing linear address space to 16Mb by embedding the 386/DOS Extender from Pharlap Software, making it up to five times faster than 2.0 on a 386 machine; it will also exploit the full 386 instruction set. It will be out in the fourth quarter, and Paradox for OS/2 will ship concurrently with OS/2, and a Unix version will ship in mid-1988. Versions for Microsoft Windows and the IBM Presentation Manager graphical user interfaces are also planned. Borland's Turbo C and Turbo Pascal languages will include interfaces to Paradox querying, sorting and indexing components so that they can be used from within C and Pascal programs.

ICL LAUNCHES DRS 300 80286 PROFESSIONAL WORKSTATION WITH MULTI-TASKING MS-DOS 4.1

As promised in April ICL last week unveiled its DRS Professional Workstation, PWS, to run under the new multitasking MS-DOS 4.1 from MicroSoft. MS-DOS 4.1 is bundled, but Unix and Concurrent DOS are also offered. According to ICL, PWS is designed to fill the gap in the marketplace between the single user micro's day to day role and its role in management support. MS-DOS 4.1, exclusively available through ICL, provides "a stepping stone to MS-OS/2", promised by MicroSoft for the end of this year. Its multitasking capability allows applications to run simultaneously in the background and foreground, a facility which is extended with MS Windows software. The "PC that's truly come of age" is based on an 8MHz 80286 with 1Mb of zero wait state memory expandable to 4Mb now, 16Mb by November. It will operate standalone or as part of a DRS Microlan2 network and is available in English, French and German versions. It has six AT, two XT and five ICL slots, and comes in three models - 12/00 with 1.2Mb 5.25" floppy and mono screen for £2,195; 12/20 with 1.2Mb floppy, 20Mb Winchester and colour screen for £2,695, and 12/45 with 45Mb, Microlan2 adaptor and colour screen for £3,395. Communications include X25 and there are VT220, TTY and viewdata emulations. ICL says it is working on an 80386 model for 1988, and plans a PWS with integral modem.

PROGRESS COMES TO EUROPE - DLC ACQUIRES MSE

Progress developer, Data Language Corp, is hoping for a big killing in Europe having established a network of six European subsidiaries as a result of its recent acquisition of MSE Distribution. MSE had previously represented Data Language as an independent distributor of the company's Progress family of fourth- generation language and relational database management software products which run under Unix, Xenix, Ultrix, MS-DOS and VAX/VMS. The subsidiaries, to be called Progress Software, are in; Belgium, Denmark, the Netherlands, Norway, Sweden, and West Germany, with additional branch offices in Austria, France and Switzerland. "The establishment of direct European representation is a significant milestone in the history of Data Language," said Joseph W. Alsop, president and co-founder of the six-year-old Billerica, Massachusetts-based firm. "The acquisition of MSE provides Data Language with an established sales and support organization in nine countries that already knows our products and understands the European 4GL RDBMS market." Data Language predicts the new subsidiaries will make major contributions to the overall revenue figure of the privately held company and add that about 25% of Data Language Corp's revenues are derived from its international operations. Alsop expects European sales to more than double next year. Since its introduction in 1984, Data Language claims to have shipped approximately 2,000 of its more than 10,000 installed copies of Progress to the European market.

THE JOBS WAVE THEORY OF PERSONAL COMPUTING

Steve Jobs has already made himself a fixture on the rostrum at the annual Seybold desktop publishing conference in Santa Clara, California, and one of his offerings this year was the wave theory of personal computing. His first wave, not surprisingly, is the Apple II, the second, the IBM Personal, the third, or current one, the Macintosh. Jobs' waves clearly overlap, since the Apple II only really started to make its mark a decade ago, yet he gives each wave a life of 10 years, most of which are spent in maturity. He reckons that Macintosh enters maturity next year, at which point he reckons that all the really serious software for the machine will have been written. What of the fourth wave? PS/2? Seems that, in Jobs' view, the PS/2 and its OS/2 operating system are simply a pale imitation of the Macintosh. No, the fourth wave, he reckons, will be characterised by Unix as the operating system, Ethernet communications built in, and a graphics user interface based on the Adobe Systems Postscript page description language. And which will be the machine that exemplifies all these virtues and brings them to market? Why, the scholar's workstation that is in development at Jobs' new company, Next Inc.

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Yes, well... **Microsoft Corp** says it is developing a Japanese version of its 32-bit MS-OS/2, to be delivered in first half of 1988.

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Siemens in the UK has signed up **Cognisoft** of Manchester to act as a VAR for Siemens' range of Sinix- based (Siemens' implementation of Unix) departmental computers: Cognisoft will be adding SMB software from Thorn-EMI Datasolve to develop end-user applications and Uniplex II+ for office automation facilities.

- o -

CADCentre will be implementing and marketing its GNC part programming systems on the **Hewlett-Packard** 9000 Series 300 workstation through a third party marketing agreement with Hewlett-Packard.

- o -

Japanese manufacturers enhance and modernise their personal computer lines at a much faster rate than their US and European counterparts, so there is yet another model out in NEC's 9800 series: the new PC98XL is a dual processor with an 80386, which will run OS/2, and a V30 8086-alike; user memory goes from 1.5Mb to 4.5Mb, the machine offers 1.7 to twice the performance of the present line topper, and it is pitched below the million yen price barrier at $6,900; compatible with the other PC9800s, it also runs Japanese MS-DOS, and PC-UX/V, based on Unix System V.3.

- o -

Sumitomo Electric is not the only company in Japan buying the M1000 RISC processor from **MIPS Computer Systems Inc** of Sunnyvale, California: **Marubeni Electronics** is also to distribute the 10 MIPS M/1000, and looks to sell 100 machines in the first year, at prices between $84,500 and $211,270.

- o -

Root Computers' chairman, David Saunderson, is being freed to concentrate on major deals and acquisitions leaving the day to day running of the company to its newly appointed chief executive officer, Jeremy Thomas - recently managing director of the European data communications systems subsidiary of Racal.

Minigrams

Innovative Software has announced a transparent connection between DOS and Unix for LAN users as an addition to its SmartWare package and adds that it is working on a line of products for OS/2.

- o -

National Semiconductor Corp has reported a first quarter net profit of $13.0m after a $1.5m tax credit, against a loss last time of $1.4m, on turnover that rose 3.3% to $517.6m; net per share was $0.10.

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Major Japanese software house **Century Research Center Ltd** has begun marketing Surfes, a general- purpose structural analysis package developed by **Kawasaki Heavy Industries** that runs on **DEC, Fujitsu, Sun Microsystems** and **Sony** workstations: Surfes brings together in one package functions for stress analysis of planar, solid and three dimensional models and is claimed to reduce analysis time by a factor of 10; it sells for between $42,300 and $63,000 and CRC is looking to sell 30 copies.

- o -

Bedworth, West Midlands-based **Sabre Computing** has launched a package for the steel stockholding industry to run on the S/Series from Convergent Technologies: Stockholder will control sales, stocks, profits, invoicing and batch trace facility and Sabre claims that it will cover the whole transaction process from receipt of order to delivery and invoicing, recording every movement of the stock.

- o -

Toshiba Corp too has snapped up the **MIPS Computer** RISC, bringing out a line of eight AS4200 series models built around the Sunnyvale company's 10 MIPS processor; main memory goes from 8Mb to 128Mb, backing store from 280Mb to 2.3Gb, there is a scientific co-processor doing 1.1 to 1.6 MegaFLOPS and the boxes run AS-Documents; the IREX expert system development tool; the AS-Transac English to Japanese translation software, and LA1 experimental data analyser; prices go from $25,000 to $150,000.

Panasonic, the multinational electronics giant has contracted **Root Technical Systems** to port its Uniplus implementation of Unix V.3 to a new ange of 80386-based engineering and office automation workstations being developed in the UK: Root's £100,000 contact also involves the writing of pecial device drivers for the workstations, which are still under wraps, including one which will allow them to act as facsimile terminals.

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AndRoot Computers has chosen to herald the arrival of its Unitecs migration tool in the US by organising a conference in Boston this week hosted by Robb Wilmot who will be joined by other speakers including; Geoff Morris, Donal O'Shea, Jim Bell, Jim Issak, and Casey Powell.

- o -

The Mechanical Engineering Laboratory of the **Ministry of International Trade & Industry's** Agency of Industrial Science and Technology in Japan, has demonstrated that the I-TRON variant of the multi- purpose TRON - The Real-time Operating Nucleus - can be used effectively for real-time interrupt processing of self-propelled robots, and will gradually introduce TRON into its robot control systems: the Laboratory used the I-TRON-based RX-116 real-time system from NEC, and the role of I-TRON was to control the software used to prevent the rambling robot from bumping into objects that suddenly appeared to block its path.

- o -

Some copyright guidelines for software to be made available through the Sigma project have been decided on by the Information technology Promotion Agency: although the Japanese copyright law was revised last year, rights with regard to modification and use of software are still not clearly defined, which creates problems particularly because pre-existing software is being used in the Sigma project, and there is the potential of a string of copyright claims from the original developer, the developer modifying the software for the Sigma environment and the manufacturer who ported the software; two definitions have now been arrived at, for object code operation and source code operation, and 20 different standard contracts are now being drawn up.

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CATSCO GAINS TORCH MAJORITY SHAREHOLDING - OLD MANAGEMENT TEAM LEAVE

Australian Catsco has acquired a majority shareholding in Torch Computers Ltd as part of a refinancing package to enable the Cambridge-based company to bring its latest workstation to market. The company's refinancing is accompanied by a management shakeup with most of the current management team leaving including: chairman, Patrick Packenshaw-Walsh; managing director, Ray Winter; and commercial director, Peter Harris. Tim Lowden of Newmarket Venture Capital, Torch backers, is currently acting as executive chairman and his main priority is to find a new management team to continue the company's turnaround; he sees the people for the job coming from outside the company. Details of the rescue package have not been disclosed but Catsco managing director, Graeme Dillon, has already joined the Torch Board of Directors and new money from Newmarket will be included. Catsco based in Prahran, Victoria specialises in software for "computer assisted data collection" and according to Torch has been one of its major customers for the last 15 months, using the Triple X to build up a telecommunications network in Australia, as well as acting as its Australian distributor. Torch's new 68020-based workstation, the Advanced Triple-X, will be on show at the MilComp exhibition at the Wembley Conference Centre this week. The Advanced Triple-X is aid to incorporate an innovative reduced instruction set input-output controller; there are also plans to make the VMEbus CPU board available as an OEM product. Torch's agreement with British Telecom Fulcrum (UX No 81) intended to run for two years with an estimated value of £3m dried up a couple of [months ago, just about completing a year of the contract. Torch, the £3.5m-a-year, 50-employee company is the second British workstation manufacturer to need aid in the last 15 months: Whitechapel Computer Works had a similar operation last summer.

MIPS SEEKS SEMICONDUCTOR FIRM TO BUY RISC CHIP BUSINESS

MIPS Computer Systems Inc, Sunnyvale, which this week announces a distribution deal with TIS Ltd for its R series of multi-user systems, is looking to concentrate its resources on the systems side and offload its chip manufacturing to semiconductor companies which will then be able to supply directly to customers. The company says its rapidly growing systems business, focussed on multi-user machines and network servers, and demand from workstation manufacturers for its chips means volume chip manufacturers are needed. It is seeking agreements with "major semiconductor manufacturers" to take over the making and marketing of the RISCs, currently made in two micron CMOS under foundry agreements with Sierra Semiconductor and an unidentified other; it would then buy components from the chip company. Sun Microsystems has already contracted chip manufacturers to manufacture its SPARC competitor to the MIPS chips; MIPS reckons its prospective agreements, coupled with its policy of not competing directly with OEM customers building workstations will put it in a stronger position. MIPS claims 60 design wins, employs 125 people and is aiming for around $20m revenues this year. An unidentified Japanese firm is also reportedly seeking a stake in MIPS.

X/OPEN TEAMS WITH US NBS

X/Open Ltd, the non-profit company owned by ICL and 10 other mainly European Unix systems manufactur ers, has reached agreement with the US National Bureau of Standards - part of the Commerce Department - to work towards the creation of a common application environment as an extension to the IEEE Posix non- proprietary definition of Unix Sys tem V. London-based X/Open will be working with the Bureau's Institute for Computer Sciences and Technology to define users' needs and to research and specify system standards for incorporation into the common application environment. X/Open is incorporating Posix into its common application environment and the US Federal government is also strongly committed to Posix as a means of standardising its subst antial investment in Unix systems.

BULL WANTS UNIX TO BE 12% OF ITS BUSINESS

Announcing three models in a new [Questar 700 Unix line in Paris this week, Bull SA claimed that it was number three in the French Unix market with 46% by number of the Unix minis and 15% of Unix supermicros installed - adding that by 1990, it wanted 12% of its business to be with Unix systems. The new Questar 700s are 68020- based, the 700/15 having two CPUs and up to 6Mb memory, the 700/20 having four processors and up to 8Mb memory, and the 700/30, designed for development, having 10 processors and up to 16Mb. They support both bisync/SNA and open systems communications, and include a service processor for remote diagnostics. The Questar 700s run the Spix operating system, Bull's version of Unix System V, and can handle 8, 24, and 32 users respectively. Software for the new range includes Uniplex-II Plus, Q- Office and Informix. Bull also announced a Partenaires scheme offering marketing services for resellers of the new machines. Available now the 700/30 costs between 210,000 and 700,000FF: the 20 is scheduled for delivery in December and its price range is 180,000 and 400,000 FF. The 700/15 will be ready in the first quarter 1988 for a price of between 140,000 and 250,000FF.

PYRAMID CUTS 25% FROM 9805 PRICE AND BOOSTS TPS RATE WITH OPTIMISED DATABASE PACKAGE AIDED BY SYBASE

Pyramid Technology has reconfigured and repriced its entry-level 9805 system because it brought out the original system earlier than expected and it adds because of improved construction techniques. The new features for the 9805 include expanded memory and a choice of three different disk drives. The 9805 cost $139,000 when it was introduced last year for 4Mb memory and a 470Mb disk drive. The new 9805 comes with 8Mb memory with a choice of a 300 or 470Mb or 1.1Gb disk drive. The only model available now is the 8Mb system with the 470Mb disk drive and is priced at $112,000. The 300Mb drive version will be available 90 days after receipt of order for $106,650. The 1.1Gb system will be available later this month fo a price of $122,850. Separately Pyramid has been examining online database performance. The race for faster rates of transactions per second (tps) for online applications has reportedly led DEC to begin looking at a new hardware architecture, and to begin embedding the functionality of its ACMS transaction processing software, currently rated at six to seven tps, into the VMS operating system. This necessity to rethink general purpose systems for fast, online database performance was underlined this week by the unveiling of the results of the Pyramid/Sybase OEM agreement, first announced at the Very Large Database Exhibition in Brighton earlier this month (UX No: 144). Pyramid long ago decided to attack the database market, striking up deals with the "big four" database companies, and even organising its own database show at the bleak Novotel Hotel in Hammersmith last April.

But the Sybase deal apparently involved nine months of "co-operative engineering" between the two companies, resulting in the five system Pyramid R*TP range of specially modified Series 9000 hardware packaged with the Sybase Inc. database manager and development products. Initial performance estimates give a throughput of 10 tps on the low-end Model 50, and up to 75 tps for the top-of-the-line Model 400, but Pyramid's UK Managing Director David Thornley predicted that this could rise to 100 tps once low-level tuning of the operating system had been completed. Both Pyramid and Sybase would be selling on the systems as a complete package.

Changes in OSx

RT*P systems employ a requester/server approach, which separates back-end database functionality from front-end user application logic and presentation. This allows networked personal workstations to be used as "requesters" to the Pyramid database server. The major modifications took place in the operating system, OSx, which now works closely with the Sybase back-end Dataserver to create a transaction processing kernel for high tp rates. Pyramid claims that OSx still retains full upward compatibility and adheres to the Unix standard.

The market for online transaction processing, said Pyramid Chairman and CEO Richard Lussier, should amount to $20 million by 1990. Some users will have a requirement for fault tolerant capabilities - hence Sybase's similar technology exhange with Stratus - but the majority will be large customers looking for alternatives to dedicated database hardware or mainframes, a more costly alternative according to Lussier. The scenario suits a company now returning to profitability after poor figures last year. Lussier identified Pyramid hardware as more competative at the high-end, and said that the company was moving away from reliance on single sales to larger deals from customers buying multiple machines. Software revenue from the Sybase deal would not be big, he said, but would stimulate the closing of just those type of deals.

SYBASE EYES REST OF EURPOE FOLLLOWING RECENT UK ENTRANCE

Database developer Sybase recently set up in the UK, attracting former Tandem UK chief John Louth to head up its operations outside the US. Louth is looking to build the UK subsidiary up to 30 people by the end of 1988, and to use the accumulated expertise as a base for expanding further into Europe. He is looking to start direct sales into France and Germany by mid-88, and also sees Australasia as a likely prospect. Louth is keen to emphasise the buildup of support staff, noting that the on-line applications market at which the Sybase product is targetted is much more demanding of support than the market for decision support systems more often associated with relational databases. Two UK users - "both in the financial world" - have taken evaluation copies but as yet there are no live applications in the UK.

ICL GUESTS UNIX UNDER NEW VME RELEASE, ADDS CUT-DOWN 39/80 MAINFRAME MODELS

ICL Ltd last week introduced the SV221 release of the VME operating system for November delivery having an option which runs Unix System V.2 as a guest called VME Unix System. SV221 supports single and multi-node working, and offers a High Security Option which ICL reckons to be about a B2 level according to the Orange Book protocols. The company also fleshed out the mid-range of its Series 39 mainframe family with two new models derived from the top-end ECL processor used in the Model 80, and pitched them at the IBM 4381. The new Level 40 processor is designed as an upgrade machine for users of the 2953, 2957 and 2958, and comes with up to 16Mb main memory. It costs £300,000 with 8Mb, 1.2Gb disk, tape and printer, or £18,000 a quarter under ICL's Exchange Hire contract. The company has also enhanced performance of the Level 50 by 40% and renamed it the 50XP; the additional power is available as a field upgrade for users of the discontinued Level 50. With 16Mb, 3.2Gb disk, printer and tape it is £550,000 or £34,000 a quarter. The company also told users in York yesterday that two node working on Level 60s and 80s was running at 20 sites, and that field trials of a three-node 80 would start next month, with release set for spring; a four- node - four processor - version is set for fourth quarter 1988.

RISC WARS: RIDGE UNVEILS 14 MIPS, 128-USER UNIX MONSTER

Ridge Computers Inc, Santa Clara, today unveils a new top-end for its Unix-based reduced instruction set processors that are the subject of a major OEM and licence agreement with Bull SA in France. The new Ridge 5100 is built around a new line of VLSI processors developed by Ridge and manufactured by Fujitsu in 1.5 micron CMOS. The company says that the single processor 5100 uses parallel instruction execution to achieve performance of 14m Whetstones per second in (presumably 32-bit) floating point operations, and 14 times the VAX-11/780 in integer operations, which it claims means it outperforms the DEC VAX 8800. It does the double-precision Linpack at 2M-flops. Current 3200 system users can upgrade with a processor swap-out facility. The 3200 is rated at 5 VAX MIPS, the original Ridge Thirty-Two at 2.3 VAX MIPS. The 5100, designed fo rcompute-intensive work with up to 128 users, is built around two of the Fujitsu 20,000 gate arrays, each clocked at 16MHz. 24MHz and 32MHz versions of the processor are planned. The parallel execution feature enables the CPU to perform an integer operation, a memory address translation, and a floating point operation concurrently. It also has up 128Kb of cache, 64Kb each for code and data, and there is a hardware feature that maintains consistency between cache and memory. Branch prediction accuracy is claimed to have reached 93%. The input-output bandwidth of the machine is 20.7Mbytes-per-second, and main memory goes from 144Mb to 1Gb with memory bandwidth of 36Mbytes-per second. Disk goes to 14.4Gb. The new single-board processor and new memory will be offered as a field-upgrade to 3200 users; the new CPU is object-code compatible for Ridge's RX/V implementation of Unix System V. A 5100 with 16Mb of main memory and 300Mb disk comes in at $109,000, a 32Mb version with 1.2Gb disk is $148,000, and the upgrade board, set for first quarter 1988 is $55,000. Beta testing will start December, volume in February.

CELERITY MOVES UP INTO 64-BIT WORLD WITH 60 MIPS 6000

Celerity Computing Inc, the San Diego, California company that builds scientific and engineering Unix systems around the NCR 32 chip set, has moved up into the near-supercomputer world with a new line of multi-processor systems built around a proprietary 64-bit reduced instruction set processor in ECL technology. The machine comes with from one to four scalar, one or two of which can optionally be vector processors, and is built around a 320Mbyte-per-second memory bus. The machine is rated at 15 MIPS under the Whetstone benchmark with one processor, 60 MIPS with four processors. Fully configured with two vector processors, it is rated at 160 Mflops. The vector processor is said to be modelled after that of the Cray X-MP and to be compatible with it, using the Cray instruction command set. A vectorising pre-processor is available to adapt standard Fortran 77 code for the vector facility. The processor has a 25nS cycle and is designed to support up to 512 interactive users running the same BSD 4.3 Unix with System V extensions that is used on the C1200 NCR 32-based machines. The machine takes from 32Mb to 1Gb of main memory and up to 44Gb disk. Up to 11 90Mbyte-per-second burst rate channels can be supported. A uniprocessor with 32Mb memory, 690Mb disk, tape, maintenance console and Unix is $250,000. With two scalar and two vector processors, 128Mb memory, 690Mb disk, tape console and Unix it costs $632,000. First ships are set for November, with volume deliveries early 1988.

MOTOROLA COMPUTER GEARS FOR 78000 RISC

Motorola Inc is looking to the semiconductor division's forthcoming 78000 reduced instruction set microprocessor to shoot its Microcomputer Division in Tempe, Arizona into the forefront of market for industrial automation computers. Electronic News reports that the company is rushing to complete development of a line of VMEbus 78000 computers that will be compatible with most VME boards, and will come in above the division's 68020-based Delta industrial computers that run under Unix System V.3. Large-scale factory automation projects using the MAP 3.0 protocols, due in about a year, will be a key target; the division wants a computer out as soon as the 78000 is ready. Motorola is also getting ready to announce real-time software that it considers will have "a major impact in the VME and Unix worlds".

HP/RTI AGREEMENT BRINGS NEW DEVELOPMENT FOR INGRES/NET

Relational Technology has announced that its Ingres/Net networking software can be used to connect front-end systems to host computers running Unix or a Unix-like operating system. This announcement forms part of a development agreement between Hewlett-Packard and RTI which has led to Ingres being made available on the HP 9000 Series 300 and 800 as well as the Vectra PC.

CARD FROM READY "WILL DO FOR REAL-TIME SOFTWARE WHAT CAE DID FOR HARDWARE"

Citing a need for specialised development tools for software engineers, Ready Systems of Palo Alto, California has introduced a set of design tools, called CARDtools, for real-time embedded software systems. In doing so, Ready Systems president Aryeh Finegold claimed the company was introducing a new technology that he calls "computer- aided real-time design," or CARD. "Real-time design is extremely different from regular software design, and it requires different tools," Finegold said. "Real-time software must provide results on time, on a deadline. Data-processing oriented CASE computer-aided software engineering] doesn't address this issue. The cost of deadline failure in a real-time system is very high. It can mean lives, not just dollars." According to Finegold, who was an architect of the 80286 microprocessor while at Intel, CARDtools "will enable developers to change the software architecture of a system and see the effects." With CARDtools an engineer can design a system around a 68020 microprocessor, check and verify its performance, and then "substitute" another microprocessor, an 80386 for instance, to compare system performance. The CARDtools package includes tools for: control map building, which provides a hierarchical structure; user-interface prototyping; hardware/software interface prompting for specifications; a package definition facility that lets designers build their own Ada-like libraries; a graphical editor and analysis tool; real-time performance verification; a program design language editor and analyzer; and a report generator that produces DoD-2167 documentation. In a demonstartion for Microbytes Daily, the program prompted the designer to explicitly identify the types of hardware being used, how often the software should check for data input, and the characteristics of data values. A key concept behind CARDtools is that of a common database, called a "software bus," that provides an open system so that developers can incorporate their own tools, documentation formats, rules, and icons into a CARDtool environment. "CARD technology will do for the real-time software engineer what CAE has done for the hardware engineer," Finegold claimed. CARDtools will be available for IBM PC ATs and compatibles and DEC VAX/VMS, MicroVAX/VMS, and VAX/Ultrix environments, selling for $10,000 to $60,000, depending on the host.

SILICON GRAPHICS LANDS $1.27m ORDER FROM US ARMY ARMAMENT R&D CENTRE

Last week Silicon Graphics Inc announced that it has supplied 16 of its real-time, 3D graphics Iris 3130 Superworkstations, valued at $1.27 million, to the US Army's Armament, Research and Development Engineering Center at Picatinny Arsenal. The 16 superworkstations, which were recently installed, bring to 30 the number of Silicon Graphics' 3D graphics systems that are a part of Picatinny Arsenal's pilot project for mechanical computer-aided engineering. The superworkstations are part of an extensive network of hardware tools and leading application software designed to automate all phases of MCAE. The software includes PDA Engineering's Patran Plus for conceptual modeling, Swanson Analysis Systems' Ansys for finite element analysis, Mechanical Dynamics' Adams for kinematic studies, Unicad Corp's DD/1 for drafting, and several programs generated by the Department of Defense. The Picatinny Arsenal Ardec recently was named "Army Center of the Year" by the Department of the Army for its demonstrated ability to integrate and use new technologies.

IN2 ENTERS THE UK, EYES BUY AND THREATENS UNIX ARITHMETIC SUPERIORITY

Paris-based Pick specialist Intertechnique Informatique has finally made it to the UK, and the new IN2 Ltd of Newbury, Berkshire, is on the lookout for acquisitions in the Pick software world and says it hopes to have an agreement wrapped up some time in October. The UK arm of the £80m-a-year French firm also unveiled the IN8000 series of fault tolerant multi-user Pick systems, around 70 of which have been sold in France since they were announced in September last year. The IN8000 is based on one to eight of the company's Modex processor modules comprising Motorola 68020 processors, proprietary co-processors and 1Mb of memory. And, according to IN2, the floating point capability it includes now gives Pick the arithmetic power of Unix. The system can be configured with one to eight modules, each capable of supporting a specific function but all able to share the workload thereby speeding up processing time and providing fault tolerance. Transaction logging to a Winchester disk further enhances fault tolerance. This typically degrades performance by up to 28% but IN2 says its modular approach means one CPU can be dedicated to logging. Fault-tolerance is further enhanced by a mirror disk facility, again handled by a dedicated processor so performance is not reduced. The IN8000 includes a C compiler - thought to be a first for Pick - supports X25, Bull DSA, IBM SNA and viewdata. All SMA Standard Pick software will run on the machines. An entry level 8100 is some £50,000, a fully configured 224- user 8300 is £750,000 or so.

AT&T OLIVETTI 3B2/600 PLUGS GAP IN ABS C-HORSE RANGE

Trafalgar House owned distributor and value added reseller ABS Computers Ltd of Brighton, Sussex, has struck up a deal with British Olivetti, giving it distribution rights for the AT&T 3B range. Said to have a value of £2 million over the next year, the contract takes effect from October 1st. ABS already distributes Zilog and Pyramid machines, which make up its C-Horse range, and more recently took on the IBM 6150. John Elsdon of ABS see the ranges as "complimentary". Although there is certainly an overlap between the 3Bs and Zilog System 8000/32 Series - for which ABS renewed its contact for another two years last week, predicting sales of £6 million during that period - the spur for the new deal appears to have been the availability of the 3B2/600, which goes a way towards filling what was a noticable hole in the C-Horse range between the most powerful Zilog and the smallest Pyramid. Sales of smaller machines should follow on automatically, says Elsdon, who claims to have £250,000 worth of orders already placed for 3Bs. Meanwhile, ABS reported a growing interest in Unix from its giant parent, Trafalgar, and also announced a new Pyramid sale to exhibition contractors Giltspur Expo Industries Ltd, worth £120,000.

THOMSON COMPUTERS ENHANCE SEA CHANGE FOR EUROPE

Major French distributor Oriane has signed a deal with UK software house Thomson Computers of York for the distribution of the Sea Change application generator, in a deal worth £500,000. At the signing ceremony, distibutors placed initial orders for the product, which offers full French language support, and expect to sell 100 copies by the end of the year. Thomsons have enhanced the XISAM index sequential access method used by Sea Change to provide full 8 bit data for national language support, and (in deference to the Italian lira) support for numbers up to 17 digits. Using an index caching algorithm, the company claims to have increased performance by up to 50%.

KAPOR, KHOSLA OF SUN FORM SLOW-BURNING SOFTWARE FIRM

Mitch Kapor, founder of Lotus Development Corp, and Sun Microsystems co-founder Vinod Khosla have teamed up to form GO Corp with their own cash and cash raised by San Francisco venture capital firm Kleiner Perkins Caufield & Byers as lead investor. Jerry Kaplan, who was chief technologist at Lotus, is to head GO Corp, and Robert Carr, who was chief scientist at Ashton-Tate Inc will be vice-president of software. Kevin Doren, co-founder of communications equipment specialist Equinox Systems will be vice- president of engineering. The company's mission is to develop what it describes as "a new class" of software for professionals and managers - but don't look for any excitement from the company for a long time - Kaplan told the Wall Street Journal that GO "will be engaged in res-earch and development for the next few years and doesn't anticipate any announcements in that time".

FIRST ANNOUNCEMENT FROM NCR IN A SERIES THAT IT PROMISES WILL IMPROVE COMMS

NCR Ltd has enhanced its local area network communication package, Towernet, to improve connectivity and allow operation in a Gateway environment. Expanded Towernet still operates under the Xerox-developed XNS networking protocols but the company adds - in its defence for not using the more popular, Unix-based, TCP/IP protocols - that the Tower does support TCP/IP through an Excelan developed package and teasingly suggests that we may see a TCP/IP combined with Towernet announcement next spring. NCR cites XNS' reduced verbosity as an advantage over TCP/IP. Expanded Towernet allows users to use Ethernet links between Towers using dedicated Ethernet co-axial cables. Up to 128 sockets - data structures in networking software representing the end-point of a virtual circuit through the network - can be used on the Tower 32/800. The Gateway capability allows a Tower LAN to be extended and provide communication services to other Tower systems on the same LAN. It can also connect through an X.25 network and to an SNA host. NCR says that Towernet can be transparently, to the user, upgraded to Expanded Towernet. Expanded Towernet costs £1,215 for the 32/400 and 32/600, rising to £3,370 for the 32/800. The company says that this is the first in a series of announcements that will extend the communications and networking capabilities of its product ranges.

FORTUNE 32:16 TO BE REPLACED BY ENTRY-LEVEL FORMULA

A new entry-level Fortune Formula will be introduced into the UK this month by Fortune exclusive distributors, UCL Information Systems, from SCI Systems Corp. The Formula 4000 uses the same 16MHz 68020-based processor as the Formula announced towards the end of last year, now the Formula 8000, but will cope with fewer users. The 8000 will handle up to 64 users whereas the 4000 only 22. The Formula 4000 is intended to replace the Fortune 32:16 and is intended for use in office automation, general business and data processing environments. An entry- level configuration will include: 40Mb hard disk; 68020 processor; 4 serial ports; and the Fortune implementation of Unix, for a price of around £10,000. UCL says that the machine is available now and already has four orders. The UCL Group is preparing to follow its acquisition of the former Fortune distributor, Nexel, with another this time according to the Sunday Times in the computer supplies area. The company recently reported net profit for the six months to June 30 up 55.9% at £304,000 after extraordinary charges of £3,000 this time and £20,000 last, on turnover that rose 139.6% at £6.8m; at the pre-tax level, profits were up 43.0% at £512,000, and earnings per share were up 27% at 4.2 pence. UCL Informations Systems says that it is currently 400% over budget.

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The hearing concerning **DEC's** complaint against the **US Air Force Computer Acquisition Centre** (Ux Nos 140 & 142) took longer than expected and finally drew to a close last Wednesday, taking six days - the participating lawyers must hand in their final briefs before the end of this week and a deadline for the decision has been set for mid-October: the documentation covering the hearing is expected to fill some 6,000 pages.

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The **Electrotechnical Laboratory** of the Ministry of International Trade & Industry in Japan has developed a new high-level language for programming the Sigma-1 parallel processing dataflow computer: called Data Flow C, it is compatible with ANSI standard C; the Lab has also developed a compiler for the language, but in its current form, the compiler can't support multiple loops or multiple conditional statements.

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Ascii Corp is working on a Japanese version of PC-NFS based on **Sun Microsystems'** Network File System: the Sun original is currently used on workstations made by **NEC Corp** and **Sony Corp**; the Japanese version for the NEC 9801 is promised within the year.

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Apollo Computer Inc will have to take a charge of $5.7m, 16 cents a share, with its third quarter figures to cover losses made by its foreign exchange trader, who apparently made a mistake on a major transaction and tried unsuccessfully to make good the loss by making other, unauthorised, foreign exchange trades: Apollo does not expect the charge to wipe out profits for the period - analysts had been looking for 21 to 25 cents a share, up from seven cents a year ago.

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Multisoft and **Sphinx** have signed an exclusive distribution agreement for Sphinx to distribute Multisoft's Standard Accounting software in bundled form, with Xenix and a selection of other products including Informix.

Minigrams

Give a dog a bad name... **Fortune Systems Corp**, now **Tigera Group Inc**, has never quite succeeded in living down the fact that one of its founders was a leading light at **Itel Corp** ahead of the company's notorious bankruptcy proceedings, so it comes as little surprise that three dealers have come up with lurid accusations involving international espionage, prostitution, and sale of illegal drugs in a $57m lawsuit: **Western Blue Corp**, Sacramento, **GT Hawes & Co** of New York, and **Bytex Corp** of Austin, Texas, claim Tigera in its former guise provided prospective clients with prostitutes, engaged in price-fixing, and juggled results to improve its financial picture, and the drug-dealing charge, notes **Newsbytes**, stems from the plaintiffs' claim that a senior Tigera official is under investigation by US drug law enforcement authorities in Bogata, Columbia; Tigera's chief operating officer dismisses the charges, saying "They are trying to cloak a commercial dispute in a sex soap opera," adding that Fortune was in dispute with the firms over unpaid bills.

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Sequent Europe has presented its first £1m distributor sales award to the company that became its first distributor in 1985, **Compass Peripheral Systems**.

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Control-C Software, British-owned despite the fact that it was founded in Portland, Oregon in 1979, the UK-based Control-C Software Ltd being established in Wokingham, Berkshire two years later, has become the first "Preferred Software Supplier" for **ICL's** new DRS Professional Workstation, and has put together a catalogue of applications that are tailored to take advantage of the features of the machine; the US end of the company was in the news earlier this month when it introduced its CCS-Page PostScript- compatible page description language, and announced agreements with **Xerox Corp** on the product.

Nixdorf Computer Ltd has gone ahead and developed its own distributed relational database for its Unix- based Targon range: Reflex is based on an SQL-type language which Nixdorf claims has full data definition, data manipulation, and query facilities - Reflex also incorporates; Reflex-Dialogue, decribed as a fourth generation programming language; and Reflex- Easy, a toll which produces a standard form for each database table allowing it to be processed.

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Borland International Inc, traded on the Unlisted Securities Market in London, is reportedly looking to seek a New York Over The Counter quote for its shares quite soon.

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The **CGCC** systems house arm of software house **Computer Graphics Ltd**, is to begin marketing Unix workstations from US company **ArteCon Inc** which sound like Sun-4s and Sun-3s bought OEM: the ArteSun 10 series has a RISC CPU and is rated at 10 MIPS, the ArteSun 3 at 3 MIPS, and they run a proprietary shell user interface, ArteA designed for Unix novices; the 10 has 8Mb to 128Mb and starts at $81,000, the 3 has 4Mb to 24Mb and starts at $22,800.

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Memory Computer Plc subsidiary **ICUS Ireland Ltd** - Irelands Centre for Unix Solutions - has been appointed the Irish member of the Sphinx inspired International Consortium for Unix Software - ICUS.

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Kalamazoo has introduced a UnixXenix-based computer system for motor deals for which the company claims it has already received around £1m worth of orders: Kalamazoo says that Motadata covers the key areas of operation within a motor dealership and that the package can be ported to more than 80 different processors and will run on future hardware using the 80386 processor - it can be installed for a single termianl application on a PC or can operate as a multi-terminal configuration, using the same software.

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WORKSTATIONS: IBM TO TRY AGAIN WITH MICROCHANNEL RTs

The lacklustre performance of IBM's first crack at an engineering workstation with the 6150 RT Personal Computer is not going to be the end of the story, Entry Systems chief William Lowe has revealed. Following a talk with securities analysts in Boston, Lowe told the New York Times that a new line of engineering stations running under its AUX implementation of Unix was on the way, the bottom model being the planned variant of the 80386- based PS/2 Model 80 running a subset of the AUX operating system. Above that will be a new line of RT models, this time using the Microchannel Architecture of the PS/2. Lowe said that the new RTs would initially not run the OS/2 operating system planned for PS/2, implying that OS/2 would be implemented for the RTs in due course. An IBM flackette, no doubt phased by the fact that Lowe had apparently broken company rules by alluding to unannounced products, said that the new RT models were "not imminent".

EDGE FILLS HIGH-END MOTOROLA MICROPROCESSOR GAP WITH 55 MIPS 2000 FAMILY

Edge Computers has launched a new range of 68000 series- compatible VME-board level products for OEMs and systems integrators filling the high-end microprocessor gap in the Motorola product line-up that offers a sustained performance of up to 55 MIPS. The Edge 2000 series uses custom designed high density CMOS gate arrays with CISC. This VLSI design uses five ASIC chips and comes in four models all of which will support 500 to 1000 users. The 2000 has a proprietary 64-bit parity, 128Mb per second system bandwidth, 60Mb aggregate I/O bandwidth, up to 1Gb global memory, and will support Multibus and VMEbus. The 2100 is a single processor version that offers 16 MIPS sustained performance, 22 MIPS peak; the 2200 offers 30 MIPS sustained 44 MIPS peak; the three processor vesrion offers 43 MIPS sustained - 66 peak; the top-end 2400 offers 55 MIPS sustained and 88 MIPS peak. The systems run Unix System V.2 and the integrated Pick and Unix operating system, Symetrix, from Toltec is available for the single processor version and will be ported to the others in "due course". Additionally Edge, last week, acquired the rest of Toltec from Scottsdale, Arizona. At the beginning of this year Edge acquired 51% of Toltec as part of its plan to develop a network of dealers and VARs to market Edge systems into a worldwide marketplace for Pick-based systems. Terms of the final acquisition for Toltec, to be completed by mid-October, were not disclosed. The Edge 2000 family will be available in the second quarter 1988 and will have an entry level price of $25,000 for the 2100 with 8Mb memory in OEM quantities. Edge's European partner, Olivetti, is expected to sell the range in Europe.

INFORMIX-SQL AVAILABLE FOR APPLE's BETA TEST A/UX UNIX - DELIVERY SET FOR DECEMBER

Apple's implementation of Unix for the Macintosh II has just entered its final beta test and is on schedule for a December launch in the US. Informix Software Inc has already completed an Informix-SQL port for the beta test version of A/UX on the Mac II and its launch will take place when A/UX becomes commercially available. Apple says that A/UX now supports X Window, currently version 10 but the company will be going to 11 "in the near future", as well as the traditional MAC graphics windows.

NCR OFFERS INTEGRATED UNIX-BASED BANK BRANCH SYSTEM

Having applied much of the technology of its Tower family of Unix systems to the retail point- of-sale market, NCR Corp is bringing industry standards, including Unix, MS-DOS and Ethernet and Token Ring local area networking to the banking world. In the US, the company has announced the Financial Tower System 2, which combines MS-DOS teller and customer service workstations with a Tower 32/400 or 600 processor. The terminals are the 8088-based 5067, upgradable to an 80286-based 5267, and these are networked to the Tower by a choice of Ethernet or Token Ring. Both models of Tower have 16MHz 68020 with 8Kb cache, but the 32/400 takes up to 8Mb memory and 185Mb disk, the 600 16Mb and 325Mb disk. A 32/400-based system with six teller and four customer service workstations, network, banking software and Unix is $80,000 to $85,000 from May 1988. In the UK NCR anticipates that this, when available and modified for UK banking procedures, will be very important because of banks' increased interest in Unix and standards (UX No 142). Later this year NCR UK will announce Branch Master a Unix-based package.

POSIX- AN IEEE STANDARD NEXT SPRING

The IEEE Posix 1003.1 systems services interface standard has completed the final working group review and been sent out to ballot in the IEEE as well as ISO. The Posix working group anticipates that the balloting process should be completed by the IEEE by next March and become an IEEE standard by the end of that month. The ISO balloting process takes longer but a standard approval is expected mid- 88. As soon as the 1003.1 standard is approved 1003.3 - test methods for Posix verification software - will go into the balloting process. Simulataneously the EEC is setting up a uniform conformance testing system based around standards and plans to expand into Unix. Invariably ISO standards are used so it seems likely that 1003.3 will be picked up by the EEC when ratified late next year. Posix adds that the shells and tools standard is about a year away and there are about three well formed proposals for real time extensions but none are expected to emerge as standards until late 1989.

PYRAMID CONTINUES DBMS PUSH - STARTS WITH OA PACAKAGES

Having just announced the beginning of a new relationship with on-line transaction processing dbms developer, Sybase Inc, Pyramid Technology has souped up its relationship with one of the 'big four' database companies. Pyramid and Oracle Corp have signed an addendum to their original OEM agareement that is valued at around $1m in products and services. For Oracle's part it has committed to provide OEM support which Pyramid can use to give 24-hour support to customers using Oracle in business-critical applications. Oracle has also agreed to develop in-depth manuals for the Pyramid sales force and Orcale consultants can be used by Pyramid customers. Oracle is buying a four-processor Pyramid 9840 minimainframe system. The system will replace a mainframe computer running Oracle's most heavily used databases and will be used for product demonstrations and national customer training. In addition to cash and license guarantees, Pyramid will upgrade Oracle's existing 90Mx system to a Series 9000, 9820 dual processor system for use as the central networking hub in Oracle's development lab. Separately Pyramid has decided that with its dbms offerings fairly complete it should turn its attention to office automation packages. Building on the Uniplus II Plus 6.0 from Redwood International Ltd here, and Tigera Corp's WordEra word processing package, Pyramid has introduced Pyramid OfficeCentral, a new line of office automation software products for its RISC Unix minicomputers. The integrated Core Products in OfficeCentral provide a consistent user interface across both personal workstations and terminals, and consistent keystrokes across its component modules, which include word processing, spreadsheet, diary, mail, database, forms and graphics. Available at the end of November it is $8,000 to $25,000. In the UK Uniplus II Plus will be sold but little will be made of WordEra because few people have heard of it but customers wishing to buy it will not be disappointed.

RC CHOSES VPIX AND 386 FOR BOTTOM-END UNIX LINE

Danish Unix-systems manufacturer, RC Computer, has launched a new bottom-end series intended for general business use. The 900 series is 80386-based using a 32-bit bus and comprises a 17-user and 9-user Unix machine running VPIX from Interactive systems as well as a single user VPIX workstation and a PC compatible MS-DOS machine. Initially the products are available for the Danish market only but will be released the UK London-based subsidiary as well as RC's other distributors throughout Europe at the Hanover Fair next year. Standard software for the series includes Uniplex, Informix and RC's own communications packages. The PC compatible costs around £5,000 and the multi- user Unix machines cost about half the price of an equivalent NCR Tower, claims RC: £10,000 for the 9-user system and around £13,000 for the 17-user configuration.

RADIUS ADDS TO UNIX INTERESTS WITH PURCHASE OF ARMSTRONG MICRO ELECTRONICS

The UK's number one Texas Instruments reseller, Radius Plc, has bought the assets of Amstrong Micro Electronics Ltd for £500,000. It is USM-listed Radius's second purchase of a Unix specialist in the last ten months. Last Christmas (Ux No 109), the Hull-based company bought systems house Advanced Business Technology Ltd from P & W McClelland Plc for what was described as a nominal sum. The diversifications come at a time when Texas Instruments is itself moving into Unix, away from its proprietary offerings. The Armstrong deal gives Radius a further 15 staff with Unix experience, to add to the 45 that came with ABT. It also means the end of Armstrong's 68020-based line. Having outgrown its national maintenance centre in Birmingham, Radius will move the whole operation into Armstrong's nearby Darlaston, West Midlands plant. Armstrong customers wishing to upgrade will be offered Data General, Olivetti and Texas Instruments' Unix-boxes instead. Armstrong Micro Electronics' former owner, Armstrong Equipment Plc, sold the business to concentrate on its core motor component manufacturing activities.

MIPS - MORE EUROPEAN DEALS TO COME - TWICE THE PERFORMANCE NEXT YEAR

MIPS Computer Systems Inc signed with its first commercial distributor last week (UX No 147), promising similar deals to come in continental Europe. Buckinghamshire systems company TIS says it has been looking for a year to find systems that would extend its current range of Convergent Technology supermicros up to markets requiring 60, 100 or more users on a single machine. "We evaluated every machine on the market", said Managing Director Bill Fish "and came within an inch of signing up for a multiprocessor machine". The MIPS M/800 and M/1000 systems, however, convinced them that reduced instruction set computers (RISC) would be the technology to surplant the traditional minicomputer with high performance supermicros - a typical M/1000 configuration will cost under £100,000, said TIS. According to Bob Miller, President and CEO of MIPS, who until April was no 2 at Data General under Ed de Castro, a successful RISC machine has three main ingredients: vlsi technology; a good architecture to achieve small multiples of instructions per cycle; and good compiler_ techology to generate the code. Miller predicted that MIPS's 10 mips performance today could soon be increased to 20 mips with the implementation of 1.2 micron technology like that of the 80386, a development likely to be announced early next year. Miller predicted 100 mip performance by 1990, and with Gallium Arsenide, multiple hundreds of MIPS. He also confirmed that MIPS was talking to semiconductor partners with a view to licencising technology and the manufacture of chip sets, but said the deals would not involve any equity. TIS is now working to integrate its two ranges, so that all standard software packages are available. TIS also hopes to benefit from MIPS's OEM policy - particularly specialist machines such as the MIPS based RC Computer fault tolerant machines, which TIS said could be very attractive to some of its corporate customers such as the Stock Exchange - with software in place and experience of the MIPS chip, TIS feels it would be in a good position to sell on such products.

INLAND REVENUE UNIX CONTRACT - SHORT-LIST COMPLETE

The short-list for the Inland Revenue COVO project, which tendered for 137 networked Unix supermicros back in August, has now apparently been settled - response to the tender was reportedly very high. The purpose of COVO is to provide a database control system for the Revenues Valuation Offices, the department which values properties for rateable purposes (how the recent poll tax proposals will affect this remains unclear!). The tender specified the Oracle database as a mandatory requirement, and Unix System V. A spokesman for the Inland Revenue revealed "an increasing interest in Unix, particularly in plans for office and distributed systems. We are following closely the initiatives in the X/Open and POSIX arena and intend to use the POSIX standard when it is totally developed in the future. Until that time we are specifying performance to at least SVID version 2." Next phase in the demonstration of short-listed systems, with suppliers selected by the end of March.

CONVEX - THE THIRD MINISUPER MANUFACTURER TO SIGN WITH APOLLO

Following Apollo's agreements with Alliant and Multiflow (UX No 142) Convex Computer Corp has now been brought into the fold to broaden its choice of compute servers for distributed networks. Apollo and Convex have entered into a joint marketing agreement through which Apollo workstations and Convex supercomputers will be offered as an integrated network computing solution. Apollo's Network Computing System (NCS) will be used to integrate the Apollo workstations and Convex supercomputers. Apollo and Convex will dedicate technical and marketing resources to foster the development of third- party network computing applications. The marketing agreement between Apollo and Convex also includes cooperative advertising, corporate technical support, trade show participation, as well as other marketing and promotional activities.

SOFTWARE AG TO DO UNIX VERSION OF INTEGRATED SOFTWARE ARCHITECTURE

Software AG is currently developing a Unix implementation of its Integrated Software Architecture which it reckons is the answer to IBM's Systems Applications Architecture and says that while IBM is still developing SAA, its own alternative already exists. It embraces the Adabas database manager, the Connect office environment micro-to-mainframe link and Natural language; all the products are already supported under DEC's VAX/VMS as well as IBM's MVS, and the Unix implementations are about a year away from launch. Integrated Software Architecture initially embraces IBM 370-type machines and the Personal Computer under MS-DOS, and support for the OS/2 operating system for the PS/2 is also promised.

MS ASSOCIATES' C-GEN USED BY CORNERZONE FOR ONE OF LARGEST TRANSLATIONS

The beleagured UK software industry still has a few flags to wave, and one area where UK efforts are beginning to be matched by market acceptance is in the use of programming language translators - which have started to find a healthy market for users seeking to move from DEC PDP-11s to Unix. One of the latest and largest projects to emerge is at London based Cornerzone, where MS Associates' C-Gen is in use during development of a new system for typesetting applications in a variety of industries. Cornerzone, a company set up just last June to manufacture and market the system, is planning to translate some 3000 programs during the development, which will result in a system that integrates the management and production side of the typesetting process with the handling of text and high-resolution graphics. Cornerzone itself is financed by the Vantage Group, which produces systems for a variety of typesetting applications and ranging from book production to newspaper advertisements, largely targetted at advertising agencies.

Clipper and GIP

Of the 3000 programs being moved across from the previous PDP-11 based, RSTS Basic+ systems, some 2,400 are of a significant size according to Cornerzone director David Fleetwood, and the Basic code forms the management and production side of the new system. This will integrate with the software for the graphics system, which is being written in C and assembler - and Cornerzone has adopted bench-Mark Technologies GIP graphics processor, for which it is writing microcode. At the heart of the production system is the Fairchild/Intergraph Clipper chip, which also forms a computing resource for other functions. Fleetwood reckons the system is unusual in this integration of the managament and text/graphics functions, which is aimed to speed throughput by, for instance, scheduling jobs and transparently loading them for processing by users of the graphics system. The company looked at the three main contenders in the UK translator market; the Systime product was rejected because it didn't produce C code, while in weighing up MS Associates CGEN-BP against Datavision's Universe, Cornerzone was impressed not only by the professional approach and support of MS but also the ability to accomodate the MISAM indexed Sequential file access method used on the PDP-11s - which is being replaced by a version of MS's ISAM. Initially, a 180-program subsystem has been translated by MS, which is now complete and running. This will be used as a teaching exercise "to show our people how to use CGEN", according to Fleetwood, and the next 200-program batch is being handled by Cornerzone staff on a machine at MS premises. Future work will be done at Cornerzone with telephone support. Having opted for the Basic-to-C translation route, Cornerzone is nevertheless likely to continue writing programs in Basic - due to both the in-house Basic experience and the fact that staff still consider it a faster language for developing business applications.

SINGAPORE MOVES INTO R&D AND ATTRACTS BIG MANUFACTURERS

Geoff Conrad examines the computer industry in Singapore and finds a growth in software engineering, communications and integrated office systems.

Singapore is moving into IT and Unix in a big way. It spent years mounting chips, wiring boards, assembling disk drives and doing low-tech chip fabrication for peanuts while it built up its infrastructure expertise. But as the other off-shore assembly nations have found out there is little money in it - the high added value operations stayed behind in the US and Europe with the big investments. So Singapore invested in training its workforce and providing the infrastructure to attract the 'big bucks' - the high-investment, highly profitable parts of manufacturing.

The island has an all-digital telephone systems, dedicated high speed digital networks, an Intergrated Service Digital Network, Teleview/Ceefax, an 8 Mbyte/sec Intelsat Business Service digital satellite links, Telebox, Telepac, Prisnet and on-line links to commercial databases all over the world.

With the judicious use of the carrot and the stick the government has persuaded the big computer manufacturers to help local suppliers pro- vide more components. The help ranges from providing courses in quality control to helping build and equip entire new factories and train the workforce to provide components. Winchester disk drives are now made with 100 per cent local components, while in other sectors it is grow- ing rapidly.

The computer industry's next major target is research and development, which is getting "maximum encouragement" from the government in its current National Plan. So, with the emphasis on R & D, Unix is set to figure highly in the developments of the Singapore hi-tech industry.

Singapore has come a long way: 20 years ago the island was a sleepy, "colourful" colonial village with the local brewery providing three- quarters of its manufacturing output. Today, the city-state has been torn down and rebuilt as the high-rise "Milton Keynes of Asia", a clean (unheard of in Asia) city of joggers with an economy that has made it one of the "Five Dragons of the Pacific Rim" along with Japan, Hong Kong, Taiwan and Korea.

The government is already pumping hundreds of millions of pounds into research and development, mainly through the newly-formed Infor- mation Technology Institute and has a National IT Plan to turn Singapore into an international IT centre (whatever that is).

Almost every week another major company sets up a research and development centre here, encouraged by generous government grants and incentives. Data General, for example, is spending $20 million to set up a Regional Software Development Centre to develop software for its local, regional and world markets, the Asian equivalent of its European software development centre in Cambridge. It has already sent 35 local software engineers to Europe and the US for training and has started work on a joint venture with the Telecommunications Authority of Singapore to develop a "public office automation system".

IBM got in first for once by helping to set up a whole research department at the National University of Singapore's Institute of Systems Science. IBM has donated and loaned equipment and software; seconded teaching and research staff and sent ISS people to its research labs and training centres around the world. The government has matched this with a $20 million grant. The Institute's research includes an Intelligent Public Information Service that aims to answer business and technical problems rather than just provide information; an Office Automation system using local area networks that will actually improve efficiency rather than just handle the increased amount of information it itself provides; Intelligent Chinese Language Input and processing and a Chinese Prolog.

Grumman International has set up a CAD/CAM research centre at the local Nanyang Technological Institute and the French Bull computer group has set up an Artificial Intelligence lab to develop engineering and general AI applications and to train students and computer scientists. The AI centre has two 68020 - based Bull SPS7/300 workstations, each with four terminals, running under the SPIX 30 operating system, Bull's version of System V. The workstations are networked to micros and other computers in the Institute housing the lab, which in turn is linked to other local research labs through the Telepac public network and, via a gateway and satellite, to US and European networks. Apart from the Ethernet and X25 communications software, the workstations have an expert system development tool called Kool; and a range of third party software.

The centre's first product, an expert system to help diagnose the cause of failure in welding equipment, is out on trial with the local firm that commissioned it.

(The National University of Singapore also has an expert system out on trial - the first locally designed medical software. Called ACUP, it acts as an acupuncturist's assistant. The developer, Dr Ho Yin Seong, explained that a complaint - a headache for example - is keyed in. The computer prompts for the exact location of the pain and its severity. It then offers a diagnosis and suggests treatment: "dispelling the pathogenic wind and removing the evil heat". It then spells out how to do this by picking out five pressure points - three on the head and two on the arm - and indicates how deep to insert the needle at each point).

The government is also promoting the use of expert systems through the newly-opened Knowledge Engineering Resource Centre at the Information Technology Institute. This is based in the Singapore Science Park sited next to the university and more than half devoted to IT research and development. Major companies and institutes have built large research labs there, and the government has spent over $100 million to provide the accommodation, equipment and infrastructure for small, start-up companies to develop their research ideas into products for the market. The start-ups get labs and offices, starting with a single room but are able to expand to an entire floor or building, advice on running a business, tax holidays, grants to live on, access to powerful computers, seminars and technical advice - all the help anyone can think of.

The Knowledge Engineering Resource Centre will promote the use of expert systems in local industry, train software engineers, provide access to computers and software at the Institute and encourage local companies to jointly develop their projects with software engineers from the Institute at the centre. The development teams and foreign consultants will guide and hand-hold the projects through the development and implementation stages if necessary to keep the costs of development low, familiarise users with the technology and build up a pool of trained people in the industry.

The institute will be opening similar centres for software engineering communications and integrated office systems next year. Over the coming months Geoff Conrad will be examining some of the Unix- based projects in more detail.

COMPAQ CHASES APOLLO, SUN WITH TOP SPEED 80386 BOXES

Compaq Computer yesterday detailed the architecture which it says enables its new Deskpro 386/20 to outperform other 20MHz 80386 Personalikes, including the forthcoming IBM Personal System/2 Model 80-111, by 25%. The Flex Architecture features 20MHz Intel 82385 VLSI cache controller with 32Kb of 35nS static RAM, with a claimed 95% hit rate. It has separate data paths for memory and peripheral input-output to combining a 20MHz system bus with a standard 8MHz peripheral bus. The 386/20 also adds Extended Memory Manager. It includes 1Mb of 100nS 32-bit RAM, expandable to 16Mb, and option of a 20MHz 80387 floating point co-processor or three times faster Weitek 1167 co-processor with its own 80387 socket. With the Weitek board, Compaq has high hopes for the machine up against the likes of Sun, Apollo, DEC and Masscomp. Peter Bayley, UK marketing director, confirms that the company is looking at new distribution channels through which to make a push into the scientific and engineering workstation market. Compaq also expects the 386/20 to appeal to software developers, to those working on artificial intelligence applications, and as a network file server. world. The 60Mb version is £4,895; the 130Mb £6,395, the 300Mb £8,395. The 40Mb Portable 386 is £4,995, the 100Mb £6,395, and there is a 130Mb tape streamer.

TCP/IP PACKAGE FOR SCO USERS FROM EXCELAN ALLOWS COMMS WITH FOREIGN SYSTEMS

Excelan Inc has announced the availability of EXOS 10614T, a TCP/IP networking package that allows users of The Santa Cruz Operation Inc's Xenix System V to communicate with dissimilar systems across a TCP/IP-based Ethernet local-area network. The product also supports SCO's Xenix-NET distributed file system and supports the latest release of SCO Xenix System V, Release 2.2. Simulatane-ously SCO announced release 1.2 of SCO Xenix-NET, which introduces a generic Xenix-NETBIOS device driver interface for LAN hardware. Combined, the two products provide MS-DOS users running IBM PC-LAN Network programs a transparent file server and SCO Xenix users both a distributed Xenix file system and Microsoft Network file service, claims Excelan. The combined products are implemented on top of TCP/IP, which allows both SCO Xenix and MS-DOS users concurrent access to dissimilar systems on the Ethernet LAN. Excelan and SCO jointly announced the development of the product at the Uniforum trade show earlier this year in Washington. SCO Xenix-NET is SCO's packaged version of MS-NET for Xenix systems and enables users on multiple MS-DOS and Xenix machines to transparently use remote files and perform other network services controlled by standard Xenix system administration concepts and facilities. With Excelan's new product, SCO Xenix-NET resides on top of the NetBIOS layer of Excelan's TCP/IP software so both Xenix and MS-DOS users can also simultaneously run Excelan TCP/IP personal computer-to-host terminal emulation or high-speed file transfer applications among dissimilar systems on the network.

INTERGRAPH SETS UK RESELLER PLAN FOR WORKSTATIONS

Intergraph (Great Britain) Ltd is seeking UK and continental value-added resellers for its high-performance Unix workstations - top models based on the Fairchild Clipper chip set, soon to be owned by Intergraph - for the first time. It is also instituting a Partnership Software Programme to increase the number and variety of packages that are available for the stations - Intergraph currently has a library of 400. The company also announced 10 new configurations of the Unix and Clipper-based 32C workstations. The new workstations are colour and categorised by two levels of performance: the 200 series with 5 MIPS and the 300 series with higher performance and consequently higher priced. A 200 series desktop InterPro 220 with 8Mb RAM, 156Mb internal hard disk, 1.2Mb floppy disk, Ethernet communications interfaceand 1184 by 884 resolution 19" screen displaying 32 colours simultaneously from a palette of 4096 will cost around £25,000. The top-of-the-line InterAct 360 with 80Mb RAM, 156Mb hard disk, 1.2Mb floppy disk, dual 19" screens with the same resolution as the 220 but displaying 512 colours simultaneously from a palette of 16.7m, and a vector draw rate of more than 100,000 vectors per second, costs £65,000. The 200 and 300 series are all subdivided by graphics processor type used. The three graphics processor options are GS - graphics standard, GX - graphics extended, and GZ - graphics Z-buffer. GS is intended for applications that do not need any of the complex processing involved in shading. GX is for applications requiring surface and solids modelling. GZ performs surface and solid modelling at ten times the speed of the GX. An InterPro 220 can be field upgraded to a 240 by replacing the GS graphics processor with the GX. Similarly 340 models can be upgraded to a 360 through a GX to GZ swap and the addition of a floating point engine which is based on the 2264/65 Vector Floating Point processorfrom Weitek and a custom integer processor jointly developed by Intergraph and Wafer Scale Integration Inc.

3i GROWS UNIX NETWORK TO 2.5m - SHIFTS SUPPLIER FROM STAR TO TIS

Investors In Industry Plc has completed the second phase of its computer hardware purchasing with a contract to Convergent Technology vendor, TIS Systems, worth £500,000. The contract is for advanced networking to link the existing 30 Convergent Technologies machines based in 3i's offices around the country, to upgrade the current hardware to allow subsequent database development and the introduction of desktop publishing, and the installation of a 64-user S/640. This contract brings 3i's total investment in Unix-based hardware to £2.5m. Previously 3i's contract for the Convergent Technology hardware had been with Star but TIS now takes the responsibility for the supply and maintenance of the complete 3i network.

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Minigrams

National Semiconductor Corp has now had the nod from the US Justice Department and the Federal Trade Commission for its proposed acquisition of **Fairchild Semiconductor** from **Schlumberger Ltd** for $122m in shares and warrants: the takeover is beginning to be seen as a steal for NatSemi, which saw its shares up $1.875 to $20.125.

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Norsk Data A/S of Oslo and **Matra Datasysteme** of Paris have scaled down their three-year-old agreement that gave Matra exclusive marketing rights to Norsk Data products in France and Italy and the pact has now become non-exclusive, with Matra continuing to integrate the Norsk Data minis for the scientific and technical market only: Norsk Data will be establishing its own sales and support operations to offer its machines for general business applications, and for printing and publishing.

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Ing C Olivetti SpA has reported first half pre-tax profit down 14% at the equivalent of $171m on turnover that rose 14% to $2,374m: the 1987 figures include those of Triumph-Adler for the first time.

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Jerry Kaplan says that his new **GO Corp** San Francisco-based star-studded software company has enough funding to employ 10 people for 12 to 18 months - when that runs out, he'll have to start telling people what the firm is doing if he wants to raise more cash.

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Encore Computer Corp, Marlborough, Massachusetts has filed to offer 4m new shares, the proceeds to be used to repay bank debt and for working capital - First Boston Corp is lead manager.

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Oracle Corp saw first quarter profits of $3.2m, up from just $127,000 last time, on turnover that rose 134.7% to $41.3m. Net earnings per share, adjusted for a two-for-one split in the spring, were $0.10.

Kalamazoo Plc, Birmingham, is paying £60,000 for peripherals distributor **Willis Computer Supplies Ltd.**

- o -

US-based **Communications Research Group** has announced the release of a communications package especially for use on the **Santa Cruz Operation** Xenix standard, called "BLAST II" and distributed in the UK by **Output Software** of London, its features include automated invocation of data transfer between applications, polling of remote sites, automated back-up and automated dialing sequences.

- o -

Separately **SCO** agreed a joint devlopment pact with **Sun River Corp** to write colour device drivers for Sun River's fiber optic terminals using a revamped version of SCO Xenix 386 System V: the product will be available first qurater 1988 and will cost $695.

- o -

Centram, which developed the TOPS network, has changed its name to **TOPS, A Sun Microsystems Company** to emphasise its ownership and stress the product: acquired by Sun in April it operates from its Berkeley base under founder Nat Goldhaber.

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Rapitech recently announced an agreement with **Science Applications International** to market SAI's Fortran to Ada conversion software and provide software conversion services based on the product: Fortrix-Ada currently runs on workstations from **Apollo** and **Sun Microsystems**.

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Micro Focus Plc's shares continued their recent move ahead this week, adding 3p to 180p, after a bullish statement accompanied the Cobol company's results; Japan and the Us led the dramatic improvement and the City is looking for £1m plus for the full year with talk of at least double for next year.

Logica Plc has won a £220,000 contract from **AT&T/Philips Telecommunications UK Ltd** to design and implement a call accounting subsystem for its range of telephone exchange products - software will be written in C and Informix 4GL and implemented on an Olivetti 3B15, allowing clients to track the source and destination of each call so that costs can be apportioned between licenced telephone services providers such as BT, Mercury, and European PTTs - a trial system will be installed at APT's Malmesbury, Wiltshire production centre, which recently purchased a £3.5 Amdahl mainframe running UTS/580.

- o -

Intergraph Corporation was not the only company heaving a sigh of relief after it had secured the future of the Fairchild Clipper by buying the rights from new owners **National Semiconductor** Corporation in September, which could hardly have been expected to continue with the Clipper alongside its own competing products: **Opus Systems**, Cupertino, claims to be the Clipper's second largest purchaser, using the complete chip set on its Series 300 5 mips Unix co-processor boards, and certainly more marketing effort now appears to be spent on promoting the Clipper products rather than on their lower performance National Semiconductor 32016/32032 based relations, which nevertheless have achieved sales of over 5,000, however, not wishing to put all its eggs in one basket, Opus has announced a new Series 200 Personal Mainframe board using the more powerful National 32332 processor, providing 2-3 mips of computing power and 4 to 16 Mb of physical memory - Both chips are suitable for co-processor applications due to their high level of integration.

- o -

Separately Opus recently announced the development of X Windows for its family of boards, and in the US has established a co-marketing agreement with **Computer Consoles Inc**: Opus products are now handled in the UK by **Wyse** distributors **Trinitec Plc**.

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ITL PLC TO SELL SEQUOIA's FAULT-TOLERANT UNIX+PICK 200s

ITL Group Plc, Hemel Hempstead has broadened its software licence agreement with builder Sequoia Systems Inc, Marlboro, Massachusetts, and it is now an OEM agreement under which ITL will take Sequoia's newly- announced Series 200 family of 68020-based multiprocessor systems for marketing in the UK. Sequoia claims that the 200, which goes from four to 64 processors, offers the lowest cost- per-transaction of any such system: with six processors, the machine is rated at 83 debit-credit transactions per second and costs $929,000, while Sequoia says a similarly-priced Stratus XA2000-140 does 50 per second and a top-end Tandem does 100 per second but costs $4m. The 200 runs the Sequoia Topix fault- tolerant Unix kernel which is claimed to conform to the System V Interface Definition, and the kernel supports the Concurrent Operating Systems Technology-developed Open Architecture Pick. An entry-level Series 200 with four CPUs is $400,000. In Japan, CJK is marketing the machines, and the company, which has sold about a dozen of its 68010-based Series 100s in year one, has raised $12m in its latest round of venture funding, mainly from new sources. Some of the cash is likely to go into setting up a European sales operation.

B1 SECURE UNIX FROM AT&T TO BE AVAILABLE BY FIRST QUARTER 1988

The secure Unix implementation developed by AT&T's Federal Systems Division has been submitted for certification to the B1 level defined by the US Orange Book of computer security specifications and AT&T is hoping to be able to sell it as a licenced product as soon as certfication is complete - as early as the first quarter 1988 if all goes well. The product, for which AT&T has not yet finalised licensing terms, was developed specifically for US government contracts and is not part of mainstream Unix releases, although AT&T Unix Europe technical manager Sue Picus, who described the development at the Sphinx Open Software Conference last week, said that it is SVID- compatible with the exception of restrictions on the setuid command. In the UK, manufacturers and software developers are keen to get their hands on a secure product to help them meet the stringent requirements of Government procurements such as the huge CHOTS MoD office automation project - although that also has considerable demands for network security.

In the longer term, AT&T thinks it will be possible to get up to the B2 level with mainstream Unix releases and is already working on the problem.

Meanwhile IBM has been releasing details of its secure Xenix implementation for the PC AT, also developed by its Federal Systems Division in the US, which it has also submitted for certfication at the National Computer Security Centre to the even higher B2 level.

Gould Computer Systems, which was the first vendor to get a Unix product certified secure to C2 level, said last summer it was looking to licence the technology to other manufacturers.

BT TO LAUNCH UNIX-BASED VOICE DATA STATION

British Telecom Fulcrum will be launching a voice/data workstation using a multi-processor computer running Unix at Telecom '87 in Geneva. The Mezza station is an information manager that is linked to a PABX that can, for example, receive text messages and anotate them verbally. The system will form part of Gandalf Technologies' StarMaster networking system which is claimed to link different types and makes of computer systems, based on International Standards Organisation, ISO, standards. As well as BT, Gandalf has also bought in a product from Convergent Technologies.

DOUBTS OVER 68000 SERIES AS NEW RISC CHIPS LOOM

The benefits of upgrading Motorola 68020-based machines to the new MC68030 processor, due out by the end of the year, is being called into doubt by manufacturers as competition from RISC chips, not least from Motorola itself, mounts. Despite Motorola's claim that the 68030 offers twice the performance of its predecessor many hardware manufacturers are predicting true increase of around 20%. More serious is the charge that the 68030's integrated memory management unit will lose performance advantages gained by manufacturers using their own optimised MMU. Dr Mike King from BenchMark Technologies, speaking at the Computer Graphics Show at Wembley this week, said "companies such as Convergent Technologies have implemented the 68020 with their own MMU far more efficiently than Motorola. Of course you can by-pass the 68030's MMU, but then it is just like buying a 68020". BenchMark is promising a product based on the new generation M78000 RISC chip by December of this year, as well as machines using the AMV 29000 and NatSemi 32532 processors. Also at the Computer Graphics Show Silicon Graphics' UK Managing Director Tim Marlton said that Silicon Graphics would be unlikely to use the 68030, but were instead looking to move the MIPS technology of its high-end systems downwards.

LATICORP OPENS UK OFFICE - NEW PRODUCTS ON THE WAY

San Francisco based software developers Laticorp Inc. has set up offices in Maidenhead to help support its push into the European marketplace, through Sphinx's ICUS network and additional distributors in France, West Germany, Austria, and Switzerland. The move coincides with the release of what President Bill Boehlke describes as the first "real" Laticorp product, the Sync electronic mail and appointments program. Until recently, the company concentrated on the Latitude office automation package and High Tech Business Graphics, both obtained from the acquisition of two software houses, Horizon Software and High Tech Marketing, back in 1985. But with Sync, and future products, Laticorp is keen to avoid the office automation tag. According to Bill Boehlke "Unix has expanded so far on the strength of the software development markets. But for growth to continue there is a need to create new markets rather than duplicate others. The PC was made by the spreadsheet, and some IBM environments by transaction processing. The strength of Unix is in departmental communications and text processing". Accordingly, the latest version of Sync, just released, has moved from an appointments scheduler with some mail capability to a "departmental communications" product, integrating email systems such as Unix smail and sendmail over uucp and Ethernet with group and resource scheduling (under NFS) and appointments facilities.

Compliance with X.400 is scheduled for early 1988 for connection to public mail systems, including Telex. And at Uniforum next year, Laticorp will launch its Context text search and retrieval program, which is says will be the first Unix package to include hypertext-like capabilities alongside of text retrieval. The plan is to fully integrate this with Sync, allowing organisations with large amounts ofincoming electronic mail to control and organise their messages. Sync is already integrated with other Laticorp products, but is also sold as a stand alone product. New European Sales Manager Liz Porter sees the next year as a time for showing the products around, with targets set at a modest £5-600,000 turnover, but hopes to reap the benefits of this work in 1989. Sync has built-in X/Open National Language Support and will be available in three European languages apart from English.

AS APPLIX SEARCHES FOR VARs THROUGHOUT EUROPE FOR ALIS

Just to fan the flames of what promises to be an intersting battle for dominance in the Unix-based office automation arena another developer is seeking to set up in Europe. Applix Inc, developers of Alis office automation software, is attempting to build up a European sales network and has set the ball rolling by signing up MBP Software and Systems GmbH of West Germany earlier this year. Under the terms of the agreement MBP offer full service and support for Alis throughout West Germany and have translated software and documentation to provide a complete German language version of the package. MBP also intend to provide Alis ports for a number of European manufacturers' machines. Applix is hoping to emulate this agreement with companies throughout Europe and to this end is in discussion with Lexitech, a technical translation company that have offices in Germany, Farnce and UK. Applix expects to do well in the government sector in Europe because of its past record of selling software to the US Government and the increasing emphasis put on Unix-based systems by government departments over here. Applix has an OEM agreement with Computer Science Corp in the US, which is a major provider of computer systems to the US Government and sells Alis packaged with DEC, IBM and other hardware to government agencies. The Westboro, Massachussetts company was founded in 1983 by a team of developers from Data General responsible for DG's CEO office automation software. The privately held company has now grown to 75 staff. Applix do not expect to open a European office themselves within the next year or so but are targetting the UK, Germany, France, Italy and Scandinavia to set up VAR operations.

MOTOROLA SETS SIGHTS ON VME REAL-TIME UNIX STANDARDS

Motorola Microsystems is attempting to establish a real-time operating system standard for VMEbus and Unix developers with its VMEexec project, running in collaboration with several of its independent software vendors. Due for release by Motorola in mid-1988 on its own VME Delta Unix systems, the product will eventually replace the VERSAdos real-time operating system, and will define a set of software interface standards as a basis for real-time and System V applications and software development. The core of the product is the Real-Time Executive Interface Definintion (RTEID) which defines essential operating system kernel services. Motorola is also developing a System V Interface Definition (SVID) software library to interface user level processes to RTEID compliant kernels. These will provide software developers with a more familaiar programmatic interface, and will include support for network services. The project has been jointly sponsored by Motorola ISV Software Components Group of Santa Clara, and other participants include Industrial Programming Inc., and Wind River Systems. Motorola hopes to encourage other software and VME product vendors to participate in the RTEID development, and has offered the specifications to the VME International Trade Association (VITA) for "consideration and possible endorsement". Motorola will use its own System V/68 operating system as the users' software development platform for code generation. It promises continued maintenance for VERSAdos users and a program for the migration of VERSAdos software to the new product. Future releases will add support for VMEexec to run on PCs under DOS. Motorola is expected to announce VME module based systems products around VMEexec in the near future.

LRT BOASTS FIRST DIRECT-CONNECT MEGASTREAM ETHERNET WAN LINK

Logic Replacement Technology has launched what it considers to be the first direct- connect megastream Ethernet wide area network link. The IntraCOMM 5M, intended for large corporate use, is a datalink level bridge for Etherent to Etherenet connection allowing communication of 2Mb per second between geographically separated local area networks. It can be used by Ethernet networks compatible with IEEE 802.3 running protocols such as; DECnet, XNS, TCP/IP and NFS. LRT has also launched IntraPORT 7, a 7 port terminal concentrator for TCP/IP Ethernet networks allowing conventional serial devices to be connected. The IntraCOMM 5M costs £9,500 per pair and the IntraPORT 7 product is priced at £350 per port.

SYSTIME LANDS 3M OEM PACT WITH ALTOS FOR 386-BASED SERIES 2000

Altos Computer Systems has signed up Systime Computers Ltd to be an OEM for its 386-based machines. The contract is for an initial three year period and Systime is expected to sell around £3m worth of Altos machines in the first year. Systime will also become an European beta test site for Altos and Altos will incorporate Systime software into its product range. Altos already markets the Systime Trans-Basic product and the two companies say that the idea of some sort of partnership stems from these discussions. Systime says that this agreement will not affect its own Intel-based product line, the Series 2 and 3, but will serve to complete its offerings in the 8 to 64 workstation multi-user systems market. The 3-30 will now, however, only be offered as an upgrade for existing users.

IBI REPORTS MUTED RESPONSE FOR FOCUS ON UNIX

Despite the presence of Pyramid Technology amongst the exhibitors, the recent announcement of Focus for Apollo workstations, and the availability of the first real production versions of Focus under Unix this month, the minds of representatives from Information Builders Inc. (IBI) and the 280 delegates at the annual European Focus 4GL user conference and exhibition seemed firmly set on more traditional markets. "UNIX is a funny market", said President and co-founder Gerald Cohen: "you have to go out and find UNIX users". The Focus 4GL and database management system now has an estimated worldwide user base of 350,000, and in the UK there are 160 IBM mainframe and 60 VAX Focus installations, and 2,500 PC versions. IBI sets up a separate development group for each operating system at its central Manhatten headquarters, the most recently established being the Unix division, which currently "is the only one not paying its own way". As the result of pressure from AT&T the first announced port was for the 3B range at the end of last year, but the real push will be behind Apollo, NCR and Pyramid sales, with two or three more ports likely to be announced soon. Cohen said he did not see existing Focus users wanting to take Unix, but felt that the availability of Focus on Apollo workstations would make the product more appealing to IBM users. "Large organisations have a number of different machines, and want a common piece of software", he said. Apart from this, IBI are interested in the huge orders originating from governments and corporate users, particularly in the US, but have not traditionally sold into the vertical markets where Unix is also strong. Cohen said that the surprise area for increased sales had been networked PC installations, but that he was "confident that we will eventually build up a significant Unix user base".

UNIX MINISUPER MANUFACTURERS TAKE A DEC ALL-IN-ONE EMULATION TO TAKE DEC MARKET

Unix-based minisupercomputer manaufacturers have signed up to market an emulation of DEC's all-in-one office automation software in an attempt to corner some of the DEC marketplace. The emulation comes from Boston Business Computing Ltd of Lawrence, Massachussetts which also has a product, VCL, which emulates DEC's Digital Command Language. Desk Executive, the All-In-1 emulation, includes electronic mail, word processing, menu system, and file organiser. Originally written to run under MS-DOS but now also under Unix the main difference between it and All-In-1 is the system administration although to the user it looks identical to the DEC product. Boston Business jointly developed the VCL software with Alliant Computer Systems Corp. Alliant will be selling the software on its FX series. Celerity Computing Co and Gould Inc have licensed the VCL and Desk Executive products and Multiflow, Convex and Elxsi are also on the verge of signing with Boston Business. Boston Business and its third parties will sell the products to DEC users primarily those involved in engineering. Boston Business intends to enhance Desk Executine to include All-In-1 features not already available and set up a European distribution network. The privately held company was set up in 1983 as a service and consultancy company and started developing the DEC-like products in 1985 and now numbers 12 staff mainly involved in development work with most of its sales in the MS-DOS world being handled by about 100 computer retail shops in the US. Unix sales will be handled solely by the minisuper manufacturers.

APOLLO ADDS NEW MEMBERS TO NETWORK COMPUTING FORUM

Apollo has added 27 new members to its existing list of 30 Network Computing Forum members (Ux No 129). Network Computing Forum is a group of companies that are experimenting with Apollo's Network Computing System and Apollo's way of gaining industry acceptance for its products to develop and run applications across networks of incompatible computers from multiple vendors. The new members include: Amdahl Corp; Avid Technology Inc; Calspan Corp; Communications Machinery Corp; Control Data Corp; Electronic Data Systems Corp; Ford Motor Company; GE Calma; Gould Inc; HCR Corp; Informix Software Inc; Interbase Software Corp; Lachman Associates; Lawrence Livermore National Laboratory; Martin Marietta Energy Systems; McDonnell Douglas Corp; Multiflow Computer Inc; Osservatorio Astonomico di Trieste; Planning Research Corp; Prime Computer; Pyramid Technology; RealTime Engineering Co; Silicon Graphics Computer Systems; Silvar Lisco; Stanford University Networking and Communication Systems; Technology Concepts Inc; and Wang Laboratories.

TELEMETRIX DIVERSIFIES WITH AT-ALIKE WORKSTATION LINE - PLANS XENIX SUPPORT

Telemetrix Plc's Westward Technology Ltd subsidiary has moved into the low-end stand- alone graphics market with the launch of the 80386-based Personal Graphics Series. The new line consists of three 20" monitors, displays which incorporate the monitors, and 80386-based AT-alikes fitted with the displays. The PGM-2010 features 1,024 by 784 resolution with a 48KHz refresh rate and like the 1,280 by 1,024 resolution 64KHz PGM-2012- A and PGM-2012-B offers Tektronix 4107 and 4115, and DEC VT220 emulation and optional buffered video facilities. Four and eight graphics planes giving 64 and 256 colours respectively are available. Combined with a plug-in graphics accelerator module built around a Texas Instruments TMS320X0 chip set, the monitors become displays able to upgrade standard Personals to graphics station quality. The AT-alikes, which are sourced "from a major British manufacturer" and from the Far East, are the 16MHz 80386-based PGS 3X with 2Mb RAM and 40Mb hard disk, and the 80286-based PGS 2X with 1Mb RAM and 20Mb hard disk. Each includes 1.2Mb 5.25" floppy drive, serial and parallel ports, 102-key- board, and MS-DOS 3.2 or 3.3. A 20MHz 3X should be available soon and future plans include support for Xenix. Current options for the PGSes include a maths co-processor, RAM extended to 16Mb, 3.5" floppy drives, a tape streamer, and higher capacity hard disks. TCP/IP and DECnet protocols for network communications are also available. The monitors list for £2,000 to £3,500, the displays for £3,000 to £5,000 and the PGSes for £7,000 to £12,000. The Personal Graphics Series represents something of a departure for Westward, which up to now has specialised on high resolution displays for engineers working on mainframes and minis. As well as the company's traditional base, the new products may be offered to dealers concentrating on CAD/CAM and Desktop Publishing.

UCL ACQUIRES COMPUTER FACTORS

UCL Group Plc has made its first acquisition since going public in April paying up to £2m for Computer Factors Ltd. The acquisition is UCL's second this year, following the purchase of Nexel Ltd in January, and brings the two largest dealers of Ultimate Corp's Pick-based Honeywell and DEC products in the UK under the same umbrella. Like Nexel which has exclusive rights to Fortune Systems' kit in this country, CFL sells Unix-based hardware, mostly IBM 6150s. It also deals in IBM and Honeywell PCs. In calendar 1986, Coventry- based Computer Factors made £146,000 pre-tax on turnover of £4.4m. The final level of payment beyond the £1.5m in shares upfront depends on profits this calendar year. CFL will continue to be run as an independent concern under 80% shareholder Chris Creighton-Thomas - 3i held the rest - although it will now sell UCL maintenance alongside the hardware.

HONEYWELL BULL AND ULTIMATE HOPE FOR UK KILLING - SEES NO UNIX OPPOSITION

The Honeywell Bull and Ultimate partnership quietly introduced a 68020-based derivative of the Honeywell Italia XPS 100 to run the Pick operating system from Ultimate. The 1400 started shipping in the US at the end of July and the partnership claims around 300 unit sales of the machine to date and 25 in the UK in one month of shipments. The first public showing of the machine in this country was at last week's Spectrum '87 show. Ultimate also says that it is working on a project with Honeywell Bull in the US to produce a Pick-based machine incorporating a number of 68000 processors. Ultimate is casting its greedy eye over the UK that it consisders to be an important part of the Pick world. It acknowledges that McDonnell is the market leader in the country and thanks them for building up the user base but is now determined to take that lead and user base from them. Over the last year Ultimate's partner Honeywell Bull has taken two orders for Police systems which had previosly been McDonnell Douglas' turf and has also competed against McDonnell Douglas and in a couple of instances won orders from traditional McDonnell Douglas customers.

Unix/Pick argument

Ultimate anticipates that the recently available 68020-based 1400 system will sell well throughout Europe and do well against the Unix opposition. When asked to comment on the Unix/Pick argument Ted Sabarese, Ultimate's president, has a stock answer: "If Dick Pick owned Unix and Pick was owned by a telephone company you would never have heard of Unix". Sabarese is confident that Pick is the best operating system around but admits that the company is hedging its bets by having a Pick under Unix implementation. Ultimate first entered continental Europe three years ago after the IN2 was relieved of its monopoly. Its first forays there it admits were unsuccesful but having poached one of IN2's key staff the operation took a turn for the better but still has a long way to go before it even reaches UK standards. Although Ultimate realises that Honeywell Bull would probably like to account for all its business the company has recently developed a relationships with Tandem and signed an OEM contract with IBM for thousands of 9370s. The company built it business up on its Honeywell relationship and says that Honeywell hardware accounts for about half of its machine count but in terms value - 80%. About 15 DEC VAX/MicroVAX are being shipped per month and Ultimate adds that the other hardware platforms are still in their infancy as far as its operating system is concerned. Ultimate says that it is not currently engaged in talks with any other manaufactuers but will continue to acquire its own VARs that perform well, adding that 40% of its volume sales come from its acquired VARs. According to Ultimate the Pick marketplace was worth $2bn up to last December and is growing at $500m per year. Sabarese puts Ultimate's share of this at 30%.

AI AND UNIX BROUGHT TOGETHER FOR NEW APPROACH TO CAD DEVELOPMENT

An experimental CAD program has been developed that uses AI techniques in traditional engineering problems to help designers during project development. The Advanced Design AutoMation (ADAM) program has been developed by engineering researchers at the University of Southern California. ADAM is written mainly in C but includes some Lisp and Prolog code and runs under Unix 4.2BSD on a Sun workstation. The program will be used to develop high level integrated circuits and complex digital systems. According to Dr Alice Parker, project leader, ADAM is different to other projects that use AI in these situations because most use a natural language system to query a database but ADAM uses English to enter information about specifications and then builds designs. According to Microbytes, as information is enetered, ambiguities are detected and returned to the user for clarification and then a database that describes the design is automatically created. Another difference is, according to Parker, that conventional CAD databases can tell you how a digital design is constructed and how the parts are connected but ADAM will tell you how the design will behave: one module looks at the specification informationand plans the steps of the design process and tells the designer what should be done and in what order. Parker expects that it will take at least four years before a fully implemented commercially acceptable version of the program can be developed but she estimates that an experimental version will be available within two years. Before the experimental version comes out Parker wants to expand the system's vocabulary as well as the range of patterns it can use in sentences.

GENERAL AUTO BEATS UNIX BUFFS TO FIRST 68030 BOX

General Automation Inc has pulled a fast one on the Unix fraternity by becoming the first company to announce a machine built around the second generation 32-bit Motorola 68030 chip - running Pick. The 256-user Zebra 8830 system doubles the number of users supported from earlier Zebras, and sells for $215,000 to more than $350,000. As well as the 68030, the 8830 has up to 16Mb of static main memory and cache, and will introduce from one to four intelligent MC68010-based terminal input-output controller subsystems to minimise contention in configurations with large numbers of concurrent users. It also uses one or more intelligent 80186-based disk controllers with look-ahead cache memory and support of overlapped disk seeks. First ships are set for January 1987, earlier sytems can be upgraded and the company says it has already taken orders.

ENCORE SIGNS UP SINGAPORE DISTRIBUTOR

Encore Computer Corp is making a bid for domination in the Pacific basin by completing its third distributor agreement within the last 18 months. Encore signed a $3 million, 3 year agreement with CCS Pte Ltd of Singapore to be the exclusive distributor for Multimax parallel processing systems in South East Asia. CCS (Cad-Cam Systems) plans to sell the Unix-based Multimax systems to the university, government and commercial markets in Singapore, Malaysia, Thailand, Indonesia, and the Philippines. Multimax systems have already been shipped and the first one has been installed at the National University of Singapore. Encore's two previous deals were with World Business Machine's in Korea and Rikei in Japan. In April this year Encore also established a $30 million partnership with Matra Datasystemes in France.

APOLLO PLUNGES INTO THE MARKET FOR BROKERS' TRADING STATIONS

Apollo Computer Inc and Sun Microsystems both see the share-trading and financial services business as a prime prospect for diversification, and Wall Street's first high-performance trading stations capable of accessing an unlimited number of financial market data feeds are to be based on Apollo Computer Inc's Domain series workstations, following an OEM agreement between Apollo and financial services consulting firm Programit. The agreement with PI Systems Ltd, Programit's official name, means traders and other financial services professionals can use Apollo workstations, running Programit's Trends software, to integrate live market data with off-the-shelf and custom PC-DOS applications which use Apollo's IBM AT co-processor bus. Up to eight market data feeds can now be accessed simultaneously with one monitor whereas mulitple monitors used to be necessary. Programit reckons Trends is a powerful and compact system that allows traders to quickly and easily retrieve information from market data feeds including Instinet, Knightridder, Nasdaq, Quotron and Reuters. Programit has also made a recent agreement with Quotron under which the market data services set-up will support Programit system sales.

MEANWHILE APOLLO FACES OWN FINANCIAL CRISIS- WILL REPORT A LOSS FOR THE THIRD QUARTER

There is little question that Apollo is a fine company with excellent prospects, but investors in the workstation builder need very steady nerves, because the company is proving remarkably accident prone. A couple of years ago, its inventories got hopelessly out of balance and it turned in two or three quarters of very storm-damaged figures before coming up smiling again, and now the unauthorised actions of its foreign exchange dealer, who made a mistake and traded currencies wildly in a desperate effort to clean up his book, have turned out to be worse than was feared. The company will have to take a charge of $6.5m with its third quarter figures to cover the shortfall, $800,000 more than it first thought. That means that it won't make any profit at all in the quarter, but rather a small loss. Sales for the quarter will be about 33% up on the $100.4m recorded a year ago, on which it did $2.5m net. "The outcome of the third quarter is not indicative of general business conditions," insists chairman Thomas Vanderslice. "It is rather a result of several factors particular to the quarter that affected operating results. Orders for the new Series 4000 workstation introduced to customers early in the quarter exceeded our expectations. However the effect of seasonal weakness in the international markets and limitations on further acceleration of the production ramp-up to satisfy 4000 demand impeded the company's ability to realise, even with a one-third increase in sales, sufficient earnings to offset the charge from unauthorized foreign transactions. None of these factors are continuing, and given the strength of business as we exited the third quarter, there is a basis for optimism as we look to the remainder of 1987."

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As we were going to press reports were coming in saying that a Taiwan-based company, the MCS Group, was getting ready to acquire Counterpoint Computers - provided it encountered no objections from any of the investors.

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Motorola Computer Systems Tuesday has announced a spreadsheet and graph analysis tool, Life-Plans, for Unix-based systems which the company claims offers connectivity and transparency between a wide range of databases and file structures, together with spreadsheet features similar to those of Lotus 1-2-3 for analysing data.

- o -

Gould Inc is making the first shipments of its new NP1 mini supercomputer to customer sites in the US and Europe from its manufacturing plants in Melbourne, Florida and Dublin, Ireland: shipments from Melbourne will go to a major telephone company and a leading university in the United States, and to Aermacchi, a large Italian aerospace company - among shipments out of the Dublin plant is a system for a large West German lens manufacturer, says Gould.

- o -

Intel Corp has reported a third quarter net profit of $81.0m after a $29m tax credit, against a loss last time of $114.0m, on turnover that soared 55% at $501.0m; nine- month net profit was $153.0m, struck after tax credits totalling $49m, against a loss last time of $157.0m, on turnover that rose 47% at $1,330m. Net earnings per share were $0.45 in the quarter, $0.84 in the nine months.

- o -

Motorola Codex has introduced its 9800 Integrated Network Management System that it claims is consistent with the emerging international OSI model of ISO: the system is based on the Apollo Domain workstation running software, developed by Codex, that configures, monitors and controls devices in a network with the Aegis database and application tools for event, fault, performance and configuration management.

Minigrams

Internal **IBM** projections for the RT Personal Computer suggest that the machine is making steady progress in the European market, with the French market leading the way: for the 12 months from September, IBM is forecasting sales of 4,000 in France, 3,000 in the UK, 3,000 to 5,000 in West Germany, a surprisingly low 1,500 in Unix-obsessed Scandinavia, and 2,000 to 3,000 in the rest of Europe; that implies annual Unix business, including reseller mark-ups, of $300m to $350m.

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We also hear that the RT Personal - or 6150 for those who are uncomfortable with anything other than numbers, will be the out-and- out star of the IBM '87 exhibition in Islington, London next month, appearing at every turn and in every guise imaginable: for details of the show, see the excruciatingly arch ads in the national press.

- o -

Innovative Software Inc, Lenexa, Kansas, has formed a wholly owned subsidiary based in Munich, West Germany: **Organa Innovative Software GmbH** will market and support Smart Ware products throughout Germany; it was formerly part of **Organa AG** and the Munich offices were transferred to Innovative through an asset purchase agreement and royalty pact; the Swiss offices of Organa AG are unaffected by the pact.

- o -

Having dropped its demand for an X-MP-24, **India** has reached agreement with the US on terms under which it may buy a $20m **Cray** X-MP/14 for Monsoon forecasting: US personnel will be permitted on-site to ensure it is not used for nefarious tasks.

- o -

Intel Corp has reported a third

ICL's majority-owned **CADCentre Ltd** of Cambridge will be implementing and marketing its GNC parts programming systems on the **Hewlett-Packard** 9000 Series 300 68020-based Unix workstations through a third party marketing agreement with Hewlett.

National Semiconductor Corp has now completed acquisition of **Fairchild Semiconductor** from **Schlumberger Ltd** for about $122m in NatSemi shares and warrants and **Intergraph Inc**, has in turn acquired the rights to the Clipper chip set from NatSemi.

- o -

Borland International Inc, Scotts Valley, California has formed a Macintosh software division to develop applications for the **Apple Computer** machine in business, education, science and engineering: it will also collaborate with Apple's desktop communications group on the development of advanced distributed database and office systems.

- o -

Theos Software Corp of San Francisco has established **Theos Japan** as a joint venture with local software company **OA Tech** in an effort to increase penetration of that quirky Theos multi-user, multi-tasking operating system for Intel iAPX-86 family machines, particularly the 80386: in Japan, Theos will be offered on the NEC PC98LX dual standard machine and its PC9801VX Personalike, selling for $1,550 to $2,500; the new company wants a Theos Standardisation Committee to be formed.

- o -

Informix Software Inc has restructured its Federal marketing sales efforts to meet the needs of the Fedreal market on an agency-by- agency basis: 20 more people have been added to this group and Informix has set up a two-step support program for this market.

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Separately **Informix** has introduced Informix-ESQL/Ada for government application developers which have standardised on Ada.

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Applications development system, Accell, is now available under UniPlus+ from **Root**.

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Digitus has announced that it has taken £200,000 worth of orders for the IBM 6150 during September: contracts have been awarded by **City Assurance Group, Organised Business Data Ltd,** and **Rockwood Distribution Services.**

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Number 151

AT&T MOBILISES SUN TO CREATE SPARC-BASED UNIX STANDARDS

Continuing its concerted effort to make the world believe that it's serious about the computer business, AT&T Co yesterday confirmed that it has chosen the Sun Microsystems RISC in favour of its own RISC development as part of a planned "computer platform" that will be based on Unix System V.3 and the SPARC RISC set; the announcement confirms our story of September (UX No 147). Details of the agreement are sketchy but Sun has committed to deliver a System V Interface Definition-compatible version of its SunOS 4.2BSD-based implementation of Unix by mid-1988. By 1989 AT&T will have a Unix implementation that includes System V.3, 4.2, and SunOS. SunOS includes support for X.11 Window and Sun's own NEWS windowing system as well as Sun's Network File System. AT&T will then license the software as Sun licences SPARC to other hardware manufacturers. The SPARC-based systems will include a standard interface, known as an application binary interface which the two companies claim will run Unix system software programs as interchangeably as personal computers run PC software. An AT&T spokesman said that the company will not release a SPARC-based product until the software is in place - some two years hence. AT&T's own RISC effort, the CRISP or C Reduced Instruction Set Processor, is dead, but the company will continue with the 32100 and 32200-based 3B series. An AT&T spokesman said that "our customers who require high-performance computers will be able to migrate easily to SPARC-RISC technology while protecting their current and future investments in 3B and 6386 software and system training."

AND TRIES NEW TACK TO WIN 32100 CHIP BUSINESS

AT&T Co has given up the unequal struggle of trying to compete with Intel and Motorola in the race to sell 32-bit microprocessors and boards directly and opted to gain publicity for this side of its business by teaming up with systems integrators. Two systems integrators, Microproject International Inc of Los Angeles, and Mizar Inc of Minneapolis, have introduced the first fruits of this strategy by introducing systems based on the new AT&T 30MHz WE3220X chip set. Microproject has introduced an 8 MIPS Unicorn B/200, running Unix System V.3.1, which uses a separate Motorola 68020 as a disk controller to reduce bus traffic and speed data transfer between peripherals and main memory. Mizar has not yet got a version of its Unistar-32 VME/Unix development system with the new chips up and running but expects to have it available soon.

$1m ETA10-P & Q GIVE CDC's ETA A 27:1 PERFORMANCE RANGE

With an entry price of $995,000, Control Data Corp's ETA Systems in St Paul, Minnesota is hoping to change all the rules in the supercomputer business with its new air-cooled CMOS ETA10-P and Q minisupercomputers. The company also announced Unix for the ETA10 in the shape of ETA System V, as an alternative to the proprietary EOS. The ETA10-P has a 24nS cycle and has a performance rating of 25 Mflops in the Linpack 100 by 100 benchmark, but the 64-bit machine has a peak performance of 375Mflops running 32-bit instructions. The 10-P with 64Mb memory, upgradable to 128Mb, is available now, and a dual processor model will be out next year. A single-CPU 10-Q, with 19nS cycle time, cost from $1.2m and will be available early next year. The new machines, each with a single board CPU "small enough to fit into a suit-case", are being promoted as "departmental supercomputers" and give the ETA10 line a compatible performance range of 27 times, bottom to top. ETA Systems simultaneously announced a landmark order from the Tokyo Institute of Technology for the most powerful supercomputer in Japan. The pact, worth over $20m, is for an ETA10 with eight processors - "the fastest supercomputer in the world" says ETA, to ship in March.

POSIX NOT FIT FOR FIPS

The National Bureau of Standards has raised doubts of the Posix P1003.1 fitness to become a Federal Information Processing Standard. The US Government requires a standard that that allows applications portability but in 24 instances the Posix standard is vague allowing various courses of action and as the NBS points out applications written for a specific implementation will not be portable to others if another option has been taken. The NBS intends to eliminate each of the options by either making each one required or by deleting it. A Posix Implementor's workshop is being held this week at the Sheraton Potomac Hotel in Maryland to discuss and decide a course of action on each option.

INFORMIX AND INNOVATIVE TO MERGE

Product launches from Informix Software Inc. last week (see page 6) were somewhat eclipsed by the news of an intended merge between the Menlo Park, California company and Kansas based Innovative Software Inc. A letter of intent providing for the merger has been issued, under which the shareholders of Innovative would recieve three-quarters of a share of Informix common stock for each share of Innovative common stock, with Informix shares reserved for issuance upon the excersise of Innovative's outstanding debentures on the same basis. The match, which will create a company with a combined revenue of $40 million based on last years' figures, is complimentary according to Informix President Roger Sippi, who will become CEO and Chairman after the merger. Innovative has recently ported its Smart office automation software onto Xenix in an attempt to get into the multi-user marketplace. Smart includes a database, but Innovative President Michael J Brown said that "the ability of office automation software to store its data in more sophisticated database structures will differentiate the future winners from the losers". Brown, who will remain President and Chief Operating Officer of the new company, also identified the need for an SQL interface to allow the interconnection of office systems with larger departmental and company-wide systems. If all goes well the merger is expected to be completed by February 1988.

OPEN NETWORK COMPUTING EMBRACES NFS - SUPPORT FOR DISKLESS WORKSTATIONS

Sun Microsystems developers, in London last week to beat the drum about Network File System at a seminar held by European distributor The Instruction Set, took the opportunity to outline a series of future developments. Open Network Computing is the new name coined to emphasise that NFS is part of a growing family of network services, and new products in development include an MVS version of NFS, and the imminent beginnings of generalised support for diskless workstations to be followed with a full release with Version 4.0 in mid-1988; the latter release will also include protocol extensions to improve support for heterogeneous networks and Remote Procedure Call encryption for secure networking. Initial moves to a dstandard method for diskless workstation support, due at the end of the year, will provide the server side allowing diskless Suns to use any NFS server and will include a "Manual of Operations" for detailing how other clients will handle operations when initially booting up. That and the full diskless client software added with the 4.0 release will obsolete the Network Disk protocol currently used by diskless workstations for non-NFS operations like booting and paging. Sally Ahnger, project leader at Sun's portable NFS group, also outlined further services in the pipeline built on NFS and its underlying XDR and RPC mechanisms. Due by the end of 1987 is an Automounter that will, as the name suggests, automatically mount and unmount file systems when needed and provide a "super-root" facility for mounting all exported file systems from a given server. Sun is also planning a licence broker - one of the networking services proposed by the Apollo-originated Network Computing Forum - that should ease the problems of using licenced software products in a network enviornment by controlling their use by clients. The company is also considering - but has "no product plans currently" - a name service that would reduce the knowledge required to access data from remote systems, allowing clients simply to ask for a service or file by name without specifying the server system. "Proposed Services" include allowing clusters of servers to be defined where a group of machines could appear as one server to the rest of the network; within the cluster, a gateway machine could route service requests to machines designated as compute or print servers.

So far, Sun's decision to use the "unreliable" connectionless UDP protocol as the transport for NFS - a decision that provided an eight-fold performance increase over using connection-oriented protocols, according to the company - has restricted NFS to local area networks where Sun has relied on the stability of underlying Ethernet products to provide a reasonable level of service. The company is facing considerable technical problems attempting to extend support to wide area networks, and the approach being explored is to encapsulate UDP packets within a connection- oriented protocol for transmission over WANs; however it's "difficult to do it in a recoverable fashion" according to Ahnger. Sun's efforts to proliferate NFS - sorry, ONC - among non-Unix enviornments have already resulted in versions for VMS, DOS and even TI and Symbolics Lisp machines, and Sun has now started work on an MVS version, expected to appear end of October 1988. The initial version is likely to include NFS and its underlying RPC and XDR protocols providing read-only access to VSAM files, according to Ahnger - and will use Sun's IBM channel adaptor that allows workstations to appear as IBM peripherals. A VM/CMS version is still under discussion and likely to follow later. And there's a two-pronged development on the Macintosh front - the University of Michigan developed a Mac NFS, the rights to which are owned by Apple until early next year and although Ahnger would not be specific, Sun appears to be eyeing the thing as a product. Meanwhile, its acquisition of Centram, developer of the TOPS distributed system for PCs and Macs, has provided the basis for merging NFS and TOPS facilities, and Sun is particularly interested in adding NFS protocols to the TOPS user interface. And what about OS/2, you may ask? Well, Sun wasn't shedding a great deal of light on the subject, beyond saying that the company was "keeping up with LAN manager developments".

SUN UNVEILS NETWORK SOFTWARE ENGINEERING ENVIRONMENT

Sun Microsystems yesterday made its pitch to become a major player in the fashionable Computer-Aided Software Engineering business with launch of the Network Software Environment - answering Apollo Computer Inc's Domain Software Engineering Environement. For good measure, it also announced SunTrac, a networked project management package claimed to offer a significant enhancement to traditional Critical Path Method planning and scheduling. Sun's Network Software Environment is aimed at defence and aerospace companies with large projects, and prime government contractors who must follow rigid standards for software development. Described as a generic platform for support and integration of all phases of the software development process Network Software Environment - part of Sun's Open Systems Networking product line and strategy - also offers an interface for integration of alien software engineering products. Already integrated are the Cadre Teamwork family of tools, and Interleaf Inc's Technical Publishing Software. Network Software Environment uses an object-oriented approach, and objects can include source code and associated program files, project requirements, design documents and drwaings, test data and drivers, schedules, budgets and staffing plans. Developers refer to objects locally regardless of where they reside on the network. A Version Control System records and maintains versions and histories of all objects, with efficient use of disk space, since only changes are recorded in successive versions. A single programmatic interface is maintained throughout. The new SunTrac project management package was originally developed by Ford Aerospace & Communications and differs from most systems in that it sets criticality indices, analysing risks to the project schedule.

MASSCOMP UNVEILS 68030, NEW REAL-TIME UNIX IMPLEMENTATION

Masscomp has joined the ranks of those claiming to be the first to offer the Motorola 68030 processor despite its conviction that the processor only has a 15 month lifespan. The company is offering the 68030 as an upgrade board for its future and existing customers of its 5600 and 5700 systems. Initially the board will run at 25MHz but will eventually be upgraded to 33Mhz. The 68030 offers 256 byte on-chip instruction and data cache, 32-bit data bus with dynamic storaging, support for the MC68882 floating point coprocessor and the on-chip Paged Memory Management Unit. Masscomp has added hardware support for page fault detection - one of the criticiesd faults of the 68030. Additionally Masscomp announced a new version of its RTU (Real Time Unix) operating system for which it claims an average response time of between 1 - 2 milliseconds with a worst case of 8 milliseconds. Masscomp's real-time implementation of Unix is one of those being considered for the Posix standard 1003.4. NFS from Sun Microsystems has also been bundled with RTU 4.0. Separately masscomp has decided to gradually migrate from Multibus to the increasingly more popular VMEbus and as bridge to doing this has brought out a VMEbus adaptor. The adaptor connects Masscomp's synchronous memory interconnect to VMEbus card cages. First deliveries of the 68030 will take place next spring and if ordered before year end the one-off list price for the upgrade will be £5,100. RTU 4.0 is in beta test at the moment and will be delivered to customers in January. NFS will be available in February costing £850. Masscomp hopes to get its international sales up to around 40% over the next year from its current figure of 22% and to this end is considering setting up a manufacturing plant in the UK.

APOLLO LANDS $100m OEM CONTRACT TO EXTEND SIEMENS PACT

Apollo Computer Inc has won a monster $100m extension to its existing OEM contract with Siemens AG that began with a $30m agreement over 18 months, signed in 1985. That was with Siemens' Power Engineering & Automation Division, and the new one adds Siemens' Communication and Information Systems Division, which will now also offer Apollo workstation-based systems. In addition to its OEM relationship, Siemens has installed more than 1,800 Apollo workstations used for in-house software development and computer- aided engineering at its facilities throughout Europe. The Siemens contract, Apollo's largest ever, comes just six months after the 18-month $100m OEM pact with Mentor Graphics Corp.

MORE 68030 BOARDS FROM TADPOLE, IMP AND FORCE

Following General Automation last week (UX No 150) and Masscomp, three more companies have announced products based on Motorola's new 68030, which is officially available in full production quantities from the end of this month. The boards, from Tadpole Technology, Integrated Micro Products and Force Computers are all available almost immediately. Announced at Buscon '87 at Heathrow last week, Tadpole Technology of Cambridge, England will use the 68030 as the central cpu on its VME/VSB TP30V board, following on from its range of VME 68020 boards. According to Tadpole, the new board maximises performance advantages from the chip, which includes an on-board subset of the MC68851 paged memory management unit coprocessor and separate 256 byte instruction and data cache, by using proprietary memory control circuitry (dubbed Accelerated Memory Access) to allow access at near cache speed to all 8Mb DRAM array. The board also has two RS232 ports, battery backed real-time clock, and 2Kb SRAM. Integrated Micro Products Ltd of Consett, Co. Durham, will be showing its JT 68030 VME board at Compec in November. IMP's JT range was designed last year with future 68030 capabilities in mind, which it can only now take advantage of, says the company. As a result the boards maintain full software compatibility from the 68010 version up. IMP will use the top-rated 32 Mhz version of the chip and claims that performance will double that of the 2.5 MIP 68020 board, largely because of the extra data cache facilities and the allowance of concurrent operation. Force Computers are demonstrating two CPU-29 68030 Computers at Systems in Munich, performing multiprocessing in real-time under P-DOS and will be introducing Unix once a port has been prepared.

INDUSTRY LOOBY BACKS US AIR FORCE IN DEC/AFCAC LEGAL BATTLE

Although a ruling is expected within the next week from the General Services Administration Board of Contract Appeals concerning DEC's protest over the US Air Force procurement requirement of the SVID (UX No 148), last week the board accepted a brief from the CCIA, a Washington-based lobbying association. The Computer & Communications Industry Association claims that DEC failed to distinguish between open operating systems, such as the Unix SVID, and closed proprietary operating systems and that DEC ignored the fact that the SVID is supported by a number of different manufacturers and vendors. CCIA says that AFCAC's SVID specification "allows not only the wealth of operating system products derived from the AT&T licensed Unix system technology to be offered, but totally independent products, which are not based on AT&T's Unix, to be used as well". The association adds that if the DEC protest is not settled it could lead to a Board of Contract Appeals ruling that would restrict federal agency use of Unix and other industry standard software. The CCIA action at this late stage could imply that those involved believe that a ruling in DEC's favour is on the cards.

FRANCE's UNIXSYS SETS UP SHOP IN CALIFORNIA

Unixsys SA of Paris, France is taking the ambitious step of setting up a subsidiary company in the US. The company, to be established in San Jose, California, will operate in the same way as other Unixsys subsidiaries in the UK and Sweden where the management own a share of the company with the remainder belonging to Unixsys SA. Ted Atlee and Dave Davison both formerly Opus directors will head up the new company, Unixsys International Inc. Unixsys International will sell the 32016 Opus board to which Unixsys has the manufacturing and exclusive worldwide marketing rights - the board will be called Daemon in the US but is marketed as Unipro elsewhere. As well as Unixsys' existing Unix-based software and hardware line-up the company will also be selling an unannounced proprietary graphics subsystem called Star Project to systems integrators.

COUNTERPOINT COMPUTER AGREES TO BE ACQUIRED BY MSC GROUP OF TAIWAN

Counterpoint Computer Corp, the Unix workstation and systems builder where AT&T Co, Kyocera Corp and British & Commonwealth Ltd are investors, has agreed to be acquired by its biggest reseller, MSC Group of Taiwan. MSC is best known for its Multitech Electronics Inc subsidiary in Sunnyvale, California, one of the first companies to offer an 80386-based AT-alike. The agreement is revealed in Computer Systems News, which notes that the acquisition is subject to agreement of Counterpoint's existing holders. The company raised $19m in venture capital and looked well set when it won AT&T as an early OEM customer for its 19K workstation, for use as the basis of a desktop publishing system. But AT&T dropped the plan and cancelled the order, since when Counterpoint, founded by Pauline Alker from Convergent Technologies, has found the going somewhat sticky.

ITL FILLS OUT MID RANGE OF FAULT-TOLERANT MOMENTUM 10000

ITL Plc has introduced four mid-range models of its Momentum 10000 range of 32-bit fault tolerant minicomputers. The new machines still use the Momentum architecture and the Modus operating system and although ITL will neither confirm nor deny it probably the same processor as the rest of the Momentum series - a 32-bit CPU built of AMD 2901 bit-slice microprocessors. The models include the 64, 264, 66 and 266. Models 64 and 66 are both three cabinet systems each having a single 64 or 66 processor and are coupled to 256Kb Momentum Fast Recovery Modules which allows the retention of memory content during failure of the mains power. The entry price for the 64 is £95,000 and the cost rises to £300,000 for the Model 266. ITL will not comment on the Sequoia agreement (Ux No 150) because details concerning how the Unix and Pick products will fit into its own proprietary Modus operating system range are not yet set.

SPECIALIX CHASES SUCCESS WITH I/O CONTROLLER FAMILY AND ACCELERATOR BOARD

Specialix Systems Ltd is seeking to build on the success of its Chase AT8 intelligent controller with the launch of four new input- output controllers and an 80386-accelerator board. In the 15 months since its launch, the AT8, which turns an IBM AT or compatible into a nine user system, has garnered over 2,000 sales and four major OEM deals - with British Olivetti, Apricot Computers Plc, Honeywell Bull in West Germany, and Nokia in Finland. Managing director Les Pilkington believes the new products will establish Specialix as a "world brand leader" in input- output controllers. The top of the range AT16 offers 16 serial ports and modem control and comes in at £1,495. Up to four can be inserted into an 80386-based AT, turning the machine, theoretically at least, into a 64 user system. In practice, according to Specialix's technical director, John Pettitt, a 20MHz Compaq Computer Corp Deskpro 386/20 will support up to 30 users under Xenix 386 before performance degradation starts. The AT4, which like the similarly 80186-based AT8 and AT16 was designed and developed by Chase Research of Mortlake, Surrey, supports four users and costs £695. It will be aimed at systems integrators and value-added resellers requiring high speed serial interfaces and modem control. The 80186 in the AT4 runs at 7.5MHz, against 8MHz in a new, improved AT8, and 16MHz in the AT16. The Chase controllers all support Xenix 286 and 386, Microport Systems Inc and Interactive Systems Corp Unix, Digital Research's Concurrent DOS, PC- MOS and MS-DOS. The Specialix-designed, Far Eastern-built I/O4 Plus is based on a 4MHz Z80. At £495, it is essentially a cheaper version of the AT4. As with the AT4, up to four I/O4 Plus boards can be put into one ATalike. The entry level in the new range is the I/O4, a non-intelligent four port device for XTs and ATs sourced from the Far East.

Retains existing chip

At £249, it is said to be the cheapest of its kind on the market. By contrast, the accelerator board, the 386 C-PAC, is aimed at power users at the top of the market, or at those corporates seeking to move XT and AT users to Microsoft's OS/2 operating system when it appears next year. Unlike other attempts such as the Intel Inboard 386 at harnessing 80386 power on 80286 and 8086- based machines, the 386 C-PAC does not require the removal of the existing chip. Instead, it uses the old chip as an input-output controller. The benefits are easy installation, and therefore less likelihood of damage, and the ability to go into most, if not all, AT compatibles. Specialix says that the Intel Inboard cannot be attached to the Hewlett-Packard Vectra, which has a soldered processor, nor to the Olivetti M28. The 386 C-PAC, which is bought in from Applied Reasoning Corp in Boston, Massachusetts and to which Specialix has exclusive European and Middle Eastern rights, is claimed to be 50% faster than the Inboard and 10% faster than the 16MHz Compaq Deskpro 386. It has 1Mb RAM on board, expandable to 13Mb, costs £1,995 and like Specialix's other boards, is being distributed in the UK by Northamber Plc and Sphinx Ltd.

AUSTEC TO ACQUIRE DATABASE COMPANY - DELIVERS NEW COBOL

Austec sees the computing future being dominated by 386-based PCs linked to database engines and to this end has started acquisition proceedings with a relational database company and brought out a new Cobol. The new product, RM/Master Cobol is the first since the takeover of Ryan-McFarland Corp and differs form previous Austec offering by integrating development tools such as a program generator, screen painter, data dictionary and report generator into the Cobol package. Austec will not mention the name of the company up for acquisition but anticipates completion by first quarter next year.

ALLIANT PROMISES VECTORISING C AS IT ADDS $100,000 FX/4

Alliant Computer Systems Corp, Littleton, Massachusetts, has cut down its FX/8 minisupercomputer to create a parallel vector machine that sells for under $100,000, "making multi-user supercomputing affordable for the first time to workgroups in industrial and commercial markets". The announcement also includes the company's first vectorising C compiler. The FX/4 is a one- to four-processor system fully compatible with the FX/8 and FX/1. In four- processor configuration, it is rated at a peak 64-bit performance of 47.2MFLOPS. All processors, memory, disks and a new VMEbus input-output subsystem fit into a single, 28.25" wide by 43.5" high cabinet. Prices start at $99,900 for a system with one computational compute-intensive vector/scalar processor element, one interactive processor, 32Mb memory and 550Mb disk. Up to four computational elements can work in parallel to execute a single program automatically, with little or no recoding of source programs. In applications where maximum throughput is required, up to four computational elements and six interactive procesors can be applied to the execution of independant jobs. The system can alternate dynamically between using the processors in parallel to accelerate single jobs and using them independently to maximize total system throughput. New software includes FX/Skyline Solver, a highly optimised package for solving systems of linear algebraic equations commonly found in finite element analysis and computational fluid dynamics applications. The new FX/C Release 1.0 typically provides twice the compilation rate and execution performance of the standard Unix C compiler - on the Alliant FX/8, applications are claimed to out-perform a Cray 1S by 20% to 40% by one user. FX/C is the first Alliant implementation of C that incorporates much of the technology of the FX/Fortran compiler, and the full parallelising and vectori-sing compiler technology of FX/Fortran will be integrated into FX/C version 2.0 for mid- 1988. Version 2.0 will automatically detect the potential for parallel and vector processing in standard C code and generate instructions that use them. New FX/Linpack and FX/Eispack scientific libraries are claimed to offer performance typically five times, and in special cases up to 30 times, that of existing mathematical subroutines.

INTERGRAPH BACKS STANDARDS TO GAIN FOOTHOLD IN WORKSTATION MARKET

The introduction of Intergraph's additions to its Clipper-based workstation family heralds the company's entrance onto the heavily contested workstation platform. Previously Intergraph sold the Interpro as part of its CAD/CAM systems based on the DEC VAX. A separate division has been set up in the US to sell the Interpros purely as standalone workstations, deciding that they can compete as well as the rest of the gang. New software has been developed for the workstations but much of it emulates what happens on the DEC systems. Realising that one of the musts in this market is standards Intergraph: uses Unix System V.3 with Berkeley extensions; is currently porting the X.11 windowing standard but will still retain support for in its opinion its own superior system; has added support for TCP/IP despite its conviction that the XNS protocol, traditionally used by Intergraph, is more efficient; and has provided support for RFS and NFS. Intergraph is also actively seeking tie-ups with third party software vendors to gain machine acceptance. Although the Interpro will be sold as a standalone system wherever Intergraph is represented in Europe this will predominantly be handled by VARs because in the company's opinion these will have a greater understanding of the market. In the US, however, Intergraph will only use direct sales, for the forseeable future, wishing to concentrate on large customers such as the US Government to gain endoresement for the machine. The workstation marketing division in the US although a separate division can make use of all the company's resources such as its Federal sales force. In a bid to avoid losing sales of the Clipper chip set to potential competitors Intergraph will be keeping the microprocessor group as separate as possible from the rest of the company.

NOTHING BUT MIPS - AT COMPUTER GRAPHICS '87

The main focus at the Computer Graphics Show at Wembley last week as far as Unix was concerned was the same old workstation battle, with representations from Sun showing its RISC based 4/260 (10 MIPS), and Whitechapel its HITECH-10 RISC machines, with a high-end conflict between Intergraph and Silicon Graphics,both with recently extended product lines. Apollo kept out of the MIPS race and concentrated instead on its distributed Network Computing System. Tektronix was keeping tight-lipped about its forthcoming launch, widely predicted to include more emphasis on Unix workstations. Meanwhile, benchMark Technologies was showing off its new bLITZ microprogrammable floating point accelerator, for which it claims a 10 MIPS, 50 Mflops performance for under £20,000. The board is intended primarily as a stand-alone product accessible by any VME-based host, providing 3D capabilities. benchMark promises a move towards end-user markets by the "productising" of its technology, and is looking to sign up distributors worldwide. It also says it will be first out with products based on new generation chips such as the Motorola 78000 RISC processor, which it hints may be ready by the end of the year.. Magus Computer Graphics showed a range of colour graphics boards for the IBM AT originating from the US company Pixelworks, which allow intensive graphics tasks to be offloaded from the PCs main processor and displayed on a graphic terminal. Pixelworks has recently struck up an oem deal with Computervision in the US and plans to introduce Unix-based boards by early 1988.

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As we were going to press we learnt that Arete will be taking the SPARC chip set from Sun for a new series.

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Santa Cruz Operation Inc, Santa Cruz, California has "responded to heavy demand for a multi-user, multi-tasking operating system for the IBM Personal System/2 by starting ships of its industry-standard SCO Xenix System V for the PS/2 - Xenix 286 for the 80286-based Models 50 and 60, and Xenix 386 for the Model 80: the company, which did not put a price on the products, describes them as the first operating systems designed specifically for the PS/2.

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General Automation Inc, Anaheim, California, has completed its acquisition of Birmingham, UK-based **Aston Technology Ltd**, effective with the beginning of its fiscal second quarter on October 1: Aston, headquartered in Birmingham's Aston Science Park with offices in London and Manchester, will be operated as a wholly owned subsidiary of the UK-based General Automation Ltd; terms were not disclosed, but no General Automation shares were involved; Aston has a user base of 600 Unix, Pick and BOS systems.

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The **Software Information Centre** staged **Software Show '87** last week, and although the Japanese market for software products is not large, the show attracted over 70,000 people, and the market, put at $820m in 1985, grew 47% last year, and is expected to grow at a similar rate for several more years: centre stage was the **Information Technology Promotion Agency** which is responsible for the Sigma Project to create a standard environment and set of tools for software development; most of the larger software houses also had stands, including **Ashisuto, Nisshin Products, Core Group, Software Research Associates, Nippon Timeshare, Century Research Centre**, mostly promoting the still relatively new concept of packaged software; foreigners prominent include **Software AG, McCormack & Dodge** and **AT&T Unix Pacific**, and the Japanese hardware manufacturers turned out in force through their software subsidiaries - **Oki Electric, Fujitsu, Toshiba, Hitachi** and **NEC**.

Minigrams

Apple Computer Inc has reported fourth quarter net profits up 118% at $71.7m on turnover up 54% at $786.4m; net profit for the year to September 25 was up 41% at $217.5m on turnover that rose 40% to $2,660m. Net earnings per share climbed 116% to $0.54 in the quarter, 37% to $1.65 in the year.

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Digital Equipment Corp, DEC, has reported first quarter net up 47.8% at $269.9m on turnover up 24.0% to $2,530m. Net per share rose 48% to $2.03.

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Intergraph Corp has reported third quarter net profit up 18.6% at $18.4m on turnover up 4.0% at $157.1m; net profit for the year so far fell 11.2% at $45.1m on turnover that fell 0.6% to $445.8m. Net earnings per share, up 14% to $0.32 in the quarter, fell 13% to $0.79 in the nine months.

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LSI Logic Corp has reported a third quarter net profit of $3.2m against a loss last time of $1.3m, on turnover up 47.9% at $68.9m; net profit for the nine months was up 160% at $5.6m on turnover up 31.5% to $183.9m. Net per share was $0.08 in the quarter, and rose 180% to $0.14 in the nine months.

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Motorola Inc has reported third quarter net profits up 125.8% at $70.0m on turnover up 17% at $1.670m; nine-month net rose 57% to $206m on turnover up 13.8% at $4,860m. Net per share rose 125% to $0.54 in the quarter, 54% to $1.60 in the nine months.

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NCR Corp has reported third quarter net profits up 33.3% at $97.8m on turnover up 13.8% at $1,339.5m; nine month net rose 27.4% to $257.9m on turnover up 15.5% at $3820.6m. Net per share rose 40% to $1.05 in the quarter, 34% to $2.74 in the nine months.

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Sun Microsystems Inc has reported first quarter net profits up 108.5% at $191.7m on turnover up 93.1% to $12.9m. Net earnings per share rose 56% to $0.36. Comparisons are with figures restated to reflect acquisition of Centram Systems West Inc.

A Japanese language version of the **AT&T-Intel** Unix System V/386.3 is now available for licensing from AT&T, which is already selling licences for the US version in Japan: the Japanese language extensions were added by Tokyo software house **Vacs Corp.**

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Microsoft Corp is to buy the Intermail electronic mail product line from Interactive Network Technologies Inc of Waban, Massachusetts on undisclosed terms: the product, designed for use on Apple Macintosh computers, came out in January; Microsoft starts marketing at once.

- o -

In something of a breakthrough for parallel processing technology, the Dow Jones Information Services arm of **Dow Jones & Co** is buying two of the massively parallel Connection Machines from **Thinking Machines Corp**, Cambridge, Massachusetts: it wants the machines, which will set it back $5m, to build new news retrieval database services, and to make existing ones easier to use.

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Those forthcoming **Unisys** workstations, which will run MS-DOS, Xenix, Windows 2.0 and the not very forthcoming OS/2 will comprise 80286 and 80386 microprocessors, and go under the names Series 300, 500 and 800: key feature will be ease of networking, and the keyboards will be easily customised for German, French, Spanish, Norwegian, Swedish, Finnish, Danish and Italian.

- o -

Informix Software Inc launched an extension to its 4GL development system last week which eliminates the need for a C linker and C compiler by compiling 4GL code into Informix "P-code" which can then be run by the P-code runner - one company spokesman claimed that a compile that used to take five hours could now be done in five minutes - and at the same time introduced a new interactive debugger for Informix 4GL.

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Motorola's MC78000 RISC chip, which some say will be available by as early as the end of this year, is still not officially acknowledged by the company itself, which will only say that it would be surprising if a company such as Motorola was not looking at RISC technology!

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AIR FORCE VICTORIOUS IN DEC LEGAL BATTLE - DEC DOES POSIX INTERFACE FOR VMS

The US Air Force has emerged victorious over DEC and Wang in the appeal against its specification of System V compatibility for the $4.5bn, 20,000 system multi-user systems acquisition. The General Services Administration board of contract appeals last week upheld the Air Force acquistion strategy and almost all of the details of the procurement specification. But DEC is also claiming success in stopping the bid proceeding as it stood - the board ruled that the Air Force should amend the RFP procurement specification to include more information on the testing procedures used to determine the "minimal level of functional compliance" and that it should "eliminate bias" from the use of the AT&T System V Verification Suite. The Air Force says that it can provide this information "very quickly" and anticipates directing interested parties to submit their bids within the next month. DEC had objected to the use of the SVID for the huge forces office automation contract, saying that it gave AT&T systems a proprietary advantage and that other vendors would have to pay AT&T royalties. DEC wants to see the IEEE POSIX standard used, which is anyway due to become a Federal Information Processing standard in future. DEC is widely expected to come out with a POSIX interface for the proprietary VMS operating system with which it hopes to meet FIPS requirements. DEC is disappointed that the board failed to give any guidelines for future Unix-based procurements involving Unix as it had angled for a ruling that specified Posix - the board judged this procurement in isolation. But there is still a possibility of a further appeal - in a civil couirt this time - if the objectors decide that the revised Air Force RFP does not respond to the board of appeal's directive "in good faith".

NOW ARETE AND XEROX COMMIT TO SUN's SPARC FOR TOP-END AND DOCUMENT PROCESSING PRODUCTS

The AT&T-Sun Microsystems announcement on Sun's SPARC RISC and new Unix standards (UX No 151) has galvanised Arete Systems Corp, and Xerox Corp to announce their SPARC intentions. Arete of San Jose, California has announced that it will be using the SPARC as the CPU for a new line of high performance products to be introduced during the latter part of 1988. It says it will also continue to offer 68000 family machines "and will develop new 68040-based products just as soon as that device is available from Motorola (it has not yet even been previewed). SPARC chips are now or will shortly be available from Fujitsu Microelectronics, Cypress Semiconductor and Bipolar Integrated Technologies. Unisys Corp is still the biggest customer for Arete's multiprocessors. Xerox has decided to make its document processing products compatible with the SPARC and the planned unified Unix, and Sun plans to enhance its SunOs Sun Operating System implementation of combined Berkeley and System V Unix to enable support of Xerox Network Systems standards, applications and multinational products. Xerox and Sun are also negotiating agreements under which Xerox will buy and/or manufacture Sun components, workstation, and server products for itself and for affiliates Rank Xerox Ltd, Fuji Xerox Co Ltd and Xerox Canada Inc. Xerox also will work with Sun to migrate its ViewPoint applications software and Network Services environment to the SPARC architecture. Over the next five years, Xerox now plans to use the SPARC architecture throughout its document processing products and systems.

APOLLO "SET WITH RISC CPU"

Apollo Computer Inc is expected to answer Sun's RISC-based Sun-4 with its own reduced instruction set workstation next month, at the Autofact show in Detroit, November 9. It is tipped to do some 8.5 MIPS.

KUBOTA PAYS $23m FOR 20% OF MIPS TO FUND NEXT GENERATION

Reduced instruction set microprocessor designer and board and systems builder MIPS Computer Systems Inc, Sunnyvale, California, has landed $22.6m in new funding from Kubota Ltd of Japan. Kubota is a leading manufacturer of agricultural and construction machinery, as well as iron pipes and building materials, and wants to diversify into high technology. Part of the cash will go towards the development by MIPS of a high- speed next generation computer. The investment gives Kubota 20% of MIPS, which also gets manufacturing rights to the existing MIPS line, with Japanese production to start next year, and also gives it exclusive Far East and South-East Asian marketing rights to the machine to be developed under the pact. Sumitomo Corp and Toshiba Corp already market machines based on existing MIPS processors. In September, MIPS announced that it was looking for a buyer for the chip-level side of its business - and also said then that an unidentified Japanese company had approached it to make an investment.

SLOW START TO UNIX EXPO - NEC MAKES EARLY SHOWING

The Unix Expo at the Jacob Javits Centre in New York is going easy on visitors and exhibitors this year: the first day began on Tuesday only at noon and with the final day finishing at 3pm there is only one full day to get down to business. However, one of the few out with an announcement on the first day was NEC (see page 3). Keynote speaker, Scott McNealy from Sun Microsystems, was due to speak only after we went to press, but his address was expected to go beyond the conference theme of connectivity to touch on Wall Street still continuing its erratic course as the show opened.

HIGH LEVEL DEVELOPS C COMPILER FOR OWN MACHINES WITH GREEN HILLS HELP

High Level Hardware has developed a C compiler specifically for its Clipper-based Orion 1/05 minicomputer with the help of compiler specialist Green Hills of California. The Oxfordshire-based company claims that the C1/05 compiler performs all the general optimisations which make programs smaller and faster. Commonly used variables and parameters are kept in machine registers leaving memory space free. High Level says that referencing a variable in a register rather than in memory takes only one-third of the space and one-third of the referencing time. C1/05 also allows local variables to be accessed by a stack pointer instead of a frame pointer and frequently-used static addresses to be stored in registers. The company adds that unless a program needs less than 64Kb addresses must be four bytes long and, if an address is used only twice in a function, it is faster and less-space consuming to load it into a register which High Level claims reduces most static references to one-third of the space and less execution time. High Level will be selling the compiler bundled with Unix for a price of around £1,200. No manufacturers using the, now Intergraph owned, Clipper chip set will get a chance to buy the compiler as High Level will not sell C1/05.

HCR PROVIDES DEC VAX USERS WITH V.3 PORTING KIT

Yet another comapny has joined the band offering tools for DEC users wishing to come into the Unix fold. HCR Corp of Toronto, Ontario is targetting the DEC VAX market, not the more usual and often hungrier PDP 11 users. The new Unix System V.3.1 VAX porting kit is intended for large corporate users that want the latest Unix release for thier VAXes. HCR says that "AT&T's VAX licensees found themselves without a migration path when AT&T stopped offering new Unix System V releases on the VAX". The porting kit was produced by adapting the AT&T 3B2 version of V.3.1 to the VAX architecture. HCR claims that its system will also run unmodified VAX Release 2 binary programs. Information managers in organisations such as telephone operating companies, large financial institutions and aerospace corporations are having to try to port the latest System V release themselves or considering switching to another version of Unix or even another processor, says HCR. HCR reckons that taking its option will be cheaper and more effective than the others and offers servicing and consultation. Unix System V compared with DEC's Ultrix and Berkeley 4.3, both available on the VAX, is becoming increasingly popular in the US as the government there sees it as the standard. The kit will be available at the beginning of December for a basic site license price of $7,500.

TEXAS INSTRUMENTS FILLS OUT UNIX-BASED MULTI-USER SYSTEM SERIES

Texas Instruments has come out with four entry-level systems to fill out the bottom- end of its System 1000 series of Unix-based multi-user systems. The new systems are based on the 80286 processor and fall below the recently announced 80386-based Series 1300 and the 68020-based 1500. Like other 1000 models the 1005, 1010, 1005M and 1010M use Texas Instrument's implementation of Unix System V and they can all be upgraded to the 1100. The Austin, Texas company says that although its existing System 1100 can serve as a small system it would not be as cost effective to force it downwards instead of introducing the low-end models. Each of the four low-end systems have 1.5Mb RAM, 1.2Mb floppy disk, 60Mb tape backup drive, one parallel port and one serial port. The model 1005 has a 48Mbhard disk drive and a TI 927 terminal, costing $7,195. The model 1005M has the same features as the 1005 but also has a multiplexer and costs $8,495. The model 1010 includes an 87Mb hard disk drive, a 924 terminal and costs $8,595. The 1010M is a 1010 with multiplexer and is priced at $9,895. As the additional 1000 models come out Texas is also cutting the prices of its 1100 series between $1,000 and $1,500.

VALID TAKES EQUITY POSITION IN EPIC - WILL INTEGRATE TIMEMILL INTO SCALD

Valid Logic Systems Inc and Epic Design Technology Inc have announced an agreement under which Valid has invested in Epic, and received a minority equity position. Valid and Epic will integrate Epic's TimeMill timing simulator into the Valid environment. Valid will market and sell TimeMill within its IC design product line. Joseph Prang, Valid's marketing vice president, who will be Valid's representative on the Epic board, said "By acquiring an equity position in Epic, Valid established a close, long-term relationship with an important partner, and strengthened its product line. "In return, Epic receives the resources necessary to grow the company, and gains access to a worldwide sales and marketing organization." TimeMill is a mixed-level timing simulator and critical path analyzer that can handle designs at the behaviorial, gate and transistor switch levels. TimeMill's delay calculation, based on post-layout extracted data, has an analysis speed around 10,000 times faster than SPICE. The mixed-level capability supports a hierarchical design methodology, like Valid's pioneering SCALD methodology, in which components with different levels of abstraction can be mixed to achieve high simultion and verificastion efficiencies. TimeMill also includes a sophisticated critical path analyser which performs pattern-independent static path analysis. TimeMill will run on all Valid- supported IC design platforms: Sun, DEC and Valid's own SCALDsystem. Product availability and pricing will be announced next month.

PLESSEY MICROSYSTEMS UNVEILS 68030-SINGLE BOARD COMPUTER

Plessey Microsystems Ltd has introduced the first single board computer based on Motorola's new 68030 microprocessor. The Towcester, Northamptonshire outpost of Plessey empire says that the new PME 68-32 board doubles the processing power offered on the VME-bus compared with the previous generation. It is aiming the board at high-speed real-time applications, Unix, multiprocessing and other high-performance applications. The key feature of the 68030 is of course that it includes integrated paged memory management unit, and the board comes with 4Mb dual-ported memory, cache burst fill capability, zero wait states, total multiprocessor support, complete VMEbus system control functions, remote reset, and optional 68882 maths co-processor and 1Mbit- per-second input-output. A Plessey Extension Bus enables the board to be customised to specific applications and Plessey has off- the-shelf modules for SCSI interface, floppy interface and additional input-output channels. Deliveries start early next year; no prices were given for the 68-32.

"SUPERCHARGE YOUR AT WITH 32-BIT CLIPPER BOARD" - MAXIM

Maxim Inc of Colorado Springs has announced an accelerator board, based on the 32-bit Intergraph, formerly Fairchild, Clipper processor, for compute-intensive applications on IBM ATs and compatibles. The Quantum board features a 33MHz Clipper, 4Mb or 16Mb memory, a timer, a buffered 32-bit expansion bus that allows high resolution graphics boards and co-processor boards to be attached, and an on-board security device for hardware copy protection of applications. Four gate arrays, designed by Maxim, allow peak data transfer rates of 64Mbytes-per-second between the cache memory units that are an integral part of the Clipper architecture, and the Quantum on-board memory array. The board is claimed to produce 10-fold throughput improvements for graphics, image processing, signal processing and other engineering tasks. The processor runs under CLIX, an implementation of Unix System V.3 optimised for the Clipper. Maxim says a real-time operating system will also be available shortly. C, Fortran 77 and Pascal compilers from Greenhills Software Inc, Glendale, California are ready now. Unit pricing for a 4Mb Quantum is $4,995, CLIX is $695, compilers are $495 each. Discounts for quantity are available.

NEC TO OFFER UNIX-BASED BUSINESS MACHINES TO COMPETE WITH ALTOS, CONVERGENT

NEC Information Systems Inc is taking this week's Unix Expo Show in New York to announce the fleshing out of its Unix line. The company is bringing out four 68020-based business systems following last year's introduction of a Unix-based dual 68020 engineering workstation (UX No 104). The new Astra XL line run under NEC's Astr-IX operating system, an implementation of Unix System V with Berkeley 4.2 extensions, and will support from eight to 32 users. The range consists of the MicroXL, XL/8, XL/16 and XL/32. All four machines are based on a 16.7MHz 68020 and include a 68881 floating point co-processorand 68851 memory management unit. 2Mb of memory is provided as standard, expandable to 4Mb on the XL/8 and MicroXL; 8Mb on the XL/16; and 16Mb on the XL/32. The XL/16 and 32 can also be configured with cache memory of 8Kb and 16Kb respectively. hard disk capacity ranges from 210Mb on the MicroXL to 2.5Gb on the XL/32 with each system having as standard a 5.25" floppy drive. The XL/8 can be upgraded to an XL/16 through a CPU swap, which in turn can be boosted to an XL/32 in the same way. The MicroXL can be expanded to support 16 users by adding a second cabinet but cannot then be expanded any further. The company says that it has been giving a prototype of the XL/32 free of cahrge to software developers since June 1986 but adds that these new machines are about 50% more compact and include faster processors and increased memory and disk capacity. NEC expects to have signed up about 25 VARs before the end of this year and anticipates doing battle with the likes of Altos, NCR, AT&T and Convergent Technologies. The Boxboro, Massachusetts company says that the Astra line has a number of advantages over the competition: the abitilty to upgrade; a growing software library; and prices 10 to 15% cheaper than competitors'. Prices start at $8,495 for the MicroXL; $11,995 for the XL/8; $16,995 for the XL/16; and $21,995 for the XL/32 ranging to $60,000. NEC has software porting agreements with Unify, Informix, Data Language and VMark Software. Shipments of the Astra XL range are expected to start in December.

AS TEKTRONIX GETS READY TO UNVEIL NEW UNIX-BASED GRAPHICS WORKSTATIONS

Tektronix Inc is also expected to announce three new graphics workstations for the CAE/CAD market in New York this week. Tektronix is expected to offer two 68020 graphics workstations, to be known as the 4000 series, which will have high resolution graphics TCP/IP communication networking as well as support for X Window. The workstations are expected to offer 2 and 3 dimensional graphics software and CAE software from the company's CAE Systems division. The mid-range 4000 workstation will have an entry-level price of $15,000 and about $30,000 for the higher end product. Additionally Tektronix is expceted to give details about a low-end 80386-based workstation currently in development expected to come in for about $10,000.

BANYAN OFFERS VINES NETWORKING UNDER ULTRIX, COMMITS TO DEC's VMS

Banyan Systems Inc showed off a version of its Virtual Network Operating System (VINES) on a DEC MicroVAX II running Unix at Networld Massachusetts company claims that VINES is the first totally integrated PC networking system with comprehensive network services available on a range of platforms from PCs to optimized servers to minicomptuers, adding that in its opinion other vendors only offer "tactical" solutions to interfacing with VAXs and other hosts. They either provide connection to a VAX processor through terminal emulation or they allow the VAX to act as a server on the network. Banyan intends to make the VAX more than a server by transparently integrating terminal emulation and PC file access to the VAX, as well as integrating the VAX into the VINES environment which comes with multiple gateways, StreetTalk and internetworking. Banyan intends to port VINES to VMS but notes that "Unix was fast becoming a popular alternative to the VMS operating system for users of VAX and MicroVAX products". PCs are connected to the MicroVAX'S internal Q-bus via Ethernet and any Banyan-supported Ethernet adapter can be used in the PCs; the MicroVAX II supports an internal DEQNA Ethernet communications controller.

LSI LOGIC's 100,000 GATE ARRAY

LSI Logic Corp, Milpitas, California has perfected a proprietary 0.7-micron channel length HCMOS process, using it to create a semicustom gate array twice as dense as the most complex previously offered. Called the LCA100K Compacted Array Plus, it has 100,000 usable gates, equivalent to 400,000 transistors. It can incorporate a RISC microprocessor to control computers, engineering workstations and industrial controls and application-specific memory can be included in addition to logic. Gate delays are under 460pS, memory access times typically less than 15nS. A three-layer metal interconnect technology enables more gates to be used and a more compact version of LSI's Channel-Free architecture improves customisation. A 0.7 micron test chip is out and designs are under way.

NCR COMMUNICATES WITH IBM

NCR has released an SNA Software Distribution communications package that allows Unix-based Tower users with program and data file access from an IBM host. SWD combines with NCR's Software Distribution software which operates in IBM/MVS and MVS/XA host environments to allow program and data files to be distributed from an SNA host to an NCR Tower connected via an SNA X.25 network. SWD is installed on the Twer and communicates with the host-based product on an application-to- application basis, with the Tower application appearing as an LU0 device. SWD has a first year licensing cost of £1,600 on the Tower and £11,100 for the host based application.

SUN's TOPS ENHANCES ITS MACINTOSH, IBM PERSONAL NETWORKING SOFTWARE

Centram Systems West, now masquerading as TOPS, a Sun Microsystems Company, has released new versions of its NetPrint, which enables IBM Personals to print directly to Apple LaserWriters or other PostScript-compatible printers on an AppleTalk network, and of its TOPS local area network software packages for Personals and Macintoshes. The new features in NetPrint include a dynamic menu listing that enables users to choose from available networked printers; a new PostScript translator that supports all LaserWriter Plus fonts; a downloadable IBM style character set that includes block graphics; and shorthand configuration commands. The memory resident program enables PostScript-compatible MS-DOS applications such as MS-Word, WordPerfect, PageMaker and Ventura Publisher to print directly to an Apple LaserWriter or other networked printer. For older MS-DOS applications that do not support PostScript, TOPS Net-Print provides transparent translation from dot matrix to PostScript, claims TOPS. As well as a printer, AppleTalk cabling, users need a Personal equipped with TOPS NetPrint and a TOPS FlashCard to use the system. TOPS FlashCard is a half-length networking card that fits into an expansion slot on a Personal, providing a connection to AppleTalk over compatible twisted pair cabling. The new version of TOPS NetPrint will begin shipping at the beginning of November at $189. TOPS FlashCard is $239. Also scheduled for delivery at the beginning of November the new version of TOPS' local net software, TOPS/DOS version 2.0, which enables micros on the TOPS Network to access dedicated printers formerly available to only one user.

Flashtalk

TOPS/DOS also includes FlashTalk, the recently announced Personal-to-Personal communications architecture that operates on TOPS at three times its former AppleTalk speed. TOPS/Macintosh version 2.0 introduces a "remember" function that enables users to make files available to the network automatically, and automatically access remote files. In addition, TOPS/Macintosh is now fully compatible with all Apple File Protocol applications. Both TOPS/DOS and TOPS/Macintosh now support AppleTalk zones and offer improved password protection, claims TOPS. The new version of TOPS will recognise version 2.0 only and computers running the earlier versions of TOPS will not appear on version 2.0's menu. In order to network all TOPS units, the new version must be installed on all networked machines. Current users can upgrade their systems for $29 per node until March 15, 1988. Upgrades are free to MS-DOS users who bought TOPS after October 1, and to Macintosh users who have already bought the recent update with TOPS Spool and TOPS Translators. The suggested retail price for TOPS/DOS and TOPS/Macintosh is $189.

APOLLO OFFERS PER-USAGE SERVER, EXTENDS NETWORK SYSTEM TO MS-DOS, VAX

Apollo Computer has introduced a Network License Server for its Network Computing System to ease administration network. NLS is based on NCS and differs to traditional methods of licensing software - CPU licensing, or site licensing - by using what Apollo calls concurrent usage licensing. It allows a fixed number of end users to concurrently access an application independent of location. Apollo claims that the software allows software suppliers to ensure customer payment based on product usage. Apollo hopes to get NLS adopted as a standard and will be presenting it to the myriad of standards bodies to gain acceptance. Additionally Apollo announced that it had made five new ports of the set of distributed network computing products that make up NCS as it now stands. MS-DOS for IBM PCs, Cray, Unix System V-based computers, DEC Ultrix systems and Sun's SunOS environment are all supported. NLS will be available on Apollo workstations in March 1988, followed by support for DEC and Sun. Apollo says that while ports are being prepared NLS can be used by communicating with a license server running on Apollo workstation. A 50 hook license server is available from Apollo for a one-time charge of $4,000 plus media and documentation. Alternatively, a $1,000 annual fee for a 50 hook license server is also available. The software supplier lock is available for a one-time fee of $5,000. The NCS source code tape will be available from Apollo in the first quarter of 1988 for a one-time fee of $1,000. The NCS tape includes source code for Berkeley Unix, SunOS, VAX Ultrix, MS-DOS, Unix System V, and VAX VMS.

SILICON GRAPHICS HAS $2m CONTRACT WITH McDONNELL DOUGLAS -BRINGS TOTAL TO 400

Silicon Grahics Computer Systems Inc has announced a contract with McDonnell Douglas for $2m worth of its IRIS 3110 visual computing workstations. These 3D graphics workstations will be used for mechanical computer-aided engineering and will run McDonnell Douglas' proprietary computer-aided design and drafting software for the design and analysis of military aircraft. The new workstations will complement an existing base of more than 200 IRIS workstations with McDonnell Douglas' St. Louis-based aircraft division. The Unix-based IRIS 3110 workstations will be connected to IBM host computers using the IBM 3278 protocol and 3174 controllers, and to DEC VAX computers via Ethernet and TCP/IP. With this order, Silicon Graphics will have more than 400 of its visual computing workstations installed for MCAE applications at various McDonnell Douglas divisions, including the St. Louis aircraft division, Mesa, Arizona helicoptor division and Long Beach, California-based Douglas Aircraft.

CADNETIX, CIMLINC AND SILICON COMPILERS SIGN TO BECOME SUN 3/60 OEMS

Cadnetix Corp has entered an OEM agreement with Sun Microsystem to give its products a standard platform for customers that want to do more than just do PCB design on thier workstations. The agreement is valued at $15m over the next 18 months and under the terms Cadnetix will purchase Sun workstations, including networking, data communications, Unix operating system software, add its complete line of CAE, CAD, and CAM software, and resell integrated turnkey systems. The available applications from Cadnetix include schematic capture, digital and analog simulation, ASIC design, printed circuit board placement and routing, and manufacturing tools for fabrication, assembly and test interface. The Cadnetix/Sun workstation family will form the basis of Concept 3, Cadnetix' new generation of integrated CAE/CAD/CAM tools. Concept 3 includes a new global coordinate database, a comprehensive set of new application tools and engines, and an open system architecture based on Unix, Ethernet and NFS. PC/AT-class machines are also an essential part of Concept 3. Sun products are fully network- compatible with Cadnetix engines, workstations and PC-based systems. In addition, Concept 3 includes strong support for EDIF. Among the new applications available in Concept 3 are analog simulation, Flexible Field routing, and high-frequency design. The new Cadnetix systems will initially be based on the Sun 3/60 colour workstation. Two systems will be offered the CDX9600 Series for CAE applications and the CDX56000S for CAD development. The CAE system will include the Cadnetix object oriented user interface, hierarchial schematic editor, symbol editor, CAE tools library, complier and optional digital or analogue simulation and ASIC design tools. The CAD system has the same interface and editors as the CAE system but includes PCB routing and placement software, as well as Cadnetix' 400,000 vector per second graphics processor designed to meet the advanced graphics performance needs of PCB CAD. The CAE system will be available from November and the CAD from December. The systems have an entry-level price of £59,900. Separately Sun has signed a $25m OEM deal with Cimlinc Inc of Elk Grove, Illinois under which Cimlinc's 32-bit CIM software will run on Sun technical workstations and networked systems. Under the OEM hardware agreement, CIMLINC will purchase Sun's new Sun-3/60 3- MIPS desktop system and other workstations for turnkey resale with Cimlinc mechanical design, manufacturing, and information handling software packages. Cimlinc/Sun systems for manufacturing or intelligent documentation start at under $18,000. Sun has also signed up Silicon Compiler Systems as an OEM who will purchase approximately $3 million of Sun workstations for software development and support.

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Sun Microsystems is in talks with somebody in Europe about implementing the SPARC RISC microprocessor set in Gallium Arsenide - and no, it ain't Plessey: suspicion falls on Thomson of France and Siemens of West Germany, but if anyone has any other ideas, please let us know.

- o -

Alliant Computer Systems Corp saw third quarter net down 38.7% at $789,000, after an extraordinary credit of $246,000, on sales up 65.7% at $14.2m; nine-month net rose 103.1% to $4.9m, after an extraordinary credit of $1.7m, on sales up 113.8% at $39.6m. Net per share rose 62% to $0.47 in the quarter and fell 53% to $0.07 in the nine months.

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Altos Computer Systems has reported first quarter net profit up 69.2% at $2.2m, on sales up 24.5% to $40.6m. Net earnings per share rose 70% to $0.17.

- o -

Apollo Computer Inc has reported a third quarter net loss of $2.9m, compared with a profit last time of $2.5m, on turnover that rose 34.5% at $135.0m; nine-month net profit rose 175.6% to $11.2m, on turnover up 44.3% at $390.7m. Net earnings per share were up 158% to $0.31 in the nine months.

- o -

Convergent Inc reported second quarter net profits of $2.0m, compared with a loss last time of $25.7m, on turnover that rose 71.9% to $111.3m; there was a mid-term net loss of $8.7m, down from a loss last time of $28.4m, on turnover that rose 34.9% at $308.4m. Net per share was $0.04 in the quarter. Comparisons are with 1987 figures which include results of Bidtek Inc, acquired in July 1987 on a pooling-of-interests basis.

- o -

Informix Corp has reported a profit for the nine-months up 154.0% to $3.9m, on turnover up 91.3% at $27.7m. Net earnings per share rose 83% to $0.44.

Minigrams

National Semiconductor Corp has decided to abandon the Fairchild plant in Wasserberg, near Munich: it will end the lease on the plant at the end of the year, transferring the assembly and test work done there to the Fairchild plant in Singapore; the warehousing, distribution, procurement, marketing, customer quality and product engineering services will be transferred to the NatSemi bases in Furstenfeldbruck, Swindon and Greenock; NatSemi says employees affected will be reassigned where possible.

- o -

Shows what AT&T thinks of Bell Labs these days: the bright SPARCs, 100 from AT&T, 100 from Sun Microsystems, who are to implement the new Unix standard around Sun's RISC microprocessor, are to be based in Menlo Park, California.

- o -

Inmos International has reduced the prices of the Transputer family for the third time in the two years since the products' introduction; the T414-20, for buyers of 100 plus, is down 20% to #181 while the T212-20 is reduced 50% to #79; the new Transputer, the T800, is scheduled for delivery early next month.

- o -

Graphica Corp has developed two 32-bit workstations: the GWS-10000M is a colour graphics Unix workstation with two 68020, a 68881 maths co- processor, and 4Mb of static RAM selling for $90,900; and the GWS- 10000i for ultra-high speed image processing, having three pipeline processors and image memory of 1,024 by 1024 by 8 bits, expandable up to 16 channels and selling for a cool $153,900.

- o -

NCR Japan has introduceed the Accell programming language to run on the Tower Unix supermicros, and has already sold it to two customers, Tokyu Kanko and Seikosha, who are using it to build a customer information management system: Accell is claimed to cut development time by between a tenth and a hund-redth compared with Cobol; it's $12,800 to $15,300.

IBM, which is due to release a version of its 6150 RISC machine using the Personal System/2 microchannel bus - and based on the PS/2 Model 80 chassis - is tipped to introduce a model doubling performance to 9 MIPS next year.

- o -

Steve Jobs' acquisition, Pixer Corp, which has already sold 100 of its Pixar Image Computers in US, is hoping to sell between 10 and 15 of the things in its first year in the Japanese market following an agreement with Sumisho Electronics, a specialist electronic equipment maker and a member of the Sumitomo Group: the Pixar Image Computer will sell in Japan at the equivalent of $84,000 for the standard configuration, rated at 40 MIPS, but by expanding the number of central channel processors, performance can be increased to 120 MIPS; the Pixar Image Computer is claimed to reduce graphics processing time by a factor of between three and four, and Sumisho will market the things together with image processing stations from Silicon Graphics.

- o -

Austec International Pty Ltd of Melbourne has teamed up with local software company Communications Science Corp to introduce its utilities and language products to the Japanese market: Communications Science has already translated and customised the Austec - and Ryan McFarland products, and will begin with five packages - Japanese Master Cobol the third layer of the Open Systems standard plus SNA and Unix Remote File Sharing; RM/Fortran 2.4; the AceBridge Cobol compatibility product; and the AceGen Cobol code generator: the partners plan a mix of 70% OEM sales - its products are already on the Fujitsu FM-R and Matsushita Panacom M micros, with direct sales making up the balance; shipments start in November; Austec hopes to take $11m out of the Japanese market over the next five years.

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AMDAHL KILLS ASPEN EFFORT, PLANS TO MAJOR ON UTS UNIX

Amdahl Corp has abandoned its six-year Aspen effort to develop an IBM 370-compatible operating system specifically for high throughput trans- action processing, and has decided instead to devote all its operating systems development effort to its UTS implementation of Unix System V. The company told analysts last week that the 40 or so people who had been employed on Aspen would transfer to the team working on UTS, and that features from Aspen were likely to turn up in new releases of UTS, starting next year. In particular, the Aspen user interface and commun ications would be applied to UTS. Amdahl is estimated to have spent be- tween $15m and $20m on the Aspen development effort, and the operating system has been extensively beta tested at Electronic Data Systems in Dallas and at Stanford University. Amdahl says that while the Aspen technology was good, UTS represents a much better market opportunity.

UNISOFT AND MOTOROLA - BINARY AND OBJECT COMPATIBILITY BY MARCH

Spurred on by the efforts of Microsoft and Interactive to develop an interface for Xenix/Unix which gives software binary compatiblity between Intel 386-based machines, Motorola and Unisoft are close to issuing a draft binary and object standards for 680X0 software. Working groups set up by Motorola and Unisoft have met to talk to applications vendors about two separate standards - binary and object - for 68000-based applications; following the second meeting at Unix Expo last week a draft standard specification will be issued to interested parties within the next few weeks. The group has the co-operation of AT&T and will be using the SVID as a base for the standard. Unisoft, owned by the UK's Root Computers, says it hopes for support from a maximum number of hardware vendors, and will bring out its final specification along with Posix in March.

UNIX-RELATED PRODUCTS BRING NEW LIFE TO TRANSPUTER

Administering a slap in the face to those who had been quick to write off the Inmos Transputer as a serious contender, a batch of companies have announced Unix-related Transputer products including a port of the Unix kernel to the Transputer itself. Atari Corp is set to announce its transputer-based workstation developed by Perihelion (UX No 142) this week at Comdex in Los Angeles and is also offering the Idris Unix lookalike for ST and Mega ST users for $800. The unnamed workstation will run Helios, a "Unix-like" operating system also developed by Perihelion, and in an attempt to make the product a serious contender Atari has been coercing indepenedent software vendors to write applications for the machine. Atari hopes to have the workstation in production by the end of the spring and intends to sell it for a price of $5,000. Meanwhile Renishaw Controls of Wootton-Under- Edge, Gloucestershire, has written a Unix kernel for the Inmos B008 four-Transputer board, and the combination was being touted as a high-performance coprocessor for the IBM PC AT by Microport Systems at Unix Expo last week. Renishaw Controls devloped the port for the transputer because it needed it for its manufacturing control products and will sell it as part of its systems. Microport intends to market the product to a more general market to users involved in modelling, statisitics and graphics. The board plugs into an AT lookalike, with the 80286 running Microport Unix System V/AT relegated to handling input/output. Microport reckons that a full configuration will offer performance in the range of 60 MIPS and will be offered at a similar price to a Clipper-based system. Additionally Renishaw developed a C compiler for the transputer about a year ago. And an Inmos spin-off, Niche Technology, claims to have come up with a system that will appeal to software developers, systems integrators and academics, allowing them to develop software that exploits up to eight four-Transputer boards plugged into a Sun workstation.

IBM TO LAUNCH AIX SUBSET AT COMDEX

IBM announced its intentions to port a subset of its AIX Unix implementation onto the PS/2 models back in April - and it chose Unix Expo to preview it ahead of a full launch at Comdex this week. Dr Andrew Heller, VP and general manager of IBM's Advanced Engineering Systems stressed that Unix was no longer limited to technical users, but had now disseminated into the commercial marketplace, including Wall Street. Heller said that IBM would expand the role of AIX "in accordance with industry standards", and would work towards compatible AIX products across its products to maximise portability. Back on the stand, the 80386-based PS/2 Model 80 running AIX sat rather unhappily with the IBM PC RT, not very popular in the US, with the differentiation in performance. IBM software vendors at the show were predicting an imminent power boost for the RT (or 6150); IBM is thought to have a 9MIPS model in the pipeline (UX No 152).

MOTOROLA ANNOUNCES 68030 DELTA PRODUCTS

Determined not to get left out this time Motorola's Microcomputer Division is amongst the first out with a machine based around its own chip. The company has announced 25MHz 68030-based systems for the VME Delta Series line, for which Motorola claims a peak performance of 6MIPS. The VME Delta Series, first introduced in April of this year, used the MC68020 in the Model 2316 and the Model 2616. Upgrades are available for existing 68020 users and customers can interconnect these machines with the new model by using DeltaONE - based on Unix System V's Remote File Sharing, TCP/IP and Ethernet. Two 68030 models are offered: the Model 3641 is a high-end system targeted at the small departmental, technical Systems market and is equipped with a 25MHz MC68030, a 25MHz MC68882 Floating Point Coprocessor and 64Kbytes of fast cache memory with 12-slots, hosting up to 32 megabytes of memory; the "top-of-the-line" Model 3841 uses a new 20-slot VMEbus chassis and cabinet, and hosts the 25MHz MC68030 processor with 64Kbytes of fast cache memory. The Model 3641 will be generally available by mid shipping earlier. Prices range from $31,500 to $74,500. The Model 3841 system will also be available by mid '88, and has an entry-level price of $39,500.

NATSEMI SAMPLES NS32532 - PROMISES WINS FROM MOTOROLA

National Semiconductor last week announced that it had begun sampling of its new NS32532 32-bit microprocessor that it claims offers 8 to 10 MIPS sustained performance. The company also introduced a 32-bit board level system based on the VMEbus running Unix System V.3. The company has no plans as yet to sell the system as an end-user product intending it for use as an evaluation board and as a native debug and execution environment for programs developed on a host computer. NatSemi expects a number of systems integrators to build Unix-based 64 to 200 user systems with the VME532 and adds that over the next six months or so we will see a number of these companies that traditionally used the Motorola 68000 series switching to the 532. The reason that these companies never switched before, explains NatSemi, is that although its processors had a slight performance advantage it was not sufficient to warrant change but expects this situation to alter given the 532 and the current doubts concerning performance of Motorola's just-available 68030. Although NatSemi sees the Unix-based multi-user and workstation market as being significant, it is concentrating most of its efforts in the high-end control market which its sees as being the biggest market for the new processors with the most growth potential. For this market NatSemi has implemented VRTX the real-time operating system from Hunter & Ready and the company says that it has a context switching time of 3.6 micro-seconds and an interruptlatency time of 1.3 microseconds. By 1991 NatSemi sees the multi-user and workstation systems having 9% of the 32-bit microprocessor market, high-end control systems taking 51% and personal computers accounting for 40%. The NS32532 is also supported by the NatSemi's SYS 32/20 development system which allows designers to develop and run programs on a personal computer at speeds similar to those of a DEC VAX 780, says the company. Having the same instruction set as the previous incarnations of the 32000 series the company claims full upward and downward compatibility with the rest of the family despite a number of enhancements. The chip containing 370,000 transistors has data and instruction cache memory, a memory management unit, a clock generator and a four stage pipeline architecture on-chip. The first version is fabricated using the company's 1.5 micron double-metal CMOS process and will initially run at 20MHz but it adds that it will shortly have a 30MHz version. Looking to the future NatSemi says that it has another generation in development which is "not necessarily" RISC-based saying that in many cased RISC makes life easier for the manufacturer but a lot harder for the end- user because of the greater amount of code generation required adding that its 532 already includes the better parts of RISC such as high integration of complex compilers with hardware. NatSemi says that it will bring out a chip equivalent in performance to Sun Microsystem's forthcoming SPARC, implemented by Bipolar Technologies in ECL threatening to offer 50 MIPS, on a single CMOS chip - but is not giving any dates.

PROTEK CELEBRATES START OF SOMETHING BIG WITH HEWLETT-PACKARD IN US

Protek Ltd is euphoric over a £250,000 deal with Hewlett-Packard Co, for Tekbase, the scien tific relational database which it believes bridges the gap between spreadsheets and mainframe databases - and is palnning a Unix version for imminent launch. With annual sales of £8.3m, Protek is one of only four Hewlett- Packard-appointed advanced technology dealers in the UK: it has been developing the data base for use on HP Series 200 and 300 techni cal computers for five years. Protek says Tekbase is special in that it deals with large arrays of scientific data in real, complex or multi-precision integer form taken from test equipment, other computers or data acquisition devices. It features an automat ic testing system which generates data on each silicon wafer. This can be stored, an alysed and manipulated to produce wafer maps and trend charts to highlight faults at an early stage. The database supports two- and three-dimensional graphics, a maximum file size of two gigabytes and a maximum record size of 256Kb. Protek says it has developed a new language, similar to IBM's Structured Query Language, but with additional computa tional capabilities. Its first home-grown product has been written in this Technical Query Language, or TQL, and applications-specific function libraries are provided as optional. In addition a programmatic inter face enables the end user to interface to a language he is familiar with, in this case Basic, Fortran or Pascal. In the next couple of weeks, support under Hewlett-Packard's implementation of Unix System V.2 will also be available. Protek is aiming its database at Hewlett technical workstation users, Unix users, research environments, OEM customers who would consider using it as a basis for their products and across industry in gener al. Over 200 copies have been sold worldwide since the product was launched at the start of the year. The deal with Hewlett is for 112 copies to be offered as optional with the new Parametric Test System, developed by Test Quality Co for testing semiconductors. Tek base costs £1,750 for models using the Motor cla 68020 processor and double-sided 3.5" disk. The programmatic interface is £450. Tekbase cannot be used on the HP Model 26.

APPLIX CLAIMS FIRST 32-BIT APPLICATION FOR INTEL 80386

Applix Inc, Boston, Massachusetts, has ported its office automation software, Alis, to the Intel 80386 with claims that it is the first 32-bit application available on the processor. The company adds that this implementation of its software will take advantage of the 386's processing speed, address space and multitasking capabilities. The system is priced according to the number of users per system and hardware used. A single-user desktop license costs $1,945.

FAULT-TOLERANT UNIX IN COMPUTER CONSOLES DIRECTORY SYSTEM

Going back to its roots, Computer Consoles Inc, Waltham, Massachusetts, whose telephone products are marketed in the UK by STC Plc, has unveiled an Automated Listing Services system for telephone companies that are expanding on-line non-classified telephone directory services. The new system is based on a fault-tolerant configuration of Computer Consoles' hardware and software, and is designed to expand telephone company dir- ectory services into new revenue-generating products such as Customer Name and Address and address retrieval services for operators. The sys-tem also supports direct customer access via public packet networks to these databases for business and industry, and viewdata access for res-idential users. The company sees the system as applicable to direct marketing, listing content verification, demographic studies, and mail ing list maintenance. The Automated Listing Services system is based on Computer Consoles' Power6/32 FT fault-tolerant minicomputer system running the company's Perpetual Processing Operating System implementation of Unix System V, and proprietary CCI database management software. Terminals supported include VT100-compatible asynchronous terminals and specialised viewdata terminals and it also supports the Northern Telecom TOPS/MP and the Rockwell CallPro operator positions. British Telecom's directory enquiry computer systems come via STC from Computer Consoles, but are based on the previous generation DEC PDP-11- based product line.

RABBIT SIGNS UP SEQUENT TO OEM ITS IBM DATA COMMS SOFTWARE

Rabbit Software Corp, Malvern, Pensylvania last week announced an OEM technology access program (TAP) agreement with Sequent Computer Systems to supply Rabbit's IBM data communications software for use on Sequent's Balance and Symmetry systems. Under the terms of the agreement, Sequent will license six communications products from Rabbit's SNA base and advanced software product lines to run on the Sequent Balance and Symmetry computer lines. Rabbit's TAP program was started to allow customers like Sequent to work jointly, as business partners, with Rabbit personnel to develop finished connectivity products. The TAP program provides full access to Rabbit's marketing and technical knowledge of IBM connectivity architecture as well as access to hardware and software developed by Rabbit to implement that architecture. It also provides for management, development and execution of the joint solution. Other Rabbit OEM TAP clients include IBM, NEC, SCI, Siemens and Tolerant.

BBN ADVANCED COMPUTERS OFFERS MACH-BASED BUTTERFLY, PLANS REAL-TIME P-SOS VERSION

Bolt, Beranek & Newman's BBN Advanced Computers in Cambridge, Massachusetts has added new models to its Butterfly line of 68020-based massively parallel processors. The new Butterfly 1000 family consists of two different systems - the Unix-based GP1000 is "the most usable large-scale parallel processor available for production scheduling, circuit simulation and advanced decision support systems. The Butterfly RT1000, in final development, is expected to be the first real-time computer to apply large-scale parallel processing to applications such as simulation test beds, real-time training and signal processing. The existing model has been enhanced as the Butterfly Plus for those wanting to investigate parallel processing before moving on to the 1000 family, and the 90 existing Butterflies can be upgraded to all three. New software includes the HOSE Hierarchical Object Structured Environment real-time data flow language for real-time manufacturing systems from MTS Systems Corp, Minneapolis; the XMP mathematical optimisation library for manufacturing, transport and finance from Resource Management Systems Inc, Cambridge; Butterfly Ada, based on the Verdix Ada Development System; and the pSOS real-time multi-tasking operating system from Software Components Group, Santa Clara, which is the basis of the Butterfly RT1000. The GP1000 supports the Mach 1000 enhanced Berkeley 4.3BSD Unix from Carnegie Mellon University, and comes with up to 256 microprocessors and 1Gb shared memory in a multiple instruction, multiple data architecture. Each node is a 2.5 MIPS MC68020 with floating point. BBN now also has a complete set of Multibus peripherals, including Ethernet controller, tape system, a disk controller, 700Mb and 500Mb disks and controller for up to 128 terminals. A 30-CPU GP1000 with 120Mb, 1.4 Gb disk and tape will be under $500,000, from March.

INFORMIX DATABASE GOES ONTO CRAY 2

Informix Software Inc offers the first relational database manager system for Cray Research's Cray-2 series of supercomputers. Informix-SQL, Informix-4GL, ESQL/C and C-ISAM are offered for all four Cray-2 models, which run under the Unicos Cray's proprietary Unix System V-based operating system. No tags.

MENTOR GRAPHICS TO PAY $30m FOR INTEGRATED MEASUREMENT

Mentor Graphics Corp has signed an agreement to merge with Integrated Measurement Systems Inc under which 1.2 million shares of common stock will be issued. The two four year old companies intend to use their individual strengths to produce a complete design automation solution. Mentor Graphics develops CAE systems and IMS produces prototype verification systems. The agreement is subject to the approval of IMS shareholders but should no objections arise IMS will become the Integrated Measurement Systems Division of Mentor Graphics.

SUN EVER HOPEFUL AS SHARES PLUMMET

Sun's policy in 'throwing technology over the wall" just makes analysts want to go out and sell all our stock", said Scott Mcnealy, President of Sun Microsystems in his key-note speech at Unix Expo last week. And at the moment at least he was right- Sun's recent technology development plans with AT&T were announced on the same day that the disastrous stock market crash, first hit the news, but didn't prevent its shares plunging from $40.50 to $34.25 that first week: nor did the further news last Monday that the giant Xerox Corporation has added its support for Sun's SPARC chip technology with the price dropping even further to $26.75 as McNealy was speaking. Sun Microsystems, however, has at least until recently been one of the best bets on Wall Street. It has grown rapidly since its inception in 1982, and this year reported net revenues of $537.5 million, a 156% increase on the 1986 figures of $20.1 million. Yet it consistently spends years and dollars generating new technology such as the Network File System (NFS), its NeWS Windowing System, and now the Scalable Processor Architecture (SPARC), RISC microprocessor, only to "throw it over the wall" by allowing other vendors, including its competitors, to licence it.

Proprietary advantage

Clearly, Sun benefited more from widespread dissemination of NFS than it would have done by keeping it as a proprietary advantage for its own customers only. By opening up the technology it created the initial momentum for the establishment of a "de-facto" standard for distributed systems, and thereby broadened the market. Why, however, should it let other manufactures use its SPARC processor, thus reducing any performance advantages it might have kept to its own product. The first reason is practical: Sun cannot go full-scale into the microprocessor business on its own, so it must licence others (currently Fujitsu, Cypress and BIT) to produce the chip, ensuring enough market opportunity to make it worth their while. The second reason is the software associated with the chip. By interesting AT&T in the SPARC processor (a real coup considering AT&T's own Western Electric division was carrying out its own RISC development, now discontinued), Sun has placed itself right in the centre of future developments in the Unix operating system as well as getting some of its own SunOS features (such as NFS and X.11/NeWS) and ABI incorporated into the SVID. A straw pole at Unix Expo revealed that most people perceived Sun as now taking the major lead in the development of Unix above AT&T itself.

Three-phase-plan

The joint development effort with AT&T involves a three phase plan of action. In the first phase, Sun will release its long awaited merge of System V and Berkeley 4.2 (and SunOs features) for the SPARC processor. Work on this is apparently all but complete, but should be shipped by the second quarter of 1988.

Phase two will see AT&T's incorporation of the new features into a unified version of Unix System V in the first half on 1989. Phase three is now being worked on by Bill Joy and a Bay Ana development team, and involves the development of "a totally distributed Unix environment and allowing for multiprocessing" according to McNealy, and results will also be seen in 1980.

The unified Unix versions will allow the implementation of another important events in the Sun/AT&T effort. Applications Binary Interface (ABI), described by McNealy as "a typicallly out of control Sun manoeuvre". ABI aims to allow Unix software conforming to ABI to be fully binary compatible across machines, just as DOS software is on Intel processors. ABI however goes beyond this, incurring C language and library definitions, operating system interface, file locations and formats, and networking, windowing and graphics facilities that will allow developers to create applications with a familiar "look and feel" but strong common characteristics - something that could make Unix machines like an "open" Macintosh. The engineering effort, to be taken on by 100 of AT&T's 600 Unix programmers, according to Computer Systems News, is to pull all the technology, which mostly exists already, together Which application interface component will be used has not yet been decided but will be announced during the first quarter of next year at a series of seminars for developers to be held by Sun. MIT is working on such an applications interface toolkit based on X windows.

Retail Opportunity

McNealy said that ABI has attracted interest from DOS software vendors who have been looking towards Unix for some time, and written (or re-written) software in C. With binary compatiblity, distributors could become excited about the retail opportunities for the first time especially with parallel efforts for a 386 binary standard from Microsoft and Interactive working on the merged Unix/Xenix 386 binary and ABI binary standards would be drawn together by Phase 3, said McNealy, whoalso predicted that computer manufacturers would be encouraged to produce small Unix machines once a binary standard had become established.

The SPARC processor, initially at least the hardware base for these efforts, has has been boosted by support from not only AT&T and Xerox, but also Arete. Fujitsu, the major source of chips at the moment says it plans to be shipping 15,000 a month by the end of 1988. Multiple licencees for the chip is an important selling point for companies such as Arete which will buy from Fujitsu and Cypress: it means that you do not have to rely on one supplier to keep up with technology - custom CMOS, ECL, and Gallium Arsenide implementation[could bake the SPARC MIPS rating up to three figures - but also allows for some degree of competition.

QUADRATRON ANNOUNCES NEW PRODUCTS IN MOVE TO LIFT IMAGE

Office automation software supplier Quadatron is seeking to raise its profile, and accordingly laid out a series of new products and future directions at its first UK press conference recently. Heading the list were DOS and VMS versions of Q-Office release 1.95, the version that is claimed to reduce CPU use by 40-50% over previous versions, allowing close to double the number of users. Both the DOS and VMS versions ship this month, and other features of 1.95 include "full support for Xenix and 386-based machines", DCA support, and the ability to handle Postscript laser printres and phototypesetters. The accompanying Q-Typeset subsystem allows scanned images to be merged with text, images to be scaled and sized and provides optional font libraries. Also announced was Q-CBT, a series of training modules for Q-Office+, Q-Office, and Q-One users undfer DOS; Q-CBT for other products and versions are due later. Quadatron is looking to the integration of office automation software with PABX's as the next growth area; it is looking for the PABX to dominate as the "backbone" of OA systems and is particularly pleased at being picked by BT to provide the software accompanying its recently launched Mezza workstation. Not surprisingly, it is also looking for a greater degree of voice integration, extending the current capability for voice store and forward and annotation said to be built into the product. The already claims its software - which more often than not appears from OEMs under another name - is already installed at a wide range of Government departments and large organisations including the Cabinet Office and Prime Minister's office, the CCTA, BP, BT and the Metropolitan Police. The Pedder Associates 1987 Integrated Office Systems report gave Quadatron more than 40% of the UK office systems market in the 5-24 user system segment, with just under 1000 licences and an estimated 10,000 workstation users - but UK software house Uniplex (nee Redwood) was estimated to have about 3.5 times as many licences in the field, with over 16,000 workstations mainly on smaller systems.

HEWLETT-PACKARD GIVES UNIX EQUAL BILLING WITH ITS OWN MPE IN BUSINESS MARKET

Hewlett-Packard Co has made a declaration of intent to make a big pitch for the business end of the Unix market. Commercial Systems Business Unit general manager Douglas Spreng revealed at Unix Expo in New York this week that the company has set in train a programme to expand product development and marketing to meet what it sees as increasing customer demand for business computing systems based on Unix - and gave the impression that henceforward, Unix would have equal billing with the company's own proprie tary MPE business operating system. "Unlike our major competitors, HP is strongly positioned with products, experience and commitment to expand opportunities with business Unix operating-system cus-tomers and succeed in becoming the leading vendor in this growing system market," claimed Spreng. He cited Dataquest forecasts that the market for business Unix system applications will grow to $10,000m by 1990, from $2,800m in 1986, a 28% compound annual growth rate. Spreng made it clear that the HP9000s, which run the HP-UX implementation of Unix System V.2, should no longer be seen only as tech nical machines, but equally as business machines. The Unix line ranges from the RISC-based 7 MIPS HP9000 Model 850S at from $200,000 through the 4.5 MIPS Model 840S to the 3 MIPS 825S, down to the 68020-based HP9000 Model 330. The company is also pitching its 68000- based Models 310 and 318 work-stations, which range from $4,345 to $56,000, for business applications such as stockbroker systems. The approach is in marked contract to that of DEC, which seeks to ensure where possible that Unix plays second fiddle to its own VMS on the VAX line.

TEKTRONIX RETURNS TO WORKSTATION FRAY WITH A BANG AFTER RETIRING HURT LAST TIME

Tektronix yesterday filled in the details concerning its belated attempt to re-enter the workstation market (Ux No 152). In total Tektronix has announced 14 new graphics products: eight graphics workstations, five graphics terminals and a standalone applications processor. At the top of the range is the 4337 3D colour graphics workstation based on dual Motorola 68020s, 68881 co-processor, custom gate arrays with a pipelined graphics architecture. Tektronix claims that the system can redraw up to 450,000 2D and 340,000 3D vectors, and up to 20,000 shaded polygrams per second. The 4330 series supports 2D and 3D wireframe, shaded surface and stereoscopic representations - the 4237 terminal also supports these capabilities. The 3D 4330 range also includes the 4335 and 4336 workstations, and 4235 and 4236 terminals which offer wireframe and shaded surface capabilities respectively. The 2D products, the 4320 series is based on a single 68020 processor with the 68881 floating point co-processor with a floating point accelerator as an option. The workstation range in the 2D series include the 4324 and 4325 and the 4224 and 4225 denote the terminals in the range. Bottom of the range is the 4310 series of bit-mapped workstations which again uses the 68020 and 68881 and has three models in the range: 4315, 4316, and 4317. Software on the workstations include UTek, Tektronix' implementation of Berkeley Unix with System V extensions, Sun's NFS, C, Fortran, X Window, and the new products are also compatible with Plot-10 Tektronix' graphics standard. Tektronix also announced in London that 13 European graphics software companies are supporting the new workstations following the US anouncement that 50 companies worldwide would be doing so. The Europeans include Byg, Cisigraph, Dalim, DeltaCAM, Fegs, Gable, High-Tex-Systems, MCS, Pafec, PDA, Sarasota, SDRC, and Uniras. Prices for the 3D workstations start at £32,950 and the terminals in the series range between £19,950 and £34,950. In the 2D range the workstations cost £24,950 and £27,950 with the terminals coming in at £11,950. Prices for the 4310 series start at £9,250 and go up to £17,500. The company added that it would be using new processors from Motorola as they become available, indicating that Tektronix will probably be taking the forthcoming 78000 RISC.

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IBM is expected to announce the fruits of its work with Locus on system software for the PS/2 range at Comdex this week.

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Microport has announced that it will offer the JSB Multiview windowing system to its OEMs, VARs and dealers: the British software is also offered by Microport competitor Santa Cruz Operation.

- o -

Mosaic Software currently being sued by **Lotus** because of the "look- feel" similarity of its Twin spreadsheet to 1-2-3 (guess why its called Twin), is now offering the software on Unix machines: the company says that the interface will be exactly the same on both Unix and DOS versions of the product, which has sold 160,000 copies and is said to be the world's second best-selling spreadsheet package.

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In a bid to enter the bottom end of the Unix market **Oracle Corp** has developed versions of its database package and tools to run under **Santa Cruz Operation's** Xenix as well as a developer's kit for Xenix for a cost of $399: the software provided with the kit is limited to development use only and can only be used in single-user mode on Xenix machines - applications developed with the kit can run in multi-user mode under Oracle's full-use licensing.

- o -

Tandem Computers will be taking Unix-based applications for its 32- bit LXN system from Action Software Corp, San Diego, and Teknekron Infoswitch Corp, Richardson, Texas: Action offers a service property management system and Teknekron supplies inbound and outbound telemarketing software.

- o -

Several companies have already announced machines built around the new **Motorola** 68030 microprocessor but the thing only officially be came available yesterday, with the razmatazzy unveiling in New York 16MHz versions going for about $400 and the 20MHz version at $550; the 16MHz **Intel** 80386 is down to $300.

Minigrams

Rikei Corp, which buys its hardware OEM from **Nippon Digital Equipment Corp**, is to sell the DEC MicroVAX 3500 and 3600, and looks to place 200 of the machines in the first year: this will be in addition to sales target of 160 machines from the existing DEC range - it takes everything from the MicroVAX II to the VAX 8800; it is thrilled that the new machines offer three times the processing speed and twice the memory capacity of MicroVAX II, and plans to offer them for applications such as computer-aided engineering, and for exercises in graphics and image processing.

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Having reviewed its worldwide operations in the wake of the **Fairchild Semiconductor** acquisition, **National Semiconductor Corp** has come to the point where it has to make hard decisions on what is duplicated: it now reckons that it will have to shed about 400 people from its worldwide workforce, affecting all levels of employees in the field sales operations of both companies and the Cupertino headquarters of Fairchild and its Microcomputer Products arm in Portland, Oregon.

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Compaq Computer Corp has reported third quarter net profits up 319% at $36.4m after an extraordinary gain of $3m on its Conner Peripherals shares, on turnover that soared 113% at $313.5m; nine- month net profits climbed 227% to $87.3m on turnover up 80.6% at $791.9m. Net per share rose 236% to $0.94 in the quarter, 169% to $2.29 in the nine months.

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Gould Inc has reported a third quarter net loss of $300,000, after an extraordinary charge of $3.3m from the reversal of tax-loss carry-forward and a loss through discontinued operations of $1.8m, compared with a profit last time of $4.3m, on turnover up 1.3% at $230.4m; there was a nine-month net profit of $10.8m, after a tax credit of $100,000 and a loss through discontinued operations of $5.6m, compared with a loss last time of $106.4m, on turnover that rose 1.3% to $690.5m.

Sun Microsystems Inc and **Apollo Computer Inc** dog each other's footsteps at every turn, so despite the wide availability of attractive reduced instruction set microprocessors off the shelf, it should not come as any surprise that the soon- to-be-announced RISC box from Apollo uses a chip of its own design.

- o -

Pyramid Technology saw a fourth quarter net profit of $1.0m, after a tax credit of $475,000, compared with a loss last time of $1.9m, on turnover up 43.3% at $15.8m; net profit for the year to September 30 was $1.9m, after a tax credit of $799,000, compared with a loss last time of $1.7m, on turnover that rose 24.1% to $54.1m. Net earnings per share were $0.12 in the quarter, $0.22 in the year.

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Sequent Computer Systems has reported third quarter net profits up 305.9% at $816,000, after a tax credit of $194,000, on turnover up 75.2% at $9.8m; there was a nine- month net profit of $2.9m, after a tax credit of $691,000, compared with a loss last time of $1.5m, on turnover that rose 106.4% at $26.4m. Net earnings per share rose 150% to $0.10 in the quarter and was $0.40 in the nine months.

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Nisshin Electric Co and **ASR Corp** have developed the Kurama range of 32-bit 3 MIPS industrial computers, which are real-time Unix machines that run either the VX Work Unix-compatible real-time operating system or BSD 4.2 Unix: the Kurama uses a MC68020 with MC68881 arithmetic co-processor, uses the VMEbus, sells for $32,000, and the partners are looking to sell 100 in the first year.

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The move by **Kubota Steel** to take a 20% stake in the venture capital company **MIPS Computer Systems Inc**, Sunnyvale, California follows an agreement last year with start-up **Dana Computer Corp** on the Titan range of high-performance workstations for scientific and technical processing; the MIPS machines are to be manufactured in the same factory in Yamanashi prefecture where the Titan range is already being manufactured.

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IBM PREPARES AIX/370 TO RUN NATIVE ON 3090s, 9370s

IBM is reportedly nearly ready to take on Amdahl Corp head-to- head in mainframe Unix with a new AIX/370 that runs native on 370-type mainframes: its present implementation, IX/370, runs only under VM, and requires a Series 1 minicomputer front-end in order support the necessary ASCII terminals. Speaking at Stockholm's Uniforum last week Larry Loucks, a senior technical staff member with IBM's Advanced Engineering Systems in Austin, Texas said that the new implementation of Unix System V is up and running internally but the only hint on a date is that it will be available "one day". The implementation has been developed by IBM's big Unix team in Austin, Texas without outside help. It will be compatible with a new release of AIX for the RT Personal and the AIX for the Personal System/2 Model 80 - and will be brought into the Systems Applications Architecture fold. The new implementation will supersede IX/370, which was developed with the help of Interactive Systems Corp, Santa Monica, and IBM is thought to be pressing ahead with it - announcement is expected by the first quarter of next year - because so many government contracts, not only in the US but particularly in Scandinavia, now specify Unix. As a footnote to its UK OS/2 announcements, IBM previewed a version of its AIX Unix for up to 16 users on the Personal System/2 Model 80. IBM will be offering support and technical seminars for Unix developers wishing to port programs on to the Model 80 or the RT 6150, which also runs AIX. AIX PS/2 will be available in the third quarter 1988 and will cost £459.

MASSCOMP TO OFFER REAL-TIME UNIX TO JAPAN

Before the end of the year, the Japanese subsidiary of MassComp, Massachusetts Computer Corp, Westford, will begin technology transfer of its high-speed - it's claimed to be five times as fast as previous implementations - real- time implementation of Unix to Japanese manufacturers. Nippon MassComp will be offering its Motorola 68030-based boards with the real-time Unix on them and will also make the specs available to other manufacturers, with a view to expanding the market.

FLOATING POINT PUTS ULTRIX ON T MARK II

Unix is quietly becoming the essential operating system in the supercomputer world, and with Cray Research offering it on the Cray 2 and ETA Systems on the ETA-10, competitors can no longer afford to be without it. Latest to succumb is Floating Point Systems Inc, which has come out with a second generation of its T Series of parallel processors, which are based on the Inmos Transputer and the Weitek floating point arithmetic chip set - and as well as upgrading the hardware, the Beaverton, Oregon company has added support for DEC's Ultrix implementation of Berkeley Unix, and for Fortran as well as C and the proprietary Occam language written for the Transputer. The lack of ready- made applications has greatly handicapped the machine's commercial performance, and according to Electronic News, only 12 systems, worth about $15m, have been sold worldwide. The machines are controlled by DEC MicroVAX II front-ends, and Floating Point will now migrate applications to Ultrix, and C, Fortran and Ultrix will be integral parts of all future T Series machines shipped. On the hardware front, in the T Mark II Floating Point has upgraded to the T800 Transputer from the T414, and vector processing speeds are 30% faster. Each node will now have 4Mb memory, up from 1Mb. Boards swaps will be needed to upgrade existing machines, and will cost $120,000 for a 16-node configuration. The new Mark II version is rated at 288 MFLOPS for a 16-node system, which costs $720,000, up to 18 G-FLOPS with the maximum 1,024-node configuration, which will cost $26m.

DHSS TAKES BT MICROS FOR 450 LOCAL OFFICES

British Telecom has been quietly completing a major contract for the supply of its Merlin 6000 Unix machines for the Department of Health and Social Security's Local Office Management Project, which will put microcomputers into each of the 450 DHSS local offices by April 1988. BT is not revealing the details yet, but software house Dataflex says that it has sold in excess of 3,000 multi-user licences covering both new 6000 machines and the older Merlin 4000s running Concurrent Dos, which the DHSS already own. The project, which is distinct from the ICL mainframe-based Local Office Project that is establishing a central information store from Newcastle-upon-Tyne, aims to keep track of the individual files of claiments as they progress through various DHSS departments towards payment of benefits. The DHSS will carry out software development on the Merlin 6000s via an unnamed contractor, using the Dataflex application generator, which replaced the originally specified Cobol language.

CONVEX SETS CONVEX-2

Minisupercomputer pioneer Convex Computer Corp says that it will unveil the Convex-2 vector and parallel processor early next year, offering 4M- to 30M-FLOPS at $200,000 to $1m, and full C-1 compatibility.

NORSK DEFENCE CONTRACT BID FOILED BY SECURITY FEATURES

In the final stages of securing the contract for the Swedish department of defence Norsk Data suffered a set back by the department suddenly demanding security features that had not originally been set. According to Norsk the contract was drawn up for Norsk in Norway to be the sole supplier to the defence department and they had in fact signed it before it was frozen. The company adds that no other company can bid on the contract at this stage and the security features needed, such as ruggedising, offer no problems and it expects to have the contract signed by the deaprtment within the next week.

GLAMOROUS COMDEX PRODUCES A HOST OF UNIX-BASED PCs

They don't believe in road drainage in Las Vegas - so when half of the annual average rainfall of 4 inches fell during Comdex '87 the roads turned into rivers and the normally blue skies were an impenetrable grey: this at least saved IBM's marketing department a bit of money - and when the sun finally came out on the shows third day, IBM had five jets circling the city to write out in precision IBM script "thanks a milllion", its slogan of the moment. Meanwhile an erstwhile competitor only had the budget for one jet, which scrawled out in a huge childlike hand the word "super" before the pilot got either too dizzy to carry on or just ran out of smoke!

ATARI BIDS TO BE TAKEN SERIOUSLY

Although Atari says the games market is comoing back into fashion, its main focus at Comdex was to business, desktop publishing and scientific customers. While expanding its range of PC compatibles to include the 80286 PC4, and pre-announcing the 80386-based PC% for the first quarter of next year, Atari was insisting that its main loyalties lie with the 68000 line. The high memory capabilities of the 68010 based ST Mega lines can now be used with a Unix-like operating system, IDRIS from Whitesmiths, which VP of Development Telford Sartell insisted " was not the product the Unix market wuold have been aware of three years ago". IDRIS is Unix compatible with the 1984 /usr/group standard, and apparently continues to track System V and Posix developments, while requiring smaller memory requirements. Atari says that the main reason for choosing IDRIS is because the ST Mega lacks support for sophisticated memory management - this objection will go away once the company launches a proposed 68030 version of the machine some time in 1988 - and though the company wasn't saying it is understood that a full Unix version is the most likely software for the next generation machines. Software announced at the launch included word-processing packages from Lex and Tigera, Ficor's Autograph business graphics and networking software from Fusion and Moses Computers, as well as the Crystalwriter document management system from Syntactics - all Unix applications ported over a short time scale, according to Atari. The ST Mega acts as the input/output device for Atari's prototype ABAQ workstation, which is based on the INMOS T-800 transputer and uses another Unix-like operating system, Helios, which was designed for the machine by UK-based Perihellion Software Ltd, for multi-processor operations. By using RISC architecture and parallel processing low-cost configurations of up to 100 MIPS performance are possible, according to Atari president, Sam Tramiel - up to three cards with four T-800 processors, each operating at 10- 12 MIPS each, can be added. A C compiler for the Transputer has been developed and Fortran, Pascal, BCPL, Lisp and Occam are also supported. C libraries and a Unix command subset are also included. One early application for the work- station is Geographic's "desktop typesetting" system, which offers professional WYSIWIG typesetting facilities from the screen.

TANDY REPLACES 68000 WITH 80386-BASED PC

Tandy has launched its Intel 80386 4000 Series personal computer and says that it will market the boxes in preference to its current Tandy 6000, which use the Motorola 68000 processor and lead the market for multi-user PCs in the USA, according to Tandy. The new machines will use SCO Xenix 386 and will be sold through Tandy's 375 business stores throughout America, and through its direct sales force of 1200. The 4000 runs at 16 MHz and supports up to 33 users and will sell for around $2,500, slightly more than the 6000, which will continue to be supported. SCO Xenix is also available for the 80286 Tandy 3000 computers, but Howard Elias of Tandy did not anticipate demand for multi-user configuration of this machine. Tandy's European business was spun off as a separate company, Intatan, at the beginning of the year and SCO says it is currently holding talks with that company with regard to European distribution.

FIFTH FORCE INTEGRATES UNIX AND DOS

Fifth Force was differentiating what was basically a standard 80386 based offering by packaging the system with firmware and software allowing the transparent transfer of data files between DOS and Unix and vice-versa. Fifth Force manufactures 80286 and 80386 machines through its Silver Dollars International parent company and has added software through a partnership with Decathlon Data Systems, which also provides integrated office automation software for the sytem, likely to sell for around $9,000. OEM deals are in the pipeline with companies from the UK, Germany and Switzerland, according to Sales and Marketing VP Karl Schlicht.

COMDEX WITNESSES 80386 EXPLOSION

Confusion reigned amongst customers and observers walking around the estimated 15 miles of aisles spread over seven hotel sites at Comdex Fall this year - at least 20 companies and probably more, were showing newly released 80386-based computers, many with little to distiguish them from the competition. Machines from 3Com, Acer, ARC, AST, Cordata, Computer Components, PCs Ltd, Dale, Fortron, HK Ammtek and IDS (to name a few) vied with offerings from the larger companies such as Altos, NCR, Tandy, Texas Instruments and Unisys. Jeff Grammer from Chipsand Technologies estimated that excluding Compaq and IBM, 50% of the companies were using its chipset. "Most companies are now introducing 20 MHz technology, more suitable for file server applications than as PCs", he said, and most are using software or other added value to sell products". A spokesman from Compaq however, first out with an 80386 machine earlier this year, doubted that companies would be able to deliver machines, given the continuing shortage of processors from Intel. "Compaq is supplying machines up to the limit of its allocation", he said. Meanwhile, Motorola Computer Systems, irked that it was not the first to announce products based on the new 68030 processor, officially launched in California last week, said that it would be the first to ship board level products this month.

ICON CONNECTS UNIX, PICK, AND DOS

Whilst parent company Sanyo Business Corp struggled to introduce a family of PC compatibles, including a laptop and the new 18+ 80386-based PC, at a very confused press launch during Comdex, Icon International, which is now 65% owned by Sanyo, was quietly demonstrating the minicomputer range by which Sanyo hopes to break into departmental computing. Icon's MPS020, originally launched last year, was re-introduced as the Icon 2000, and two more members of the family, the 3000 and 4000, were added. The architecture of the machines use multiple microprocessors in parallel, and the operating system allows Unix, Pick, and DOS to run concurrently (only Pick and MS-DOS were supported in the original machine). The company claims that the architecture, featuring three processing subsystems (main cpu, disk cache processor, and peripheral communications processor) running in parallel, provides high performance advantages over von-Neumann architecture machines. The family uses 68020 processors and an Intel 80286 for MS-DOS applications. The machine can also act as file server for pcs used as terminals, diskless workstations or nodes on a network through its shared memory interconnect card. The Icon 2000 supports 16 users and costs $15,000; the 3000 (64 users) costs $30,000, and the top-end 4000 (128 users) costs $55,000. All systems support Unix V.2, Pick, and MS-DOS through Icon's proprietary operating system kernel Icon/OS, which provides a common interface, file structure, and input and output device drivers. This allows the simultaneous connection of PCs, minis, and mainframes running the three operating systems, integrating applications software and other computing resources, said the company. Both Sanyo and Icon will be marketing the systems in the States, and Sanyo is also looking to the European markets.

HINDUSTAN COMPUTERS TO ASSEMBLE APOLLO SERIES 3000

Apollo Computer Inc has signed an agreement allowing Hindustan Computers Ltd to assemble the 68020-based Domain Series 3000 workstations at its factory near New Delhi for the Indian market. Assembly will start in January 1988; the workstations will be the first to be made in India. They will be pitched at education and research, manufacturing and other industrial users, and as a development platform for India's strategic artificial intelligence and image processing projects.

SUN MOVES TO SET UP VALUE-ADDED RESELLER NETWORK

Insatiably hungry Sun Microsystems Inc is moving to win for itself even more sales opportunities with launch in the US of a value-added reseller programme which will be reflected internationally later. Sun is looking for companies capable of adding value to its stations and reselling them into the computer-aided design, computer-aided software engineering, computer-integrated manufacturing and computer-aided publishing. It also hopes to move into commercial applications not yet served by its stations. Separately the company also plans a Sun Sweden in Stockholm by January 1. L M Ericsson has been its main representative there, and will continue to serve Swedish government markets.

NCR SETS OPENS SYSTEMS COMMUNICATIONS STRATEGY FOR THE TOWER

NCR has announced compatibility with IBM LU 6.2 and Advanced Program to Program Communications, APPC, on its Unix-based Tower systems for transaction processing. The Tower can also now co-exist with DisOSS with a product called Document Exchange D, compatible with IBM's DIA, and NetBIOS for communications with personal computers on a local area network. The company will release an X400 package by the end of 1987 and an FTAM, file transfer and access method, package early in 1988. NCR's APPC offers peer level communications between Tower systems over an SNA network for £1,635. In addition a PU2.1 physical unit connection provides for peer-to-peer links over SNA/SDLC nets at £1,270. The DIA DisOSS-compatible product is £1,170. NCR has also released Innovative Software's Smart office automation pack, which now runs under Unix as well as PC-DOS and includes support for asynchronous services such as electronic document transfer, auto-dial, auto-answer and log on. Smart costs around £700 for Personalike versions and some £1,600 for Unix versions.

GOULD ADDS VAX EMULATION FROM BOSTON BUSINESS

Gould Computer Systems has picked up the useful Unix packages from Boston Business Computing Ltd that emulate key features of DEC's VAX/ VMS operating system, and is offering them under its UTX/32 implementation of Unix for its PowerNode and NPL series of superminis, minis and micros. UTX/EDT emulates the EDT editor and UTX/VCL emulates the Digital Command Language of DEC's VMS, to give a VMS user interface.

ALTOS SERIES 1000 MERGE UNIX/XENIX

Altos has chosen the latest model in its 386 Series microcomputers as the platform for its new operating system, a merged version of Unix/Xenix. Altos has been working on the merge, called Unix/386, over the last few months, and reportedly contributed its code to Interactive and Microsoft back in August (UX 143), who are working to establish a Unix V implementation that offers binary compatibility with Xenix applications running on 80386-based machines. Altos' own version will be offered initally on the Series 1000 is available in four 80387 co-processor support, 2Mb main memory, 32K cache memory, and 80186 I/O controller. Also included are SCSI hard disk drive, floppy drive, 8 RS232 ports and terminal. Different configurations vary the RAM and hard disk capacity. The machine supports from 2-24 users, and in the US will be priced from $7,000 to $13,000: Altos UK expects to release the machine early in 1988. Back in the States, Altos says it will implement the new merged operating system on the Series 2000 micro early next year, when an additional top-end multiprocessor, the Series 3000, should also be revealed (UK 141).

NO PS/2 CLONES YET, BUT MANUFACTURERS WAIT IN THE WINGS

Although analysts expecting to see the first PS/2 clones at Comdex this year were to be disappointed, evidence of the new burst of clone fever was evrywhere, and not to be dampened by IBM's renewed cry that it wanted a good return on its investement in the PS/2 and would under no circumstances licence its technology. Most of the myriad of 80306 boxes shown at Comdex claimed to be "OS/2 ready": AST Research Inc of Irvine, California went one stage further with its Premium/386, which has an advanced arbitrated architecture that AST claims "gives users the multitasking benefits of IBM's Micro Channel architecture while maintaining compatibility with AT class hardware and software". The bus can accomodate multiple, intelligent co-processors for graphics, communications, and disk control. However for those who wish to get closer to the real thing, San Jose-based Chips nd Technologies were showing VLSI components that claim to achieve "a 100-percent interface" to the Micro Channel Bus of the PS/2. The new MicroChips family should allow manufacturers of bus compatible boards to bring Micro Channel add-in boards to the market, as an alternative to developing their own ASIC chips. The company also revealed that it would be introducing full chipsets for the Model 50 and 60 in January 1988. A spokesman from Chips and Technologies said that he was confident that licencing arrangements between IBM and potential clone makers would be sorted out over the next few months. So watch out at Comdex/Spring.

MICRO FOCUS EXTENDS COBOL CO-WRITER TO C-DOS, XENIX

Micro Focus Plc has extended its MS-DOS Co- Writer, which generates reports from applications written in its Level II Cobol, Professional Cobol or with Sourcewriter, to the Digital Research C-DOS and Concurrent CP/M operating systems, and to Altos Computer's Xenix, with the promise that OS/2 and other versions of Xenix will soon be supported. Co-Writer uses Cobol's own file structures to access miscellaneous data directly and extract it on demand, and uses a menu system to obviate the need for any knowledge of Cobol on the part of the user. It consists of Co-Writer Report and Co-Writer System Builder, the latter used to create the data dictionary needed to incorporate Co- Writer features into existing and future products. It is £495.

"100 TIMES TODAY's CRAY" PLAN BY CHEN's NEW COMPANY

Steve Chen's new Supercomputer Systems Inc in Eau Claire, Wisconsin, has lifted the veil a little on its plans, saying that the first computer from the company, set for the early 1990s, will be 100 times faster than today's fastest machines. "These systems will set the new standard in high-performance computing and help to sustain the US lead in science, engineering and applied technologies," it said. Although Chen left Cray Research with personal, non-exclusive licences to technical developments he achieved at Cray, the new firm says it will not be using that technology. The 45- employee firm will announce details of its financing later; $100m is expected to be needed.

CIMATRON PORTS TO SUN - CAD/CAM FUTURE IN WORKSTATIONS

In a bid to get its MultiCADD/MultiCAM software more widely accepted Cimatron CAD/CAM Systems has ported its products to the Sun-3 workstations. Cimatron of Colorado Springs is exhibiting a beta version of the software at Autofact, a CAD/CAM industry trade show in progress this week in Detroit. The final product release on Sun workstations is planned for the first quarter of 1988. "Our decision to port our software to the Sun-3 workstations reflects the continued commitment Cimatron CAD/CAM Systems has to the workstation market," said Tom Rafferty, Cimatron CAD/CAM Systems president. "There is little question that the future of the CAD/CAM market lies with the workstation". The MultiCADD/MultiCAM software products ported to Sun-3 workstations will be implemented across all hardware platforms, Rafferty said. Sun is the third workstation vendor to receive the ported Cimatron CAD/CAM Systems software, along with DEC and Apollo.

INFORMIX USES P-CODE TO REDUCE DATABASE APPLICATION DEVELOPMENT TIME

Informix Software Inc last week introduced Informix-4GL Rapid Development System, which the company claims eliminates the need for a C linker and C compiler, dramatically reducing database application development time. The company also introduced Informix- 4GL Interactive Debugger, a source code level debugger that allows developers to animate and debug applications built with Informix- 4GL Rapid Development System. Informix says that the Rapid Development System reduces application development time by quickly compiling 4GL code into Informix's proprietary "p-code", or psuedo code. The p- code runner, a module included in the product, can then be used to run the p-code. Informix 4-GL Rapid Development System supports the same features included in Informix 4-GL such as: windows, color, multiple-page menus, a variety of screen- handling commands, report writing, audit trails and command line syntax. Informix-4GL Interactive Debugger allows Informix-4GL Rapid Development System developers to perfcrm debugging operations interactively within a running program. The debugger uses "hot keys" to allow a programmer to switch between the running program and a windowed screen that provides an "x-ray vision" view into the running program. The "x-ray vision" view displays both a source code window and a command window for setting break points, printing variables and stepping through program execution. Informix-4GL Interactive Debugger eliminates the need to add debugging statements to 4GL programs and allows the developer to work interactively with the Informix 4-GL Rapid Development System "p- code" system. Informix says that its Rapid Development System eliminates the need for a C compiler license and speeds compilation and linking by at least a factor of 10. Both new products are compatible across the entire Informix product line and are currently available under Unix but DOS and VMS versions will be released in early 1988. Pricing for Informix-4GL Rapid Development System starts at $1,800 and the Interactive Debugger starts at $1,200.

APOLLO SIGNS UP CAD/CAM VENDORS

Apollo last week announced a $6 million agreement with Manufacturing and Consulting Services Inc (MCS), a supplier of computer- aided design and drafting/computer-aided manufacturing (CADD/CAM) products, as well as the availability of two new mechanical computer-aided engineering and design (MCAE/MCAD) software packages. The packages include Cognition Inc's Cost and Manufacturability Guide (CMG) and Parametric Technology Corp's ProEngineer. Under terms of its one-year systems integrator agreement with Apollo, MCS will sell Apollo workstations as turnkey solutions based on MCS's ANVIL-5000 CADD/CAM system. These integrated systems will be supported by both MCS and Apollo. ANVIL-5000, when combined with Apollo's advanced workstation graphics and networking capabilities, offers mechanical engineers a system optimized for 3-D wireframe, surface and solids modeling, finite element modeling, drafting, and automated manufacturing. These systems, which can be based on Apollo's full line of workstations, are available immediately in a variety of configurations.

USE OF CARNEGIE MELLON's MACH UNIX OPENS UP BBN's BUTTERFLY PARALLEL PROCESSOR

For those who get a kick out of ingenious applications of unproven but promising new technologies, the new Butterfly machines from Bolt Beranek & Newman Inc's BBN Advanced Computers limited partnership (UX No 153) must be the most exciting announcement in many a long day. The key feature of the new machines is that they combine the unfamiliar - massively parallel processing - with the familiar - the Unix or p-S0S operating systems and the 68020 microprocessor. That seems to justify the company's claim that the Butterfly GP1000 Unix-based system, is the most usable, large-scale parallel processor available - for applications such as production scheduling, circuit simulation and advanced decision support systems. The Cambridge, Massachusetts company suggests that the GP1000 is especially appropriate for a distributed workstation environment where application developers want to port standard Fortran 77 and C applications to a higher performance system.

True Multiprocessor OS

The Butterfly GP1000 uses Mach 1000, an enhanced version of the multiprocessor Berkeley Unix 4.3BSD, written at Carnegie Mellon University. Mach 1000 offers enhances 4.3BSD Unix by offering higher-performance virtual memory and optimised interprocessor communication via shared memory. Described as a true multiprocessor operating system, Mach 1000 includes full TCP/IP networking support and network-transparent message passing. It also provides a Unix command set, a variety of command interpreters and support for numerous terminal types. It enables users to create processes or allocate memory on specific processors, and dictate how many of the - maximum 250 - processors to use for a given application. With Mach 1000, sets of processor nodes can be designated as time- shared or dedicated to high-performance tasks. The latter allows processors to execute at full speed without interference. It has also been tailored to the Butterfly GP1000 with automatic operations for maximum application performance, X Window support and support for the Math Advantage mathematics library and the Uniform System application library, designed to facilitate parallel programming. The GP1000 can be programmed in C, Fortran 77, Lisp, and will also support Ada and XMP optimisation software from Resource Management Systems Inc. Compared with the original Butterfly, the GP1000 adds a standard disk file system; the ability to edit, compile, load and run, all on the same system; support for direct connection of many terminals to the system; the ability to exchange information via cartridge or nine- track magnetic tape; and the ability to program without concern for the size of physical memory. A 30-CPU GP1000 with 120Mb main memory, 1.4Gb of disk storage, tape back-up and software will be under $500,000, with first ships in March.

TWO NEW Cs FROM MICROSOFT

Microsoft Corp of Redmond, Washington, is shipping new versions of its two C compilers, QuickC and C Optimising Compiler 5.0. QuickC is for fast compilation and debugging from an integrated environment. C 5.0 includes QuickC and offers fast execution speed and more comprehensive debugging. The languages are inter-callable and can be used together, so there are discounts of $30 when any two, or $50 any three of the new compilers and QuickBasic 4.0, Macro Assembler 5.0, are bought together before January 31 in the US. QuickC retails for $99 while Microsoft C 5.0 costs $450.

CO-PROCESSOR BOARD MANUFACTURERS RE-UNITE AS COMPUTONE SYSTEMS

Intelligent multi-user board specialist Computone Systems Inc has signed an agreement to acquire by merger Intellicom Corp through an exchange of common stock. Computone's principal product is the ATvantage series of boards which can support up to 32-users when fitted into an IBM PC AT. Intellicom was formed as a breakaway company in 1986 and its return makes the company the largest serial I/O board manufacturer in the US. The two product line are compatible and combine into a broad range, say the company. It says that future products will allow the clustering of up to 64 terminals onto a 386 box, and that boards will soon be available for the IBM PS/2 and RT ranges. In the UK Computone products are distributed by Tetra's Tamarisk division.

REXON RETURNS TO ITS ROOTS WITH NEW SUMMIT BUSINESS COMPUTER MODELS

Rexon Inc is a very different company these days from the firm Ben Wang founded with the cash he got from selling his Wangco tape drive firm to Perkin-Elmer in the mid-1970s. His first machine was based on the Intel 8086, which was then so new that there were no off-the-shelf operating systems for it, and Rexon had to write its own - a multi-user executive for small business users. Today that company is now just the Business Machines division of Rexon Inc, now a $100m- a-year company, which also takes in Wangtek - created by Ben Wang as a subsidiary - and Teemar, acquired about a year ago. But Rexon has gone back to its roots to introduce a mid-range addition to its Summit series of multi-user systems. The Summit 2000 bridges the gap between the 16-user 80286-based Summit 2000 and the high-end Summit 4000, also recently introduced: it has an AT bus and can run Xenix, Pick or Business Basic operating systems, for up to 32 users. The Summit 4000 has a dual-bus architecture, with both 32-bit VME and 16-bit IBM AT data buses and an 80386 CPU - it can support up to 128 users. A future release will include multiple 80386 machines. Rexon says that it does up to a third of its business in Europe, and has an office in Versailles, from which it has completed 2,500 installations through dealers and distributors. Only 10% of these are currently Xenix but it says the percentage is growing.

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Minigrams

You won't catch **Motorola Inc** saying anything on the record about any 68040 microprocessor, but there are no such inhibitions at **Motorola Japan**: talking of a 25MHz 68030 in the second and a 30MHz version in the fourth quarter of 1988, the Japanese subsidiary says that it is designing the 68040, due to be ready in a couple of years; Motorola is of course now **ascloseasthis to Toshiba Corp** on microprocessors and memory chips, and Japanese impatience to push back the frontiers of technology as soon as it is possible to do so, rather than wait until the market is clearly ready and the cost of the previous generation is fully and generously amortised, is likely to lead to growing pressure on Motorola to bring new parts forward faster than it would wish.

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Separately **Motorola Inc** reckons that a machine could be built around the new 68030 for as little as $2,000, and according to the **Newsbytes** wire, **Apple Computer Inc's John Sculley** has promised that there will be a Macintosh based on the 68030 in 1988 or 1989: "we're not coming out with it immediately because we can't get enough of them," explains Sculley; observers say the 68030-based Mac would probably have 2Mb to 4Mb of RAM, 40Mb or more of disk, and a larger, higher resolution screen.

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Apple Computer UK Ltd has cut prices on most of its **Macintosh** products, with a II with single 800Kb floppy falling 10.6% to £3,365, and a II with 40Mb hard disk and colour reduced 5% to £5,695; the **Macintosh SE** with twin 800Kb floppies is off 12% to £2,195, 9.4% with 20Mb hard disk, and the Macintosh Plus is down by 10% to £1,795; there is still no word of the MultiFinder multi-tasking operating system, which was announced in September.

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NCR Corp's OEM Systems Division has announced a referral arrangement with **Sound Business Investment Inc** for its conversion tool U-BASIC.

Compaq Computer Corp reportedly had a prototype of a machine based on **Intel's** next generation 80486 microprocessor at the **Comdex Fall** show in Las Vegas last week: according to **Newsbytes**, it will be behind a curtain, or in what it quaintly calls Compaq's "hostility suite" away from the show floor.

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Also at Comdex/Fall **Unisys Corp** announced a line of Personal Workstation/2s, claimed to be compatible with IBM's Personal System/2 line, and headlined by an 80386 box from Multitech Electronics of Taiwan, supported by two 80286 models: the machines replace the first generation Sperry Personal Computers that were sourced from Mitsubishi Electric; the Japanese company now sells direct in the US.

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Atari Corp has reported third quarter net profits up 8.9% at $9.9m after tax credits of $1.6m this time and $4.5m last, on turnover that rose 34.2% at $80.4m; nine month net profit rose 57.7% to $13.3m after tax credits of $38.7m this time and $21.5m last, on turnover that rose 30.7% at $216.2m. Net earnings per share, adjusted for a two-for-one split in June, fell 19% to $0.17 in the quarter, and rose 39% to $0.67 in the three quarters.

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Mitsubishi Electric has developed MR32, a real-time implementation of the I-Tron - I for Industrial - operating system for 32-bit microprocessors: it is claimed to confrom fully to the I-Tron specifications for the chip nucleus, input-output drivers and debugging processor and will initially be offered for National Semiconductor's NS32000 family of microprocessors, but will later be implemented for Mitsubishi's own Tron chip; the company is looking for a wide range of applications to be converted because it is designed for portability and modularity and supports C.

Apollo grudgingly invited its rival **Sun Microsystems** to join the Apollo-inspired Network Computing Forum and now Sun will host the group's next meeting.

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And **Apollo** has lost its former vice president of marketing to **Sun**: Edward Zander resigned from Apollo last month after five years at the company and now takes up a similar position at Sun's Mountain View, California headquarters.

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Multiflow Computer Inc, Branford, Connecticut has opened five additional US sales offices for its Trace family of very long instruction word supercomputers: a Federal Systems Group based in Rockville, Maryland, will chase the US government and there are regional offices in Chicago; Huntsville, Alabama; Newark, New Jersey; and Phoenix, Arizona, bringing the total to 12.

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Kalamazoo Plc has formed a new division to act as a software house for the **Unisys** user base: the company will provide bespoke software services for companies using Pick, Linc, Unix and Mapper.

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Datavision is set to launch dataVISION Basic which the company claims will be one of the first Unix-based languages to comply with new ANSI X3.113-1987 standard for Basic.

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Unisys has been awarded a contract by the **US Department of Defence**, valued at around $280m, to supply up to 5,000 micros with all additional peripherals: Unisys will be provided with workstations from **Sun Microsystems** for the contract.

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Sabre Computing has won an order from the **C Brown Steel Group**, worth £100,000, for its Stockholder computer package which will run on a **Convergent Technologies** S/320 machine: this system replaces a Systime 5000.

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OLIVETTI TO LAUNCH NEW TP SYSTEMS THIS WEEK

Olivetti Group Chairman Carlo de Benedetti will be over in the UK this week along with other top Olivetti executives to take part in an international conference, where the company is expected to reveal details of an "open systems architecture" strategy, which will include the announcement of a broad range of new hardware, networks, and services. Seven new machines in the minicomputer range are likely to be launched, and are expected to include at least two from Edge Computer, Scotsdale, Arizona (UX No 143). These are thought to be replacements for the Zilog Z8000-based Linea Uno transaction processing systems unveiled in 1982, and should run Unix as a separately hosted operating system, although the original MOS operating system will also be offered. Pick is unlikely to figure in the announcements, despite Edge offering it on their own machines. Sources suggest that the new machines will add to rather than supplant AT&T's 3B minicomputers, but the introduction must put a question mark over whether or not Olivetti takes on AT&T's recently launched 3B/4000, also aimed at the transaction processing market.

MOVES INTO SUPERCOMPUTERS WITH MULTIFLOW SALES PACT

Ing C Olivetti SpA is moving into the parallel processing supercomputer market following an exclusive agreement with Branford, Connecticut-based Multiflow Computer Inc, under which Olivetti will market the Trace very long instruction word machines throughout Western Europe apart from West Germany and France. Nothing has been announced for France, but GEI was last month appointed exclusive West German distributor of the Traces.

AS MSC PICKS THE ITALIAN FOR 10,000 TERMINAL PROJECT

The Manpower Services Commission has picked Olivetti for a pilot project that could lead to an MSC- wide OA system supporting up to 10,000 terminals. Olivetti, bidding 3B2 Unix machines and PCs with Quadatron's Q-Office software, won the contract for the pilot over NCR and ICL, which bid Clan Unix and DOS machines with Officepower . The two initial installations in Sheffield and London will handle up to 128 and eight users respectively; depending on the success of the pilot phase, the MSC plans to expand the system to thousands of users over several years.

NCR EXTENDS TOWER UNIX WITH REAL-TIME TRANSACTION SUITE

Bringing to the generality of its Unix users the benefit of work it it is believed to have done for some banks NCR Corp will be adding a suite of real-time transaction processing modules to the Tower implementation of Unix System V February next year. The General Purpose Transaction Facility compromises neither portability of time-sharing applications nor upgradability of systems, NCR insists. The modules merely enhance System V without altering it, enabling Towers to respond to a request in under 17mS. A suite of utilities and procedures, General Purpose Transaction Facility enables the Towers to support real- time and transaction processing applications and to speed the process of CPU resource allocation. It eliminates pagination for processes declared resident, manages shared memory with high-speed semaphores, and sets priorities for disk accesses as well as improving inter-process communications by means of specialised message transfer files. With the NCR extension, the system can be tuned to give priority to critical parts of the application - clearly an essential capability when the machines are used to support a network of banking or point-of-sale terminals. It requires version 1.03 of Unix for the Tower, and a 32/400 or 32/600 processor.

2nd GENERATION INTERGRAPH CLIPPER SET CLOCKS 50MHz

The second generation of the Clipper 32-bit chip set, clocked at up to 50MHz, was announced by its proud new owner, Intergraph Corp, this week. Offering more than twice the performance of the C100, the new C300 is implemented on a 3" by 4.5" module that the Huntsville, Alabama company has an effective performance comparable with a VAX 8800 - around 13 times a VAX- 11/780. The C300 module comprises three chips - the CPU with integral IEEE-standard floating-point unit, and two cache-plus-memory- management units, one for instructions, one for data. The C300 has the same instruction set and is pin-compatible with the C100, the main enhancements coming in the pipeline, enabling several instructions to execute in fewer clock cycles, and from an improved floating-point unit, which result in a two-to-three-fold improvement in floating-point performance. The faster clock rate - 50MHz against 33MHz - is made possible by the use of higher density CMOS. It also has a new clock design that enables multiple Clippers to be configured more easily into multiprocessor systems without the need to use any additional clock synchronisation hardware. Sample Clipper C300 modules will be available in the second quarter 1988.

INTEL LIFTS VEIL ON PLANS FOR 1m TRANSISTOR 80486 IN 1989

Intel Corp has been lifting the veil a little on the 80486 microprocessor that will follow on from the 80386. Integrating 1m transistors and planned to begin shipping in 1989, the chip is being designed to deliver mainframe performance in multi-processor configurations while retaining binary compatibility with the 80386. In particular, the designers are looking for three to four times the integer and floating point performance of the 80386. Previously, the company has said that the 80486 was being designed in part to process artificial intelligence applications efficiently. The company also came close to confirming reports that it will shortly introduce an "80388", a 16-bit bus version of the 80386 which will be able to use cheaper 16-bit support chips and will enable designers to do low-end pseudo-32-bit workstations for under $1,000. It also promises 25MHz and 30MHz 80386s. In the meantime, Intel hopes to ship 2m 80386s next year, up from about 750,000 this year, and claims over 400 design wins for the part, for which demand still outstrips supply. If there is a cloud on the Intel horizon, it is NEC Corp's V70 part and its follow- ons, which are upwards-compatible with the 8086: the policy of not appointing a second source for the 80386 to increase supply has alienated many of Intel's smaller customers, and if Intel does not quickly get supply of parts into balance with demand, some of those disaffected customers will make prime sales targets for NEC.

X/OPEN - THIRD PORTABILITY GUIDE DUE SECOND QUARTER 1988

Speaking at Stockholm's Uniforum conference Mike Lambert, no longer an ICL employee but the full time Technical vice president of X/Open, anticipated that a portability guide covering all aspects of data management, distributed systems and high level languages would be completed during the early part of 1989. However, those expecting guaranteed applications portability as a result might remember that the eleven members of this group, whose intent is to promote software portability, only have to have one system each amongst their entire product line that conforms to the Portability Guide and that doesn't even need to have shipped. Nevertheless, X/Open is pressing on with covering further areas and assuming that POSIX becomes an IEEE standard on schedule, expects to bring out the third edition of the Guide second quarter 1988. Lambert outlined some of the latest progress; AT&T is said to be close to shipping C-ISAM, which the Group adopted as the basis of the X/Open data management C language interface, and compliant ISAM's are available from Austec and Root (or now Unisoft); X/Open is working with national user groups to define standard glosseries and error messages as its latest effort in internationalisation; Ada will join the list of high level languages supported early next year. A verification suite for testing conformance to the Portability Guide is currently in use by members and the National Bureau of Standards has also been given one: the group intends to make the test more widely available by giving it to bodies such as NBS and then to other manufacturers and interested parties. In the networking area, the group's focus on defining protocol independent application interfaces to services is set to result in a a 'trial use' standard covering Application to Application communication following the earlier production of a draft Transport interface. The X/Open security working group will be producing a white paper covering its security cookbook during March or April next year. This working group's intention is to satisfy US commercial security needs first, then look at Europe, followed by the Far East and finally the rest of the world will be addressed. The group is also currently working on the definition of application interfaces to the X-Window system and expects this to be available early next year. One of the major work efforts will be converging the portability Guide with Posix when it becomes a full use standard during the spring of 1988 and the other thing must be to move into its own offices. When X/Open became a limited company back in September (UX No 147) its major aim was to move out of its offices at ICL in Bracknell, Berkshire to make its "independence tangible" but to date the five full-time X/open employees are still based out of ICL. Next year X/Open intends to add new members to the group satisfying the $500m turnover and commitment requirements and set up formal consultation procedures for smaller manufacturers, software houses and large users.

EXPANSION AND ACQUISITION TO COME AS ROOT COMPUTERS MERGE WITH UNISOFT

London's Root Computers Ltd is to merge its operations with associated company Unisoft Corp of Emeryville, California in a move to increase its effectiveness as an international company. Root previously owned 60% of Unisoft and had representation on the board, but the separate sales organisations were not co-ordinated. New Chief Executive Officer Jeremy Thomas, appointed in October, said that over the next few months the minority shareholders would be selling to Root, and that a whole set of structures would be put into place to merge the operations, which also include offices in Munich, Tokyo, and Boston. The Unisoft name will be retained, said Thomas, as the North American marketplace represents the most significant area of future growth. Unisoft Corp has been in the news recently due to its involvement in the porting of Unix to the Apple Macintosh II - according to Thomas, the A/UX operating system, complete with a great deal of Apple added value, will be available (a bit late) early next year - and the U.S. company has also instigated moves to establish a binary portability standard for all Unix implementations on the Motorola 68030 processor. In the UK, Root this year launched UniTECS, a CICS emulator and transaction processing system that resulted from earlier work migrating Hoskyns mainframe software onto Unix systems: the product appeared for the first time in the States last month at Unix Expo. Thomas said the new company would allow a more efficient international dissemination of such products as well as providing unified worldwide support for large customers. He also revealed that the three current divisions of Root UK - Office, Technical and Business Systems divisions - would be re-united. "They have done their job. We now have a set of office utilities and transaction processing software alongside Uniplus+ Unix and systems software. Our job is now to integrate those products". Thomas said that Unisoft would be involved in "selected large-scale turnkey projects" in the near future, and that the company was looking to make acquisitions - the responsibility of Chairman David Saunderson.

STOCK EXCHANGE GETS FOR PARALLEL PROCESSOR DATABASE SYSTEMS

The London Stock Exchange has added to its existing Convergent Technology Unix boxes by ordering three Sequent Balance 21000 and a Balance 80000 from Compass Peripheral Systems. Two of the larger machines will be used for the Exchange's Company News Service, which bought its initial CT system in October 1986. The ten cpu parallel processors will provide on-line news services for the TOPIC system. A third 21000, running Ingres database software will maintain a database for the newly formed Securities Association. All three will be upgraded to the newer 80386-based Symmetry systems once these begin shipping in December, says Sequent. The Balance 8000 computer, this time running Oracle software, will be used for the Stock Exchange's personnel files. Sequent computers were chosen because of the need for large and fast-expanding databases, says Compass. However, Convergent equipment is still being bought: original supplier TIS reports two more orders for S Series machines for the markets and audit services departments, which it says brings the total number of TIS systems installed to sixteen.

CUSTOMER DEFINABLE SILICON WITH 68000 CORE TAKES MOTOROLA TO 21ST CENTURY

Motorola has denied that its 68000 line of microprocessors is nearing the end of its technology curve - and at the same time has hinted for the first time that it is likely to launch a new line of RISC based microprocessors in the near future. Speaking at its annual European Semiconductor Market Review held yesterday, Motorola's Ray Burgess, European Director of Strategic Marketing, said that Motorola "has been looking at RISC architecture for some time - although the launch is still in the melting pot at the moment, I wouldn't rule out an announcement in the near future" Rumours of a 78000 Series of RISC processors have intensified recently, with at least one company (benchMark Technologies of Kingston, Surrey) expecting to announce products by the end of the year. However, said Burgess, the 68000 Series had been identified as one of the driving technologies that would spearhead Motorola's development efforts over the next ten to fifteen years. Burgess revealed that the MC68040, due for release at the end of next year, would not be the final model in the family. However, he said, the main trend up to the year 2000 would be an increase in customer participation - and that the 68000 core and instruction set would be retained, whilst allowing customers to add on custom requirements for functions such as memory management and graphics using ASIC (application specific integrated circuits) technology. Motorola is currently building up support for ASIC design, both with software tools and data libraries for silicon compilation, and with support through customer design centres. According to European Marketing Director Jan Calen, the semiconductor industry would continue to expand in 1988, with 20 percent growth in the USA, 16 percent in Japan, 8 percent in Europe, and a further boom in Asia with growth of over 50 percent.

LOW-COST 32-BIT PROCESSOR MARKS ZILOG'S RETURN TO MAINSTREAM COMPUTING

Zilog is to launch a new 32 bit processor in the Z80000 line at this week's Components Show in Paris. Based on the Z80000, which has mostly been used for military and avionics applications, the new plastic packaged Z320 aims to provide 32-bit processing power for the price of a high-end 16-bit chip - namely $25.95 for the 8 Mhz version and $33.51 for the 10 Mhz (both in quantities of 5,000). With on-chip mmu and cache, Zilog says that throughput is high, and although it says that MIPS ratings are misleading, says that the two versions achieve a peak performance of 4 and 5 MIPS respectively. The chips are not yet pitched against Motorola and Intel 32-bit "state of the art" processors destined for workstations and supermicros, but mass-market lower cost applications, both as system cpus and in peripherals such as laser printers. The chip is available now, with quantity production scheduled for early next year, and an upgrade to 20 Mhz CMOS technology is planned. Meanwhile, Zilog says it has streamlined its manufacturing capabilities in order to maintain its profitability in the face of Japanese competition. It reports that the Z80000 has been designed into one major defence programme, and that a validated Ada compiler will be introduced in the first quarter of next year, along with a CMOS upgrade of the chip bringing the clock speed up to 25 Mhz. Although Zilog is not touting Unix for the processor at present, the architecture is well suited to it, said a spokesman.

RE-STRUCTURED SPHINX OFFERS CORPORATE USERS "THE BUSINESS"

Small software house Stewart Computers Ltd from Nottingham has set up a distribution deal with Sphinx Ltd for its C-Nix business management software. Sphinx re-launched the package last week under a new name - The Business - and with added compatibility with Informix SQL. According to Mark Hayden, who heads Sphinx's newly set-up Software Solutions division, the package will provide direct competition to Tetra's Chameleon accounting software, which he cites as another example of "template software", using menus that can be tailored for a particular customers requirements. Chameleon has recently been adopted by IBM for the 6150 under AIX, but Hayden said he would "be happy with the rest of the market", claiming that the C-Nix's underlying accounts modules offer more flexibility than the Tetraplan base used by Chameleon. Around 70 installations of C-Nix have been completed by Stewart Computers, which will continue to sell its original product locally, whilst Sphinx says it will concentrate on corporate users, anticipating sales of up to 25 four to five module systems costing around £15,000 in the first six months. It also hopes to close strategic deals with hardware manufacturers - the package is currently available on Altos, NCR, and ICL machines under SCO Xenix and Unix. Sphinx recently re-structured its UK activities into three divisions: software distribution, information services (training), and software solutions, which includes consultancy. The move involved a rationalisation of products for which the company offers a full level of support.

MULTI-TRANSPUTER MAC BOARDS FROM SCIENTIFIC MICRO'S LEVCO

Scientific Micro Systems acqusition, Levco Corp, of San Diego, California is working on a Transputer-based accelerator package for the Unix-based Macintosh II and Macintosh SE. The package due for launch in Europe after the Which Computer? Show in January is called TransLink. A TransLink card is plugged into the Macintosh: for the Macintosh II this is a single-slot NuBus card that can hold up to four transputer modules; the TransLink SE card for the Mac SE plugs into the SE Bus and holds up to two transputer modules. Transputer modules are available with either the T-414 integer processor or the 20Mhz T- 800 floating point processor. Inter- transputer links are configured using a Levco-developed programmable link switch which functions like a switchboard and allows up to 32 transputerslinks to be interconnected - links have a DMA transfer rate of 20 megabits per second. Individual transputers can be configured with 256K/120ns memory option or 1Mb and 4Mb with 100ns RAM. Transputers with different memory sizes can be mixed on a card. All software for the TransLink system runs under the Macintosh Programmer's workbench and includes a C compiler, transputer assembler, linker, loader as well as the Inmos Occam development system. Levco is currently devloping a software simulator for the system. TransLink is intended for applications such as scientific computing, signal processing, image processing, artificial intelligence, high-resolution graphics and large databases. Prices will be available just prior to the Which Computer? Show.

APOLLO PUSHES INTO MECHANICAL ENGINEER MARKET WITH SERIES 3000 AND 4000

Apollo is touting for business amongst mechanical engineers for its Series 3000 and 4000 workstation with the announcement of two new mecahnical CAD/CAE pacakages. Cognition Inc, Billerica, Massachusetts has developed an expert system, CMG, for mechanical engineers which provides costing and manufacturing aid feedback to mechanical engineers during the early phases of the design process. CMG is intended to help engineers identify major cost drivers in a design, suggesting aspects that can be changed to reduce cost. This MCAE package also helps engineers identify manufacturing problems which should then mean that the design is corrected before money is wasted producing faulty products. ProEngineer, from Parametric Technology Corp of Waltham, Massachusetts, is a parametric, feature-based solid modeling software system which the company claims is the first solid modeler to support interactive design modifications to models of assemblies and parts. This MCAD product captures functional relationships among assemblies and parts, features and parameters and incorporates unique dimension- driven solid modeling technolgy. The new software will be given its first airing at the AUTOFACT '87 trade show and exhibition, being held this week in Detroit.

PRAXIS OF BATH WINS WORLDWIDE DISTRIBUTION FOR ELLA FROM ECAD INC

Bath, Avon software house Praxis Systems Ltd has won agreement for ECAD Inc, Santa Clara, California to market its Ella hardware description language for the expression, verification and management of very large scale integrated circuit designs. ECAD will have exclusive US distribution rights for two years and may also distribute Ella worldwide outside the UK. Ella complements ECAD's existing Dracula, Symbad and Simon chip design software by enabling engineers to start at the highest level of design, saving time and enabling management of more complex designs. Praxis claims that Ella is used by the majority of major UK electronics companies. Ella, out on DEC VAXen under VMS and Ultrix, and on Sun and Apollo stations, integrates into the Ella database system a language to express the design, a high- performance simulator to verify it and a set of open interfaces so that design data can be exported to other CAE tools. ECAD will initially offer Ella in the US at prices from $40,000 to run on a single-user workstation. ECAD Inc has also bought the printed circuit board design and layout products developed and formerly marketed by Omnicad Corp. A new technical and developmental group at ECAD has been staffed by the principal authors of the Omniroute product and other former Omnicad staff who joined ECAD in August this year. The products include the Omniroute automatic router, Omnicards an interactive circuit board design package; and Omnipro, an AT- based schematic capture package. The software runs under Unix, VMS and Aegis. Omnicad was a victim of AT&T's constantly changing engineering workstation strategy.

REUTERS' I P SHARP ACQUISITION PLANS TO EXTEND ITS IPSANET INTO NEW MARKETS

I P Sharp Associates, now owned by Reuters Holdings Plc, is aiming to turn its Ipsanet international network service into the general value added data services arena by increasing the number of access protocols it supports as well as its capacity. The company is now delivering software under Unix on AT&T's 3B1s and Sun workstations. I P Sharpe has hived its network specialists off into a separate subsidiary, called communications services group, to push network services in their own right. Until now they have been sold as complementary to I P Sharp's application software products including online databases and specialised financial products, based around its proprietary Ipsa software and running on IBM mainframes. The company has, therefore, concentrated until now on the IBM market. But it intends to add support for DEC, Wang and Tandem systems as well as protocols such as 3270. Central to I P Sharp's strategy for growth is £10m a programme called Net 90, in which it has been developing a new generation of network switching nodes based on the IBM AT. The aim is to extend the network's capabilities and make it faster and cheaper per port by providing intelligence in nodes at local level. The existing Ipsanet is based on ancient Alpha minicomputers supplied by Computer Automation with communications interfaces provided by Macrodata. Macrodata is the ex-I P Sharp Dutch subsidiary, which set out to manufacture communications hardware for I P Sharp, Geisco and other companies. The aim of the Net 90 architecture is to draw intelligence from the mainframe to node level so that users can get, for example, screen-driven choice on which host they want to access. Each AT will support up to five communications co- processors, each with two communications ports, implementing the power of an AT into a standard 19" rack. Clusters of the microprocessors linked at the same site over a Token Ring are being phased into Ipsanet during 1987. The £10m programme is due to end in 1990. The company has started as it hopes to go on by securing a 'multi-million pound' order for 13 network concentrators from RCS-UAN, Rizzoli Carriere Della Serra - United Advanced Networks in Italy, for a general purpose packet switching network. into Ipsanet.

DEC ADDS C, OTHER FEATURES WITH VAX SQL 1.1

A VAX C language precompiler and improved Dynamic SQL interface are among the features added in the new 1.1 release of DEC VAX SQL, announced in the UK for immediate delivery. The language preprocessor that supports VAX Cobol, VAX PL/I, VAX Fortran and now VAX C, now expands embedded SQL statements in compliance with the ANSI standard specifications. The Dynamic SQL interface now also supports all DSRI data types as well as the Decimal data type used in IBM's DB2 relational database management system, and scaled datatypes are now accepted. Prices range from £1,000 for a run-time licence on a MicroVAX II, to £38,000 for a full development licence on the VAX 8800.

NCR NAILS ITS COLOURS TO OPENS SYSTEMS COMMUNICATIONS STRATEGY FOR THE UNIX TOWER

One of the most difficult tricks for a mature computer company to pull is to establish a completely new product line as a core product from a standing start. Honeywell achieved it with the DPS 6 minicomputer, DEC did it with the VAX, albeit with a near-embarrassing attempt at a PDP-11 emulation mode, and most recently, NCR has done it with the Tower family of Unix supermicros. The importance of the Tower at the heart of NCR's product line is underlined by the efforts the company is making to fit it with every standard going so that it can co-exist in the mainstream of computing. Last week, NCR added compatibility with IBM LU 6.2 and Advanced Program to Program Communications, APPC. The Tower can also now co-exist with DisOSS with a product called Document Exchange D, compatible with IBM's Document Interchange Architecture, and NetBIOS for communications with personal computers on a local area network. The company will release an X400 package by the end of 1987 and an FTAM, file transfer and access method, package early in 1988.

The products are being bundled together under a programme called NCR Connect, from which other communications projects will emerge. NCR is working, for example, on voice and data integration as are most of the other big office automation companies. The new announcements follow on from the company's Enhanced Towernet and PC/Server/PC Connect and the two network management programs it announced earlier this year. NCR's APPC offering offers peer level communications between Tower systems over an SNA network for a cost of £1,635. In addition a PU2.1 physical unit connection facility, provides peer-to-peer links using SNA/SDLC protocols for £1,270. The DIA DisOSS-compatible product costs £1,170. All prices given are based on a standard Tower 32/600 configuration. NCR makes it clear that it is not putting all its communications commitments in one basket. It has adopted an in-house term, SIA, for Systems Integrated Architecture, to indicate the mix of support it is offering for both Open Systems Inter connection, OSI, and SNA. "We are finding that OSI is developing more rapidly in the UK than anywhere else in the world," says marketing manager of communications and product integration, Peter Reid. The company has also released Innovative Software's Smart office automation pack, which now runs under Unix as well as MS-DOS and includes communications support for asynchronous services such as electronic document transfer, auto-, dial, auto-answer and log on. Smart costs around £700 for Personalike versions and around £1,600 for Unix versions. The local area network that NCR has developed in conjunction with Intel Corp, called Mirlan, is being pushed for IEEE 802 status through ECMA, the European Computer Manufacturers Association. Mirlan is a slow Ethernet system, which uses a 1Mbps chip set, developed by Intel, that runs over shielded co-axial cable. NCR marketing manager of communications and product integration Peter Reid says the system will be less expensive than ordinary 10Mbps Ethernet. Mirlan is being promoted particularly for the retail and banking markets, where security is important. NCR says that DEC is wrong to push the idea of Ethernet over twisted pair wiring in such environments because it incurrs high levels of interference, resulting in loss of information. Mirlan was included in NCR's £35m contract with the National Westminster Bank, announced earlier this year, which is installing 2,200 NCR 7000 series branch controllers, which manage the local area network.

MULTITECH-COUNTERPOINT ACQUISITION PACT DEFINITIVE

As Pauline Alker's Counterpoint Computers Inc, now has definitive agreement to be acquired by Multitech Industrial Corp of Taipei, Taiwan the Uk subsidiary has been forced to change its name because a Unix systems distributor in Glasgow demanded either substantial financial incentive to change its name from Counterpoint or that the San Jose, California-based company changed its subsidiary's name. The UK arm will now be known as Interpoint. The plan concerning the acquisition is for Counterpoint, where AT&T Co, Kyocera Corp and British & Commonwealth Holdings Plc are currently investors, to operate under its present name and management as a wholly-owned subsidiary of Multitech. Ms Alker will report to Multitech president and co-founder Stan Shih. The two parties began working together in October 1986 when Multitech signed a three- year OEM order for $20m of Counterpoint's System 19K 68020-based Unix computers as the basis of transaction-oriented small business systems for Taiwan. Manufacturing is currently done by Avex Electronics in Huntsville, Alabama but will be supplemented over time by Multitech, a $300m group. Counterpoint expects to become profitable during the first quarter of 1988. Multitech inter alia builds Unisys' new Personal Workstations.

SILICON GRAPHICS CLAIMS MOVING OBJECT GRAPHICS

Silicon Graphics Computer Systems inc is claiming a breakthrough in graphics technology that for the first time enables users to interact with realistic moving images. Incorporated into the new MIPS Comuter RISC-based Iris 4D/60GT and 4D/70GT stations, the technology enables designers of cars and aircraft to try out new designs and ideas for moving objects on the screen, avoiding the need to build models so that an engineer can see the performance of a car suspension as it moves along a bumpy road without the need for road testing. Silicon Graphics reckons this capability was previously available only in supercomputers costing $6m and up, against under $100,000 for its new stations. The new technology is is a combination of the new architecture and five of its proprietary Geometry Engines, plus 20 other special-purpose graphics CPUs in a massively parallel processing structure that does 500m operations per second. The Iris 4D/70GT is $89,900 and the 4D/60GT is $74,900. Separately Silicon Graphics has also won $10m of business from Control Data with an order for 181 of its Iris-4Ds. CDC will remarket the stations under its own label to Chrysler Corp. They will be used for computer-aided design, engineering and manufacturing in various Chrysler units.

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Bit disconcerting the way these things only come out months after the event, but we have to commend its discrimination in picking perhaps the most attractive medium-big computer company around at the moment - and if it's still interested, the price tag is a darn sight lower now than it was then: the Wall Street Journal quotes "insiders close to the company" as saying that in August, **AT&T Co** held discussions to acquire **NCR Corp.**

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After six months of operation **Interleaf UK** this week officially declared itself open having finally moved to its new offices in Hammersmith, London, after a six month wait for building work to be completed, although we would suggest that Interleaf employees wear hard hats to work: the electronic publishing specialists boasts a turnover of £250,000 for its UK branch to date, despite its problems, and expects £4m next year.

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Oracle Corp is going into battle against the likes of **Informix** to win a dominant share in the low-end Unix market with a developers kit for AT&T 3B2 System V as well as Xenix-based 286/386 application developers: a single user license for devlopment purposes only is being priced at $399.

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Additionally **Oracle** announced agreements with **Encore** - to act as an OEM selling the dbms on its Multimax systems - and **Hewlett- Packard** for which Oracle will port its software to the HP 3000 Series 900 and the HP 9000.

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Amongst the first pacages to be ported to the Idris-based **Atari** Mega ST is the Lex wordprocessing and database pacakge from **Ace Microsystems Ltd** of Brentford, Middlesex.

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Apricot reckons it is selling 60 to 70 Xenix systems a month.

Minigrams

Dr John Parkinson has quietly left his position as Managing Director of **Apollo Computer (UK) Ltd,** but the company is unwilling to say where he has gone except that he will be remaining within the computer industry and that it is a good career move.

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Honeywell Bull has added new extensions to XPS-100 range announced earlier this year (UX No 128): a new entry-level system the X-20E and its bigger brother supercede the original X-20 model - the X-20E is priced at £12,500 and the X-20L with greater disk capacity costs £16,500.

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Star Computer and **Tetra Business Systems** have signed an agreement under which Star becomes Tetra's exclusive UK distributor for TetraPlan on the **Convergent Technology** range of systems: Star has made a commitment to sell a minimum of £2.5m sales of TaetraPlan over the next two years.

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Quadratron has set up a French office in Paris to support its OEMs and VARs there which include **Bull, Matra, Olivetti France, Nixdorf, Philips** and **Siemens.**

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Additionally the company has announced an addition to the Q- Office office automation software - Q-Typeset, which allows production of high quality typeset material within an office environment.

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Cadnetix has won an order worth £150,000 from **Dowty Marine Systems** for a CDX-50000S pcb CAD workstation, a CDX-79000S analysis engine for accelerated simulation and physical modelling, and four schematic capture and analysis software packages.

BUPA Hospitals is installing eight **Convergent Technologies** S320s and an S1280 supplied by **TIS Systems** in eight of its private hospitals and its head office to replace DEC PDP 11/23 systems.

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Unixsys has developed UniBasic - a migratory tool for users of SMC-Basic to move to Unix: UniBasic is available on all Unixsys hardware with an entry-level price of £350.

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The Norwegian Army Material Command has ordered an Ada program development system with a total value of £27,000 from **GEC Software** which will be supplying the Verdix Ada Developments System from **Verdix Corp.**

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Systime has won an order worth £300,000 from **HB Electronics** for the supply of a Series 3-100 system: the company will use Trans- Basic to migrate their application software from its current Systime 6400 system.

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Quadratron users, **Yorkshire Television,** has instigated the formation of a Quadratron Users Association: the inaugral meeting of this association, which will be attended by at least 30 interested parties, will be held on the 9th of December at the Kenilworth Hotel, Great Russell Street, London - the cost will be £25 per delegate: anyone interested should contact Jim Clelland on (0532) 438283.

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A **UKUUG** workshop on networking will be held on the 14th and 15th December at City University, London which will concentrate on all aspects of Uknet - the UK part of the worldwide UUCP network - only registerd members are invited to register.

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Finally in this what's on list is the **EUUG** Spring 88 Conference to be held in London.

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SEVEN 68000-COMPATIBLE MODELS MAKE UP OLIVETTI LINEA DUO

Declaring that he was presenting the New Olivetti, Carlo de Benedetti, chairman of Ing C Olivetti SpA last week took the wraps off the Italian's Open Systems Architecture and its LSX 3000 integrated family of - currently seven - processors that support from two to 200 users and are rated at 1.5 to 9 MIPS (UX No 155). The standards embraced by Open Systems Architecture include Unix, OS/2 and MS-DOS, the Intel and Motorola microprocessor families, X25, IBM SNA and Open Systems Interconnection networking, X400 messaging, and Ethernet and Starlan local area networking. The two-year development effort - which de Benedetti said cost L500bn to date - is Olivetti's pitch to become a full-scale minicomputer and systems supplier. Despite the potential product conflict, Olivetti will continue to market the AT&T 3B Unix machines, and with Vittorio Cassoni, head of AT&T's computer operations, present at the launch, Olivetti said that advantages of the 3Bs included AT&T-specific features like secure Unix and communications. Cassoni said AT&T has no plans to sell the machines in the US, and Olivetti as yet has no firm commitment to take on the top-end 3B4000 which is on beta test in France for videotext applications. Cassoni did, however, suggest that in future the AT&T and Olivetti lines would be unified - likely with the arrival of the Sun SPARC- based platform - a view that met with a more reserved response from Olivetti executives. The LSX range starts with the 3005 and 3010, based on the 68010, rated at 1.5 MIPS and priced $17,000 to $30,000. The 2MIPS 3020, the 3.5 MIPS 3030 with two CPUs, and the 5MIPS 3040 with three, are all based on the 68020; prices range form $40,000 to $160,000. The top end single processor 5MIPS 3070 and 9MIPS 3080 are based on the 68020-compatible Edge Computers processor and cost from $200,000 to $400,000. All except the 3005 run Unix, all except the 3070 and 3080 run the proprietary MOS operating system inherited from Olivetti's Linea Uno minis. Olivetti reckons perhaps 50% of the machines sold in the first year will run MOS - and has already picked up an order for 800 of them to be used as branch systems by Abbey National. The company claims MOS users will generally get away with simply recompiling to move to MOS on the new machines - Linea Uno users can also upgrade with a CPU board swaps - but moving to Unix will require a rewrite, although MOS Cobol will be available under Unix next year. The 3005, 3010, 3020 and 3080 are available now, and the others will follow in the second quarter 1988; Olivetti is also promising further models next year, which are expected to use Edge's 10MIPS processors. Olivetti will also sell Unix on the Stratus machines it offers as the CPS32.

ITL COMMITS TO UNIX WITH LAUNCH OF MOMENTUM SERIES 21

ITL this week launched its new Unix-based Momentum Series 21 which includes the fault-tolerant machines that the Hemel Hempstead company gets OEM from Sequoia (UX No 150). The fault-tolerant machines fall into the 21090 range and the other range, the 21040, is intended for departmental use. The 21040 has three models supporting four to 96 users and runs Unix System V.3. the top of this range uses the Motorola 68030 with the other two based on the 68020. The 21090 again has three models but supports from 50 to 2,000 users, running SVID-compatible Unix as well as Pick. The 21040 range has an entry-level price of £10,000 for the 4-12 user Model 41, which will be available first quarter '88, the Model 42 supporting 8-32 users is available now at a cost of £30,000 - the 24-96 user 68030-based Model 43 will be available in the third quarter 1988. In the 21090 range the Model 96 is available immediately which will support up to 1,000 users and costs £23,000. ITL says that it will continue to develop its Momentum 10000 range.

HONEYWELL BULL AND BULL SA TO PRODUCE JOINT PRODUCT LINE

Honeywell Bull Inc is set to join forces with its effective parent, Bull SA of France in an effort to produce a consistent product line for the two companies. The joint venture is to develop hardware and software for Unix-based systems. Honeywell Bull's end of the venture will be managed by Honeywell Bull Italia, which developed the first serious family of Unix micros offered by Honeywellin the US and the UK.

CINCOM GOES TO NIXDORF FOR DISTRIBUTED TECHNOLOGY

Faced with an uphill task in the mainframe database market, Cincom Systems Inc has followed arch- competitor Cullinet in looking to another company - in this case Nixdorf - for the technology it needs to attack the distributed processing market, focussing eventually on the IBM 9370. Cincom and Nixdorf have signed a technology exchange agreement under which Cincom hopes to augment its IBM-based Supra database and related products with the distributed features that Nixdorf has implemented in its Reflex Unix relational dbms. Cincom anticiptaes that the first fruits of the agreement will be realised in a Unix-based product which will initially benefit Nixdorf and its Unix users. Nixdorf sees the alliance as a major aid in its efforts to establish itself in the US market.

IMP TO DELIVER 80 MIPS

Consett, County Durham-based manufacturer Integrated Micro Products is set to release a 68030- based multi processor machine with a performance rating of up to 80 MIPS next May. The machine is described as having a Sequent-like architecture by IMP's software partners, Root, in the project, dubbed Magix. Root has altered the UniPlus+ kernel to allow it to run across the multiple 68030 CPUs: the scheduler has been modified and an interlocking maechanism has been added so that the processors do not address the same code. No system call changes have been made to Unix so that it reatains its SVID compatibility. The 4.3 BSD-based Fast File System, Sun's NFS, Streams and Rootshare, a runtime shared library facility have also been added. The system to be launched at next year's Unix User Show will have four processors on each board with a maximum of eight boards to a system.

REAL TRANSPUTER PRODUCTS AS PRODUCTION RAMPS UP

Proof of market acceptance of the Inmos T800 transputer is coming thick and fast now that it has entered volume production at the Newport, South Wales fabrication plant. And despite a few grumbles at Compec about availability, Inmos' Phill Rutter, General Manager at Newport, said "we are seeing good yields, despite the complexity of the part. Manufacturing the T414 transputer has helped us up the learning path for the T800". Director of Microsystems Peter Cavill said that over 2,000 customers had bought transputers - out of those 500 had active development or evaluation products, with half classed as "committed design wins". Around 50 products have now hit the market. Visitors to a rather lacklustre Compec last week at London's Olympia had the chance to see Inmos highlight some of its more advanced customers. Consultants Topexpress of Cambridge says it has implemented an application simulating fluid flow through a turbine blade using cheap transputer technology, but offering up to one fifth of the performance of a £ 12 million Cray - thats a price performance a hundred times better, according to Andy Holman from Topexpress. White Cross Systems from South London was more specific about where its systems are going: it has recently installed a 26 transputer database search engine at the City stockbroker SBCI Savory Miln's London Bridge offices. Staff will be able to scan over a million records in less than one fifth of a second via 20 IBM PS/2 terminals - more transputers and up to 200 terminals could eventually be added. And three month old Niche Technology Ltd of Bristol, which has a sister company in Houston, Texas, demonstrated its first product - the NT1000 Advanced Computing Platform (ACP), a multi- processor and parallel processor transputer board that fits into a host Sun 3 or Sun 4 workstation (UX No 153). Director Ian Pearson claims that the boards, which support up to 32 simultaneous and different tasks, has performance ratings of 320 MIPS and 4 MFLOPS. Up to eight of the plug in modules can be added to a workstation, and will run under Suns SunOS operating system and networking facilities. A Sun 3/160 with 4 ACPs would result in a price per MFLOP of around £1,000, said Pearson, who also revealed the company's plans to produce an ACP for the DEC MicroVAX in 1988. Niche says it will begin porting third party software with a view to becoming a Sun value-added-reseller, looking especially at the financial arena. But all the transputer developers at Compec agreed that the advent of widespread parallelism in computers would necessitate a new awareness of how to exploit it from programmers. "Less than 20% of a particular existing program might be in compute limited sections", said Pearson. "We're talking a couple of man-months to alter that for some performance improvement. But after that it would be time to stand back and re-write for a more natural solution".

ICON, LONGS, FALCO REPRESENT UNIX INTERESTS AT OBLIGATORY COMPEC

Despite a rather cleaner focus as a systems show this year, many of the visitors and exhibitors at Olympia last week still seemed to regard their annual visit to Compec as a traditional duty rather than a particularly beneficial experience. Amongst the Unix products on show were Icon International's range of supermicros shown at Comdex last month (UX No 154), which are to be distributed by Pick specialists Kode Computers for Sanyo (which owns ICON). Kode actually had only the 64-user ICON 3000 on the stand, but will sell the 16 user 2000 and 128 user 4000 boxes as well from early next year - all models use parallel microprocessor subsystems to run Unix, Pick and DOS concurrently. NEC, however, did not bring its extended Astra XL range over from Comdex - the Japanese giant contented itself with the launch of its top-of-the-range PowerMate 386 MS-DOS PC. SCO Xenix will be available on the machine "over the next 4-5 months", and the company says it plans to address that market by networking PowerMate systems together before it considers a UK launch for the Astra. Longs Computer Products of Chertsey showed the results of terminal manufacturers Falco Dataproducts Inc's first entry into multi-user Unix systems. There are three models; the 80286-based 5012 and the 80386- based 5016 (16 MHz) and 5020 (20 MHz) machines, which are promised to be the first in a line of new products. On the software front there were new versions of the Dataflex application development system from Dataflex Serivces Ltd adding graphics and floating point support, and of the Sculptor 4GL from Microprocessor Developments Ltd, which now offers SQL support and object-code and data file compatibility across the 100+ combinations of hardware and operating systems on which it runs. And EurOSInet, which runs a permanently available demonstration of Open Systems Interconnection communications - specifically X.400 messaging and File, Transfer and Messaging between its 21 members, showed what it claimed to be the first around the world demonstration at Compec, linking multi-vendor systems in America, Australia, and Europe. As one of the participants put it "it works most of the time for most of the people".

APRICOT ADDS TOWER MODEL TO XEN-i 386 LINE

Apricot Computers Plc has added a 10-slot floor-standing model to its line of 80386- based micros. Used in the new Citydesk, the Xen-i 386 Tower has 16MHz CPU, 2Mb to 16Mb of 32-bit memory, VGA graphics, 1.44Mb 3.5" floppy, and comes with MS-Windows 386; it is £4,000 with 49Mb disk, £5,000 with 100Mb, and will be available in late January. Options include colour or paper white monitor, a 125Mb back-up tape unit and a second hard disk inside the system box. It also comes with an optional shadow disk facility so that the second disk can be continuously updated and kept on standby.

IBM ANNOUNCES AIX PS/2 UNIX, STRING OF SUPPORT PROGRAMS, FOR SEPTEMBER

IBM's rag-bag announcement last week included the formal announcement of AIX Unix for the 80386-based Personal System/2 Model 80 - based on AIX for the RT with Berkeley 4.3 extensions as well as a whole string of support programs, including AIX PS/2 DOS Merge, based on Merge/386 from Locus Computing Corp. AIX PS/2 supports up to 16 concurrent users on the Model 80, is Unix System V.2-compatible, and provides IBM Personal Xenix 2.0 source code compatibility. It costs $595 and will be available in September 1988. An Operating System Extensions program at $250 adds commands and utilities and for the academic community. DOS Merge, $250, enables multiple users to run concurrent MS-DOS 3.3 applications. Usability Services is a full-screen menu- driven interface to many of AIX PS/2 functions for those who are terrified of naked Unix. It costs $250. AIX PS/2 Text Processing at $200 provides formatting for printers and typesetters. And IBM has also announced X-Window for the PS/2 under AIX at $195. On the language front, Fortran, Pascal and C are offered. AIX PS/2 VS Fortran is an optimising compiler that accepts source code as defined by IBM's mainframe VS Fortran 2.2, ANSI-77 Fortran, and DEC VAX Fortran 3, the IBM and DEC versions with "minor restrictions". It is also source compatible with RT Fortran and costs $275. The Pascal is ANSI-83-compatible and IBM 370 VS Pascal-compatible with some restrictions, and is source-compatible with RT Pascal, and is $275. The AIX PS/2 C compiler, also an optimising compiler, is claimed only to be RT C Portable Compiler source code-compatible. The Fortran and C, but not the Pascal, produce programs that are Systems Applications Architecture-compliant. The AIX PS/2 Application Development Toolkit includes assembler, symbolic debugger and Source Code Control System. It is $175. Also offered are Workstation Host Interface Program providing 3278/79 terminal emulation at $400; TCP/IP at $300; and the INmail/INed/INnet/FTP electronic mail program and text editor from Interactive Systems Corp at $250. All AIX PS/2 products arrive in September 1988 in the US.

Doomed to be confounded

With availability dates for some of its new products for the RT Personal Computer as far out as next September - for vital things like Sun Microsystems' Network File System, those who have been forecasting the imminent demise of the commercially none-too-successful RT are doomed to be confounded. Included were AIX/RT Network File System at $995 for September, and also a new release of RT Distributed Services, set for June at $850. The 1.2 release adds file and record locking to help preserve data integrity; an application to application communications facility; support for the Token Ring; extension of print and batch server functions to remote workstations; and simplified network administration. The eight-port asynchronous adaptor for the RT saves slots and supports more devices. It comes in an RS232C version at $850 and an RS422A version at $1,000 - plus $495 for the cabling for either. Up to six of the boards can be installed in a 6150, up to four in a 6151, which in theory means 48 users on the larger version of the RT. The new eight-port boards arrive in June.

AMDAHL PROMISES UTS/580 2.0 UNIX FOR THE SUMMER

Amdahl Corp promises a major new release, 2.0, of its UTS/580 implementation of Unix System V for this summer. UTS/580 runs native on the IBM-compatible mainframes, and the new release will support a string of low-cost, high-performance communications controllers, supporting SNA, X25, Ethernet and TCP/IP. It will be Posix-compatible and Amdahl claims that on the 580, it will offer better price-performance than competing minicomputers under Unix.

SYSTEMS DESIGNERS HAS SECOND GENERATION EXPERT SYSTEM SHELL

Last week SD-Rules made its debut out of the Systems Designers stable as a product for use in the Poplog multi-purpose, multi-language artificial intelligence development environment. This product, available on the Hewlett-Packard 9000/300 series, Sun-2, Sun-3 and Apollo Domain workstations, all under Unix, and on the DEC VAX under VMS and Ultrix, lets the rules a person uses in decision making to be developed from information that has been gathered beforehand. Normally this process is made more difficult since the information obtained from an expert may not be accurate; he may know what his job entails but not why he does certain things so the information is never entirely correct. However it has to be to establish a knowledge base for use in an expert system. With SD-Rules, claimed as a major step forward to automatic programming, a number of examples of a problem are put together with an expert judgement. The tool then develops the most efficient rule for arriving at the judgement. It does this using a host of other information, statistics and questions combined with input from an engineer. Once the rule has been formed examples are tested, using graphics and text, to check its validity. It can then be tailored until the final form is created, in Pascal, C or an artificial intelligence language - Pop-11, Common Lisp or Prolog. Fortran and Ada are in the works, and can be produced now if a customer requests them. Simultaneously Systems Designers launched SD- Advisor, an MS-DOS second-generation expert system shell which enables users to upgrade their applications to minis and mainframes. According to Systems Designers, MS-DOS expert systems have been few and far between because of the limited number of functions they offer in addition to their inability to upgrade. SD-Adviser is designed to give the expert system builder the same level of functionality no matter what machine it is developed on or sent to. Systems applications can be developed on a PC and put into action on a DEC VAX, running VMS and Ultrix or an IBM mainframe under VM/CMS, or vice versa. #60m a year Systems Designers plans future releases to operate under Xenix and under IBM MVS. SD-Adviser development licences are priced at £1,495 on micros, from £4,995 on the VAX and from £9,995 on IBM mainframes. SD-Rules costs £2,995.

SYNERGY EMBEDS SUN-3 UNIX BOARDS IN COLOUR PLOTTER

Sun Microsystems Inc, Mountain View has landed a "multi-million dollar" OEM contract from Synergy Computer Graphics Corp for its new Sun-3 Eurocard VMEbus single board computers. Synergy wants the 68020-based board level products for use in its ColorWriter 400 high performance colour electrostatic plotter, which can produce an E-size 36" wide full colour plot at 400 dots per inch in 88 seconds. The Sun boards serve as system controllers and as high-level network interfaces to support Network File System, TCP/IP, Ethernet and DECnet users as well as to IBM's SNA. The ColorWriter 400 has embedded Unix on the controller.

SEYMOUR TO DO 64-CPU CRAY 4 IN GaAs FOR CRAY RESEARCH

Cray Research Inc announced that it has extended the contract of its founder, Seymour Cray, now a freelance designer for the company, to 1992, and says that he is now at work designing the Cray 4 for the company. The machine, for the mid-1990s, is being designed in Gallium Arsenide, and is planned to have a cycle time of 1nS, compared with 4nS of the fastest supercomputers today. The machine will have 64 processors, and is being designed to deliver 1,000 times the performance of the Cray 1, 10 times that of the Cray 3 due out in 18 months.

MALAYSIAN PUBLIC WORKS DEPARTMENT PICKS APOLLO SERIES 3000

Malaysia's public works department, Jabatan Kerja Raya (JKR), has ordered 22 Apollo Series 3000 Personal Workstations for architectural analysis, building design, structural analysis, drafting and electrical engineering analysis at the agency's Kuala Lumpur headquarters. The installation of the Apollo-based system is aimed at producing more accurate, economical and safer building designs and improving the coordination of engineers and other design and drafting professionals. The contract was awarded to Apollo through Far East Computers, the company's distributor in Malaysia. FEC claims to have installed more than 350 Apollo workstations, which Apollo reckons gives it the largest installed base of workstations in the region. "This technology will help place Malaysia among the advanced countries using similar technologies," said the public works department's director of computers. JKR will use the Apollo workstations running Gable CAD Systems' GABLE architectural software, Amazon Computers' Thermal Analysis Software (TAS), Georgia Institute of Technology's GT-STRUDL software, and Moss Systems' MOSS highway design package. The Malaysia public works contract announcement comes shortly after Apollo's announcement of plans to establish manufacturing operations in another Asian nation. Earlier this month, Apollo announced it is joining with HCL Ltd (UX No 154) in India, to establish workstation assembly operations in that country.

EXCELAN TAKES NETWORKING TO THE DESKTOP WITH LAN WORKPLACE

Excelan Inc's strategy to enter the desktop market using its networking expertise has yielded LAN WorkPlace a software and hardware package which allows Unix, Xenix or PC-DOS based PCs to communicate with dissimilar computers using TCP/IP protocols. LAN WorkPlace for PC-Unix allows Intel 80386- based PCs running AT&T's Unix V.3 operating system to be linked on TCP/IP networks. The Xenix version gives users of the Santa Cruz Operations Inc's Xenix System V, running on Intel 80386-based computers, the ability to communicate with dissimilar computers across a TCP/IP-based Ethernet local-area network. The package also supports SCO's Xenix-NET distributed file system and the latest release of SCO Xenix System V, Release 2.2. SCO Xenix-NET is SCO's packaged version of MS-NET for Xenix systems. Californian Excelan says that the LAN WorkPlace for PC- DOS adds new capabilities to Excelan's existing solutions for desktop computers and at the same time represents an opportunity for customers to purchase the company's applications and application program interfaces separately from Excelan's TCP/IP- based transport system. Users can select different components of the LAN WorkPlace for PC-DOS that will allow them to transparently gain access to servers running Novell's Advanced NetWare 286 operating system and systems running Microsoft NETWORKS protocols including Xenix, Unix and VAX/VMS hosts. Concurrently, users can gain access to files and applications resident on a full range of dissimilar host computers such as DEC VAX computers through terminal emulation (Telnet), file transfer and remote utilities. With the LAN WorkPlace for PC-DOS a user can simultaneously be using a database system on a Digital VAX, be tied into the corporate mail system and be using PC-DOS productivity applications in the workgroup. All packages still require an EXOS 205T or 205E intelligent Ethernet controller board as well as the TCP/IP Transport System and Network Utilities. Options include: LAN WorkPlace HostAccess; LAN WorkPlace HostShare; LAN WorkPlace Driver for Advanced NetWare; LAN WorkPlace NetBIOS; LAN WorkPlace Socket Library. The components of the LAN WorkPlace for PC- DOS will be available in December in a variety of configurations. The components include the 205T and 205E intelligent Ethernet controller boards for $795 and $695, respectively; TCP/IP transport system and network utilities for $100; Driver for Advanced NetWare for $25; Socket Library for $250; NetBIOS for $50; HostAccess for $150 and HostShare for $100. The LAN WorkPlace for Xenix 386 software package will be available in January 1988 for $695. A networking package that includes the new software with Excelan's intelligent controller board is priced at $1,395. The LAN WorkPlace for Xenix 286 is currently available for $595. The LAN WorkPlace for PC-Unix software package is available immediately for $695. A networking package that includes the new software with Excelan's EXOS 205T intelligent controller boad for IBM PCs and compatibles is immediately available for $1,395.

REAL-TIME UNIX DEVELOPER ALCYON TO SELL OUT TO SINGLE BOARD VENDORS SBE

SBE Inc, Concord, California has signed a letter of intent to acquire real-time Unix- like operating system devloper Alcyon Corp of San Diego. Completion of the transition is contingent upon the parties reaching a definitive agreement and the satisfaction of various closing conditions, including regulatory approval as well as approval by Alcyon's board of directors and shareholders and by SBE's board. Alcyon manufactures and sells operating system software products and VME board level products based on the 68010 and 68020 processors. SBE has been reselling Alcyon's Regulus operating system several years. SBE's management views the acquisition as an opportunity for the company to accelerate its growth in both realtime markets and board level VME markets. SBE Inc designs, manufactures and markets a line of high-performance, cost-effective microcomputer products for the OEM and system integrator markets. Products include a range of 68000 microprocessor family single-board computers and other bus-oriented computer modules for Multibus I and VMEbus applications, as well as systems software and application-tailorable system-level packages and configurations. Regulus is used by AT&T, Honeywell and Siemens amongst others for process control-type applications.

APPLE "WANTS TEXAS LISP CO-PROCESSOR FOR MACINTOSH II"

Having implemented the 68020-based Macintosh II around the Massachusetts Institute of Technology's NuBus, Apple Computer Inc is in a good position to pick up all the add-ons that have been developed for the fast bus. Highest profile of these is the microprocessor implementation of the Explorer Lisp processor developed by Texas Instruments, so it comes as no surprise that Apple is negotiating with Texas to offer the chip as a co-processor for the Mac II. According to Computer Systems News, agreement is likely by the end of the first quarter 1988. Apple declined comment while Texas [said only that it is negotiating co-processor deals with a large number of business computer manufacturers, although an insider at the company confirmed talks with Apple. Inference Corp, Los Angeles, also said that it was considering doing an implementation of its ART Automated Reasoning Tool for the Mac - and the 68020 processor on its own is said to be insufficiently powerful on its own to run ART. The Apple Mac can be tightly integrated into an Apollo Domain Unix network following agreement between Apollo Computer Inc and Information Presentation Technologies Inc: the two will market uShare, which implements the Apple Filing Protocols in a Unix workstation environment, enabling file and resource-sharing.

HARRODS TO MAKE UNIX DECISION THIS WEEK

The board of directors at the House of Fraser Group are to meet this week at the company's London office in Victoria to decide on an expansion of computing resources for its prestigious Knightsbridge store Harrods. IT Director Paul Livesey says that Harrods "will be going down the Unix route, at least in part".Harrods was not included in the recent sale of NCR Tower 32/600 systems, networked to the central mainframe at Victoria and installed in the 46 largest stores around the UK, including the D H Evans and A & N chains, as well as Barkers of Kensington. According to Livesey "Harrods requires a different systems solution. It has a wider product range than the rest of our 80 stores and has its own distribution centre". The board will be looking to extend the existing IBM mainframe and point of sale equipment with distributed systems, and adding 4GL and database software. Oracle is thought to be the most likely database - other suppliers should be named at the meeting. NCR said it could not comment on the future intentions of its customers.

CUBIX CORP ADDS INTEL-BASED NETWORKING PRODUCTS

The Cubix Corporation, the new name for Carson City-based LF Technologies, has added networking facilities to the 11 inch cube-shaped Cubix2 micro, and is currently setting up distributors to push sales in Europe. CubixNET is based on Intel's Open-Net product, which uses an OSI framework, and allows the 80286-based Cubix2 to act as a file server over Ethernet with an optional Ethernet controller. The software provides menu-driven screens for network and systems management, and can be pre-configured by the distributor for simple PC to fileserver networks or used for more complex multiple file server networks supporting their own local area networks of file-servers and terminals. Cubix uses surface-mount technology to cram its components into the small cube alongside 100 Mb hard disk, tape streamer, floppy, and an uninterruptible power supply - and its single-board design concept with no bus results, according to European VP Keith Gale, in a fast machine for up to eight users at prices up to 30% cheaper than a comparable Altos. Gale is looking for another UK distributor to sell the box alongside Equinox in East London, and says it has already established European distributors in most of the major countries, with the exception of West Germany. Cubix2 machines are available now, with a standard configuration costing £6,700 to end-users. An upgrade path will be provided by the 80386-based Cubix3, which, however, resorts to a more traditional tower shape.

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Set with a C-2 minisupercomputer for late in the first quarter 1988, **Convex Computer Corp** is reportedly set to foreshadow the new machine late this month with a Fortran compiler for it: the C-2s are expected to increase parallisation and hike scalar performance.

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Encore Computer Corp has had its existing DARPA contract extended by the **US Navy's Space and Warfare Systems Command** to provide nine new prototype Ultramax parallel processing system to various departments - worth about $3m.

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With parallel machines built out of multiple microprocessors proliferating in the US - the **BBN Computers** Butterfly, **Teradata** DBC1012 and **Intel's** Hypercube are just three examples - **NEC Corp** is getting in on the act: the company has designed a machine that will run up to 100 microprocessors in parallel and plans to start building it shortly; it is thinking in terms of the simulation market, in particular the behaviour of share and bond prices.

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Having announced that 400 jobs are to go last month, **National Semiconductor Corp**, still rationalising after taking over **Fairchild Semiconductor**, has found another 500 surplus positions worldwide that are to be eliminated.

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Hewlett-Packard Co saw fourth quarter net up 38.9% at $218.0m, after a tax credit of $108.0m, on turnover up 17.9% at $2,279.0m; net profit for the year to October 31 was up 24.8% at $644.0m, after a tax credit of $318.0m, on turnover that rose 13.9% to $2.3m. Net earnings per share rose 37% to $0.85 in the quarter, 24% to $2.50 in the year.

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3Com Corp has announced availability of a new product to support TCP/IP communications with 3+, 3Com's high-performance network operating system: 3+TCP/IP is installed with the Personal Communications Server/1, an intelligent Ethernet adapter for IBM personal computers and PC- compatibles.

Minigrams

Olivetti says that it has already shipped 250 systems from the LSX line to systems houses and anticpates selling equal amounts of MOS and Unix-based systems: more distributors will be recruited to distribute the new lines with the company intending to agressively sell LSX in to traditional IBM markets - to this end Olivetti will be setting up agents along IBM lines.

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Apollo Computer Inc has introduced a new factory-hardened workstation and announcing marketing agreements with four suppliers of engineering and manufacturing solutions, as well as an enhanced version of its Domain 5080 Emulator, which lets workstation users simultaneously run both mainframe and workstation design applications from the same display: prices for the DN3040 Ruggedized Workstation start at $11,900 - among the agreements announced by Apollo is an OEM contract with **Cimpoint** of Austin, Texas, and joint marketing agreements with **Elcam Inc**, of Waltham, Massachusetts; **Metcut Research Associates** of Cincinnati, Ohio; and **Palladian Software Inc.**

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Information Builders has released a new version of Focus for Unix that includes an SQL, enhancements improving data and application portability, application development and access to Unix environments.

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Calay Systems Inc has signed an OEM with **Sun Microsystems**, valued at around $10m over the next 18 months: Calay will purchase the Sun workstations and port its Prisma real-time integration software for the CAE/CAD/CAM to the workstations.

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Intergarph Corp has announced two new customers for the Clipper: **Maxim Inc** of Colorado Spring has introduced the Quantum board and **Spea Software AG** of Starnberg near Munich in Germany has chosen the Clipper to use in its Panther series of co-processor boards.

Opus Systems developers of the Clipper-based Opus board has established a Unix porting laboratory to help customers in handling user environments - any "qualified" Unix developer can use the lab and assistance will include both theoretical and hands-on instruction in performing additiona and modifications to Unix.

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Gould Inc will be going after the commercial market with two new VAR programs: the Gould Reseller Program entails the the VAR buying hardware from Gould and bundling it with application software - in the Marketing Associate Program VARs or software houses only sell the software but will receive about 15% commission on the sale.

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NCR Ltd has introduced the LPI-Basic language compiler for the Unix- based Tower from **Langauge Processor Inc.**

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Showcard Systems Retail Ltd has just spent £100,000 on a **Systime** 3-40 computer with production and financial control system: Showcard supplies reatail and point-of-sale systems and will be using the Systime system for job costing and production control.

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The newly renamed UK arm of **Counterpoint Computers** to **Interpoint** (UX No 155) has set up a new VAR programme for resellers working in the multi-user systems marketplace: the programme will offer discounts on computer systems for software development, financial help with product launch, costs, training, as well as field sales and technical support.

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Access Technology has made its 20/20 spreadsheet package available on **Sun** workstations.

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And the **Oasys** Microsoft Cross C development system has been made available on **Apollo** workstations: this product lets software engineers use the workstations with C to develop MS-DOS targeted applications for IBM PCs and compatibles.

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MIPS SIGNS SEMICONDUCTOR SUPPLIERS TO COMBAT SUN/SPARC THREAT

Battling to ramp up volume production and increase market share in the face of the runaway success of Sun Microsystems' SPARC microprocessor. MIPS Computer Systems of Sunnyvale, California has licensed LSI Logic, Performance Semiconductor and Integrated Device Technology to manufacture and market its 32-bit RISC processor and associated parts. LSI Logic, which will initially make the processor in 2 micron CMOS is promising a version in 1.5 micron technology offering 20 MIPS, likely to appear before mid 1988. It will also incorporate the chips into ASICS (Application Specific Integrated Circuits). Performance Semiconductor is also working on higher performance versions using the Performance Advance CMOS Technology (PACE I) which features 0.8 micron gate length and two- level metallisation. MIPS will continue to work with its existing semiconductor partners; Sierra Semiconductor and Toshiba of Japan on the design and manufacture of new parts. Each licensee can market MIPS' UMIPS Unix implementation and compilers, and MIPS says that "unlike some other RISC designers" it is ensuring layout and pin compatibility between versions of its processors and is providing licesees with "mask-level co-operation".

UNIPLEX OFFERS BIT-MAPPED GRAPHICS WITH VERSION 6: PRICE CHANGE

After holding up the announcement for a month to clean up otstanding bugs, Uniplex says it has started shipping the first two modules in new line of products built round an enhanced version of its Uniplex II Plus office automation suite. Uniplex last week secured £1.5m in its second round of financing for further development work. The company is also considering implementations of its product for different operating systems - namely OS/2 and VMS. In order to bump up revenues Uniplex has altered its pricing policy to increase the difference between the licence pricing for low end and large systems. Version 6 of the product includes a choice between a Uniplex interface for the spreadsheet and the Industry Standard Spreadsheet Interface similar to Lotus 1-2-3. Calls to the Uniplex Informix-like database can now be embedded within the spreadsheet. A new print composer in the word processor means that users can use the capabilities of laser printers. The two add-on modules are: the Advanced Office System, including facilities such as E-Mail, card index, report writer and time manager; and Advanced Graphics System which allows users to generate graphic displays directly or by using data merged from the spreadsheet or database.

NEC TO TAKE ON SUN, APOLLO WITH 68020, 80386 WORKSTATIONS

The runaway success of Sun Microsystems and Apollo Computer in the technical workstation market has energised a string of major companies from IBM through Hewlett- Packard to Tektronix to attempt to win a piece of the action, but the total failure of IBM's RT to make an impact on the US market underlines the up-hill struggle faced by companies hoping to break the stranglehold of the Sun-Apollo duopoly. Bloodied but unbowed by the failure of its first attempt, NEC next spring will come back with a redesigned product, have lighted on the workstation market as its white hope for making its first big impact on the US computer market. Computer Systems News reports that after having had its first generation 68020 workstation on the US market for a year to very little effect, NEC Information Systems Inc has gone back to the drawing board, redesigning the thing with two 16.67MHz 68020s and a native VMEbus in place of the Q-bus with VMEbus attached that was used in the original product. The new workstation will use one 68020 as the central processor and a second to manage graphics and windows, supported by a custom graphics chip. NEC is hedging its bets by also designing an 80386-based station with 80387 maths co-processor and optional Weitek floating point co-processor as well. Unix System V.3 will host MS-DOS as a task within a window and the station will come with X Window, Ethernet and TCP/IP communications. The biggest hurdle that NEC will have to overcome is lack of applications: the company has just 10 for its first generation station, but claims that it will have products from 50 to 75 software developers for the new ones - but that compares with over 1,000 each for Sun and Apollo. NEC will also have to compete fiercely on price, and margins are already exceedingly slim at the low end of the workstation market, where the cheapest Suns and Apollos are pitched below 80386-based personals.

OEM ITL INSISTS IT IS NOT JUST BUYING INTO UNIX

From nowhere to "the world's widest range of Unix systems" - as ITL billed its long-awaited commitment to the operating system last month - is a long way, and so it is not surprising to find two established ranges of hardware lurking behind the badges of the new Momentum Series 21, which embraces three departmental computers from Motorola (21040 range) and three "business critical" fault-tolerant transaction processing machines from Sequoia (21090 range). But the company insists that its commitment to the new range goes beyond simply reselling boxes. The Sequoia deal arises from a technology agreement between ITL and Boston-based Sequoia Systems Inc back in January, and ITL says that it now has 40 people of its own working on the further development of both hardware design and operating system level. On the departmental computing side, a totally new direction for ITL, the plan is to gradually move away from buying in complete systems from Motorola to in-house manufacture from board-level products at Hemel-Hempstead, where the current range of Momentum 9000 and 10000 Series machines will, it is insisted, continue to be developed and enhanced for the forseeable future. However, the higher performance and growth-path offered by the new range will make them by far the most attractive option for new customers, and ITL says it will offer migration tools for existing customers who wish to upgrade, although it expects that many customers will prefer to integrate the older systems via networking.

KAI AND SEQUENT TO MARKET PARALLEL PRE-PROCESSOR FOR BALANCE AND SYMMETRY

The town of Savoy in the Prairie State of Illinois may be too small to find on the map, but the twenty six employees of Kuck and Associates (KAI) who work there are making a name for themselves in the world of supercomputers and parallel processors. david Kuck is best known as the originator of the ideas and techniques for automatically converting existing Fortran programmes to take advantage of parallel architectures; his ideas were later adopted as the basis of the Alliant Computer Systems' marketing pitch. Customers of the company's KAP parallel Fortran preprocessor include Cyber, Honeywell and Dana, although KAI says its most popular port has been Unix, completed on products for the most part still unannounced. Those that have been revealed include Encore of Marlboro, Massachusetts and most recently Sequent Computer Systems for its Balance and Symmetry range. KAI and Sequent have announced a joint marketing and engineering announcement for KAP, which has been custom engineered by KAI to discover parallelism in FORTRAN 77 code and produce an optimised concurrent version of the code for the Sequent range. On its part, Sequent is to extend its own parallel FORTRAN compiler to transparently integrate the KAP technology, providing more extensive parallel dialect to allow the KAP to discover additional parallelism. Both companies will market the product, but KAI is to benefit from sales and provide support. On a 30 processor Sequent machine, fully automatic parallelisation resulted in programs executing up to twenty-six times faster - though KAI points out Fortran code without many DO loops will not fare so well. The pre- processor offers a list of those loops which could not be automatically optimised to allow further hand optimisation. Cost will be $3,000 for the Balance range, and $5,000 on Symmetry systems. KAI says it is considering the development of a C product, but that work on it has not yet begun.

TOLERANT GOES DOWN UNDER - CONTINUING BID TO EXTEND INTERNATIONAL PRESENCE

San Jose, California based manufacturer Tolerant Systems has taken another significant step in its plans to build up an international presence for its fault tolerant Unix machines by signing an exclusive five year, $12m agreement with Lionel Singer Corporation Pty of North Sydney, Australia. Singer, which has a long-standing involvement in the Unix market Down Under - it already has deals with Pyramid Technology, Convex Computer, Sun Microsystems, Bridge Communications, and Sytek among others - is following its usual policy of forming a new subsidiary to handle the products from each supplier. The newly formed Tolerant Systems Australia Pty sees the distributed architecture and communications capabilities of the machines as particularly suitable for the growing telecommunications market in Australia. It also hopes the transaction processing capabilities of the machines will take them into vertical markets requiring high volume online database applications. Tolerant, which recently set up a European subsidiary in the UK based in Slough, Berkshire, already has distribution agreements with Metrologie of France and Everdata international in Taiwan; it also has technology exchange agreements with Bull of France and RC Computer in Denmark.

TANDEM WINS PRIZE FROM JAPANESE MINISTRY OF INTERNATIONAL TRADE AND INDUSTRY

Apart from Marlon Brando, only those who never win any decry prizes, so Tandem Computers Inc, Cupertino, has every right to be proud of the fact that its NonStop VLX supermini and XL8 and V8 disk storage facilities have been awarded the respected "Good Design Prize for Foreign Products" from the Japanese Ministry of International Trade and Industry. The prizes are awarded to products exhibiting outstanding design characteristics in 13 categories and Tandem's offerings won in the Information Equipment category, meeting criteria that include appearance, function, quality, safety, suitability for production and reasonable price; the judges thought particularly highly of the modular expandability, maintainability and innovative appearance of the Tandem products, and the company can now sport the G-Mark for Good Design in its promotional activities. A total of 3,690 products were entered this year, and 72 products from foreign companies were awarded G-Marks.

ITL'S "WIDEST EVER" UNIX RANGE

ITL says its aim in launching a new series of products last week (UX No 156) was to establish a coherent base of products for its business as a system supplier, based on the Unix/Posix standard, OSI, and "open fault tolerance". The 21040 departmental range includes two 68020-based models supporting up to 32 users, and a 68030 model for 24-96 users. Only the mid-range 8-32 user Model 32 is available now: the low-end Model 41 is due out early next year, and the 68030-based Model 43 by the third quarter of 1988. Running Unix V.3 with RFS, the machines have a strong emphasis on communications, with ITL using its existing OSI and networking skills to integrate ibm and ICL networking capabilities with standards such as X.400 and Ethernet. Office automation software available includes the Uniplex II Plus Version 6 product. The 21090 range of fault tolerant machines use Sequoia's architecture of tightly-coupled multiple 68020 processors (up to eight on the immediately available Model 96), allowing a linear expansion of power, and including a Unix kernel entirely re-written to support multiprocessing, fault tolerance, and an increased transaction processing throughput - ITL claims a TP1 debit/credit rating of 84, compared with 26 for a similarly configured Tandem and 50 for the recently launched Stratus model - but conformance to the Unix SVID allows applications such as Uniplex to run unchanged. An implementation of Pick runs concurrently on the Unix platform. The Model 96 for up to 1000 users has an entry-level price of £230,000, which includes 16 Mb RAM, 32 ports, two 368 Mb discs, tape drive and operating system. Prices for the Model 92 and the Model 97 are not yet available.

INSTRUCTION SET PLANS TO BUILD UP OS/2 BUSINESS TO MATCH UNIX

Declaring that large segments of the industry have still not appreciated the implications of OS/2 and that those who fail to adapt run the risk of going out of business, London consultancy and training outfit, The Instruction Set, last week unwrapped plans to build its OS/2 business to a size comparable with its Unix business over the next two years. Inset managing director Peter Griffiths claimed that many still regard OS/2 as little more than an improved DOS, failing to recognise that not only will it usher in a new breed of distributed applications that will dominate corporate networking, but that its complexity - of a similar order to the complexity of Unix - and radically different approach compared with DOS will pose serious challenges in getting to grips with the new technology for everyone from software houses to users. Technical director Mike Banahan added that not only would software houses be unwise to develop applications without aiming for portability between Unix and OS/2, but also that programmers used to working in teams to develop Unix software would be more suited to the similar environment required to develop OS/2 applications than would the average DOS programmer.

The Instruction Set hopes to cash in on the perceived demand for OS/2 skills with a range of services including consultancy, training, implementors' workshops and project services. The UK's largest Unix software distributor Sphinx Ltd of Maidenhead also recently announced a move into OS/2 training, distribution and support, saying that the experience gained in dealing with Unix products would serve it in good stead in handling the complexities of OS/2 products.

GOULD ADDS ENTRY-LEVEL MODEL TO ITS NP1 MINISUPER FAMILY

Gould Inc has extended its new NPL line of minisupercomputers downwards for the Unix systems market with the NP-1 Model 105, with 32Mb of memory at £200,750; it comes in below the 64Mb, £310,000 Model 110 (UX No 122). The machine is offered with Posix-compliant UTX/32 Unix, and with the UTX/32S secure Unix, claimed to be the only one that is validated to the US Orange Book C2 standard. The Model 105 is fully upgradable to larger NP-1 models, and main memory goes right up to 4Gb. The 105 is available 90 days after receipt of order. The NP-1s come in single and multi- processor configurations, with one CPU rated at 10MIPS. Gould says that shipments of the NP-1s began in September and that the company is still dealing with the backlog of orders for the products. The company expcets the machines to do well in the academic market for number crunching and in installations where a large number of terminals are required for relational database work, adding that Oracle, Ingres, Informix and Unify have all been porte to the range.

STRAPPED FOR CASH, CHOPP DELAYS LAUNCH, SEEKS INVESTORS

The rash of new scientific supercomputer companies that were formed in the early 1980s has led to indigestion among venture capitalists, and the newest arrivals are finding it increasingly difficult to find the funds they need to reach viability. The assets of Culler Scientific have disappeared into Saxpy, and now, reports Computer Systems News, CHoPP Computer Corp has completed the rounds of venture capital firms without success, and is looking for corporate investors. The shortage of cash will likely delay the introduction of the CHoPP 1 scientific supercomputer by nearly a year. CHoPP needs $10m to $20m, and although the company declines to say whether it is in talks with possible investors, observers suggest that Japanese companies or defence contractors might be interested in investing in the San Diego company. The cash crunch has forced CHoPP to lay off all but eight of its employees - it had 35 as recently as August. The CHoPP 1 is a Unix machine designed to offer between 10 and 100 times the performance of the Cray 1. CHoPP, originally incorporated in Vancouver, British Columbia and quoted on the stock exchange there, merged with Sullivan Computer and moved south. CHoPP stands for Columbia Homogeneous Parallel Processor.

PRIME TO MARKET CYDRA 5 MINISUPER IN EUROPE - LAUNCH SET FOR JANUARY

Cydrome Inc of Milpitas, California is set to launch its Cydra 5 minisupercomputer in January 1988, according to Vice President of Marketing, Robert Hesser. Cydrome was set up in May 1984 with venture capital funds that included a 10% stake from Prime Computer Inc, and the Cydra 5, previewed at the Supercomputer Conference last May, is its first product. The Cydra 5 has a "directed.dataflow" architecture and uses fine-grained parallelism to achieve high performance over a wide range of programming tasks, said Heller. Using both hardware and software to direct the parallelism in standard programs means "that not all the effort is placed on the compiler. After compilation, the hardware optimises constructs that can only be spotted while the program is running, such as scheduling and boolean functions". Programmers see standard Unix, and do not have to know about the machine's parallelism, claimed Cydrome, whilst admiting that those requiring "the last drop of performance" would still be likely to hand optimise their code. The Cydra 5 will be marketed in Europe through Prime, but in the USA different market sectors will be divided between Prime and Cydrome - Prime's version is likely to include different peripheral equipment. Cydrome, which now employs 170 people at its Silicon Valley headquarters, says it has already shipped systems, but will not discuss pricing details until the launch. Convex, Alliant, and Multiflow were cited as competetive systems.

AMD REPORTS STATE OF PLAY AND MAKES ITS PITCH FOR THE Am29000 RISC

With the rapid acceptance of the MIPS RISC and all the excitement generated by the Sun SPARC, not to mention the Motorola 78000 just around the corner, does the world really need another RISC microprocessor? AMD certainly believes it does, and reports that big names are flocking to adopt or support its contender, the Am29000.

Advanced Micro Devices Inc is extremely gung- ho about the prospects for its new Am29000 microprocessor, which it describes as a high- performance, second-generation RISC. Seven Fortune 500 and equivalent international companies in the minicomputer, workstation and computer graphics markets want to try the thing out and will be the beta test sites for the part, starting next month. "The 29000 program is progressing at an accelerated pace.

Bullish

"We had first silicon ahead of schedule and are on target with our support programme and beta test sites," declares a bullish John East, senior vice president of the company's logic group, which hopes to start general production in the spring of 1988. AMD reckons that the Am29000 is three to five times the performance of "other microprocessors". On the Dhrystone benchmark version 1.1, which the company says it performed this month with the most recent optimising compilers, the thing is claimed to have recorded 35,760 Dhrystones per second. The company is sticking by the design performance of 25 MIPS peak, with a sustained performance of 17 MIPS - but AMD reckons that by tweaking the silicon, it will get it up to over 30 MIPS next year. The 32-bit part has been designed for computation-intensive applications of the kind performed by superminis, workstations, high-performance graphics and laser printer controllers, 100M- bit-per-second network protocol controllers, communication switching systems and embedded peripheral controllers. It includes a 128- instruction branch target cache - which allows sustained performance on branches, 192 general-purpose registers, more than any other commercially available microprocessor, but in keeping with RISC theory: many observers believe that RISCs gain their speed more from the fact that much more work is done in on-chip registers than in a complex instruction set CPU rather than from any intrinsic gain to be had from an extremely simple instruction set that executes most functions in one cycle. The Am29000's on- chip 64-entry memory management unit performs single-cycle address translations 50% to 150% faster than would an external memory management unit, according to the Sunnyvale company. Senior veep East also reported that some of the "top firms in the world" have agreed to support the chip with development tools. "They have been impressed with the Am29000 and have pledged their full support," he reckons. "The Am29000 support programme provides all the tools designers need to incorporate this product into their minicomputer, workstation or embedded system," he says. Several third-party suppliers that have agreed to provide products to support the Am29000 have been announced by the company. Definicon, described as a leading supplier of high- performance MS-DOS-based accelerators, is doing an Am29000/Am29027 board for high- speed, computation-intensive applications.

Embedded Performance, of San Jose, California, is reported to be providing a complete set of hardware and software development tools, of which an Am29000 instruction set-simulator is currently available and a C compiler, assembler, linker and source level debugger are promised shortly. Under development are an Am29000- based software execution vehicle and a tool to debug designs incorporating the chip. Logic Automation, of Beaverton, Oregon, which supplies LSI/VLSI simulation models for systems designers, is providing behavioural models for the Am29000 and the Am29027 and announced availability of its SmartModel simulation model for the Am29000 in September. Intermetrics, of Cambridge, Massachusetts, a major supplier of embedded systems programming tools, is building highly optimised compilers, assemblers and high- level language debuggers which are being tailored to support fully the Am29000's pipeline architecture, register cache and large general register count. Ironics Inc - now there's a name for you: wouldn't it be nice to work for a company called Ironics? - an Ithaca, New York VMEbus manufacturer known for its high-performance real-time multiprocessing boards and systems, and its dry wit, no doubt, is planning soon to introduce a single-board computer based on the Am29000 processor.

Unix V.3

The new VMEbus CPU board will be part of the Ironics family of multiprocessing engines and is again being designed to take full advantage of the architecture of the Am29000 and the Am29027 arithmetic accelerator. Metaware, of Santa Cruz, California, a developer of C and Pascal optimising compilers for a wide variety of hosts, is developing C and Pascal optimising compilers for the Am29000 chip. And, as already reported, Ready Systems, of Palo Alto, California, with integrated real-time operating system software and development tools for embedded microprocessors, is developing the VRTX32 Versatile Real-Time Executive, the RT scope debugger and the VRTX32 system monitor for the Am29000. A leading developer of Unix tools which marked its coupon with an "X" for no publicity, tools is developing a Unix System V.3 implementation for the Am29000, and AMD promises to announce other third-party suppliers and products shortly. Development products to be sold and supported by AMD itself include advanced optimising C, Pascal and Fortran compilers that are being developed for it by Greenhills. And assembler, linker, loader and librarian toolkit package, along with the Xray29, high-level/assembly level debugger for the Am29000, is being developed by Microtec Research Inc, which will sell the thing itself as well as making it available through AMD. AMD also has the Adapt29K advanced hardware debug module that provides extensive debugging facilities compatible with the users' target hardware; the Mon29K development tool, which performs low-level monitor functions and works in conjunction with the Xray29 and the Adapt29K. And the floating point maths libraries for the Am29000/Am29027, are being developed by a "leading supplier of high-performance software".

DATAPOINT STARBUILDER LINKS MS-DOS MICROS TO MINIS, HOSTS

Datapoint UK Ltd last week brought the Starbuilder local area networking system to the UK market, touting it as offering multi-vendor connectivity to IBM Personalikes, departmental systems and mainframes; as long as the micro is running MS-DOS 3.1 or above. It enables MS-DOS micros to be incorporated in the ARCnet local area network which in turn provides gateways to Control Data, DEC, Honeywell Bull, IBM, ICL, Tandem Computer and Unisys mainframes and minis.

The micro can be linked across ARCnet to a departmental system where it can access file, communication and print servers. From there it can be linked to a corporate mainframe. Starbuilder comprises PCLink software which connects the micro to Datapoint's Resource Management System 3.3 proprietary operating system. A re-director sends file requests to a file server and collects MS-DOS features. Datapoint has made its Vista-Guide interface available in MS-DOS and PC users have the added benefit of the Vista Mail electronic mail system. Vista Connect enables MS-DOS micros to access departmental and corporate systems as would an ARC-based terminal. The software is controlled by a half size standard PC extension card called a Resource Interface Module, or RIM card, compatible with the 8-bit PC Bus architecture. For a PC to use Datapoint file servers running RMS, it must be 100% IBM-compatible and have 640Kb of memory. It needs one floppy disk drive, a free bus slot for the RIM card and must run MS-DOS 3.1 up. Datapoint reckons anyone moving into networks will have to upgrade to MS-DOS 3.1 so this won't discourage companies in any way. It claims its 7900 file server gives simultaneous access for 150 users with 17Gb of storage space, much more than is available locally. Looking to take £2m in orders in the next nine months, Datapoint prefers to think of its PC local area network as a building block to greater things; the compeletely integrated office is its goal. The Starbuilder ARCnet interface card and software costs £550. A typical 20 user configuration - including file server, mail server, interface cards and software - costs £37,000, rising to £120,000 for an 80-user configuration. Systems can be rented over two, three or five years at from £32 a month over two years for an interface card to £5,045 a month for an 80-user system over five years.

INTERGRAPH WINS $6.4m BRAZILIAN ORDER

Brazil may be in President Reagan's bad books for its computer policies, but one company has got in under the protectionist wire. Celebrations are in full swing down in Huntsville, Alabama after Intergraph Corp won a contract worth around $6.4m from Embraer of Sao Jose dos Campos, Brazil. Under the terms of the agreement Intergraph will supply the manufacturer of civilian and military air- craft with six Intergraph MicroVAX II-based Data Processing Systems, 103 InterPro 32C Clipper-based workstations and nine InterAct 32 dual-screen workstations. Engineers will use Intergraph's Engineering Modelling System, or I/EMS, to design models of complete aircraft which will be used to extract control programs for numerical control machining of aircraft parts. Sisgraph, the Intergraph distributor responsible for the deal, will handle the system's installation, technological support and training. The contract follows a similar agreement with international aerospace firm, Aeronautica Macchi - Aermacchi - of Italy. Embraer was recently named in a deal with Short Brothers of Belfast which is to build the Embraer Tucano basic training aircraft under licence for the Royal Air Force.

GATE DELAYS ARE MINIMISED FOR UNITED BY TEXAS INSTRUMENTS' EXPLORER

Apart from the odd story from Japan, there are still very few reports of artificial intelligence in action, but one such has been reported by United Airlines Inc and Texas Instruments Inc in a most unlikely setting - an airport Gate Assignment display system. And United reports that the system has already reduced travel delays at Chicago's much-too-busy O'Hare Airport and at Denver's bustling Stapleton Airport hub in the foothills of the Rocky Mountains. The new system, which has been operating for some months now, was developed by a combined team of UAL operations and management personnel and Texas Instruments knowledge engineers. According to the airline, the system is designed to increase the effectiveness of United's gate controllers in assigning aircraft to the series of available gates, thereby reducing those irritating flight delays that are related to ground operations. At the heart of the Gate Assignment system is an artificial intelligence program that captures the combined experience and knowledge of a half-dozen United operations experts. The knowledge-based system of course runs on Texas Instruments' Explorer workstations. At O'Hare, explains United, its gate controller and back-up gate controller must assign more than 400 flights daily to one of 50 gates. It can becomes "a high-stakes game of musical chairs when weather problems and other flight delays demand frequent changes in operational plans". And unique gate restrictions for McDonnell Douglas DC-8 (gosh, is United still using DC-8s?) and DC-10 and Boeing 747 aircraft add further complexity to the gate assignment process. Previously, the process was handled by experienced staff who relied on memory and a wall-sized scheduling board full of magnetic aircraft symbols, to chart arrivals and departures. Janet Wejman, United's product manager for the gate assignment system, notes that it was installed in three operational phases, beginning with a stand-alone system that did not tie in to United's nationwide Unimatic flight information data system. The gate controllers soon found they were more effective with the new system than they could have been with the old manual system, and a phased approach also enabled them to become more familiar with the system as it was enhanced. The second phase added a complete view of all gates at the airport and incorporated many other refinements suggested by the gate controllers themselves. In July 1987, the interface that connects the Explorer-based system to the comprehensive Unimatic system, was implemented at both O'Hare and Stapleton. "Now, Unimatic feeds flight information data directly into GADS, and gate controllers, in turn, can update this flight information as the gate assignment plan is changed. The automated phase also provides minute-by-minute aerial views of all our gates, showing the location of our aircraft and status information on each flight," declares a happy Ms Wejman.

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Minigrams

Data General, desperately trying to bolster its sagging fortunes with a renewed emphasis on the OEM market, is tipped to come up with Intel 80386-based machines early next year in the form of both a top workstation in its Dasher line and a Unix-based multi-user machine or server for network applications.

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The **Tower Assurance Group** has taken a **Plexus Computers** P95 machines from London-based DP Advisors Ltd to replace its existing financial and office automation system; Plexus says it is one of the first sales of the machine to a financial institution.

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Oxford manufacturer **High Level Hardware** has taken on the GHOST-80 Fortran based graphics software package developed by Culham Laboratory, specialist in nuclear fission research for the UK Atomic Energy Authority, to run on its Orion Unix superminis. GHOST-80 handles 3D and 2D graphics functions including the ability to make contour diagrams of surfaces and view 3D surfaces from any elevation angle.

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Sun Microsystems' expansion continues apace with the formation of three new European subsidiaries: Sun Microsystems Italia in Agrate, Milano will be headed by former ComputerVision Italia chief John Baarns; for Sun Microsystems AB in Sweden Sun has signed Elis Nemes, formerly Nordic manager for Gould; Roland Saner, previously sales manager at Data General Switzerland, is country manager for Sun Microsystems Schweiz AG in Glattburg near Zurich.

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Having returned to modest profit, **Convergent Inc** feels confident enough to embark on a share buy- back: the San Jose, California company plans to buy up to 1m shares for use in existing and new employee stock option plans; "We also believe that market and economic conditions may warrant the repurcahse of additional shares," said Convergent's chairman, Paul Ely.

According to sources **Siemens** luminary Hans Strack-Zimmermann is leaving the West German company and has no plans to date concerning his next move.

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Not quite so fast after all: the new baby **ETA Systems Inc** ETA-10P supercomputer should be rated at only 23MFLOPS, not the 25MFLOPS at which it was announced by the **Control Data Corp** firm, according to revised figures from the **Argonne National Laboratory** that take account of an error in the original Linpack code written for the test; the downgrading is significant, because, Electronic News notes, the baby **Cray** X-MP/2 uniprocessor is rated at 24MFLOPS on the benchmark.

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Hitachi, **Fujitsu**, and **Mitsubishi** have all unveiled prototype 32-bit chips optimised for the Tron operating system, and Hitachi says it that it will ship samples of its part as early as the end of December: Hitachi's chip also supports Unix and is designed to be used in engineering workstations; Fujitsu and Mitsubishi are expected to release their Tron microprocessors in the first half of 1988.

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And **Japan Personal Computer Software Technical Laboratory** in Tokyo has previewed a multiple language window architecture for Tron-based computers: the architecture has almost all fonts for every language in the world, and a language-to-language translation feature, which, comments **Newsbytes Japan**, suggests that if the tool is actually developed, it could become the world standard.

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Hewlett-Packard has signed an exclusive distribution agreement with **Numetrix** of Toronto, Canada to market Schedulex - a production scheduling system - in the UK and Ireland running on a Vectra PC which has had a 32-bit Unix-based co-processor added to cope with the demands of the software.

NCR points out that it has trade marked the Tower name and companies such as **Apricot** (UX No 156) cannot use it as part of the Xen-i 386 product name: the company adds that two unnamed companies have had to withdraw and redesign their marketing startegies for new products.

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UK daily newspaper **The Independent** is developing telecommunications, text processing and graphics arts systems to aid the paper's production based around Sun Microsystems' implementation of Unix, NFS, Ethernet and C.

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Mitsubishi Electric is to market **National Semiconductor**'s NS32000 family of 32-bit microprocessors in Japan under an exclusive distributorship: Mitsubishi will pitch the chips to makers of office equipment such as printers, facsimile machines, and copiers, but Mitsusbishi will also be using the 32000 series chips in its own products to help alleviate trade friction with Uncle Sam over limited penetration of US chips in Japan.

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In the past the only way to get accredited Unix System V training was to visit an **AT&T** site but AT&T has just launched its Videotape Library consisting of five modules to save customers the trip.

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Sun Microsysems has entered into an OEM agreement with **Daisy Systems Corporation** of Mountain View, California, which allows Daisy to use Sun's 4/260 SPARC-based deskside server as the XL Server for its printed circuit board design system: configured with 32 Mb RAM, 280 Mb hard disk and 60 Mb tape drive, the XL will operate on Daisy networks running the Star router software and DSPICE analog simulator as well as Unix software from Sun, and will be priced at £81,867 when shipments begin in December.

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Altos Computer Systems Ltd will launch its latest model, the Series 1000 (UX No 154) at the Which Computer? Show in January following its US launch at Comdex earlier this month.

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HARRIS' UNIX-BASED NIGHT HAWK DEVELOPED FOR SIMULATION

Harris Computer Systems, which already has an OEM agreement with real time vendor Masscomp, claims that it has developed a new range of multiprocessor real time machines from the ground up - and is taking them into the market for high-performance simulators for defence and other applications. The Night Hawk range uses the CX/RT SVID-compatible real-time kernel claimed to provide context switching better than 60microseconds, coupled with up to eight MC68030-based CPUs; the object code compatible CX/UX, based on System V.3.1 and BSD 4.3 is also provided for development, as is its multi-processor Ada compiler. Each CPU also includes a custom floating point processor and is said to provide 6MIPS. Reason for the development, according to the company, is that although the Masscomp-based MCX systems are fast enough for data acquisition or command and control they don't support the very fast context switching required for simulation. Night Hawk is not due till fourth quarter 1988; pricing for a single- CPU system starts at over $50,000.

HEWLETT-PACKARD RELEASES DISKLESS WORKSTATION -SPECIFIC UNIX

Hewlett-Packard has a new release of its HP-UX operating system including Hewlett-Packard-developed support for diskless workstations that it claims tackles many of the limitations of other "diskless" products - and revealed that after protracted negotiations, it has finally signed up for AT&T's System V.3. Release 6.0 of HP-UX for Hewlett-Packard's Series 300 workstation line was accompanied by a colour diskless system, the Model 319, and adds support for Sun's NFS and VMEbus hardware addons; the support for diskless stations uses an Hewlett-Packard-developed protocol for improved performasnce and reliability, is said to maintain full SVID compatibility and provides a single-rooted file system available to any user. Hewlett-Packard said a V.3 based product should be available "within a year".

TCP/IP CONSENSUS ON NETBIOS OPENS UP THE NETWORK - BUT NETWORK MANAGEMENT AGREEMENT STILL "A YEAR AWAY"

Developments in the TCP/IP suite of protocols unveiled during last week's TCP/IP Interoperability Conference held in Arlington Virginia should lead to widely available multi-vendor networking facilities for users, following a joint co-operation effort by six computer networking and communications companies. At the conference, The widely used NetBIOS (Network Basic I/O System), the session layer networking interface developed by IBM for personal computers, was shown running over the TCP/IP layers below in a multi-vendor demonstration that included products from Bridge Communications, CMC, Excelan, Network General Corp, Syntax, and Ungermann-Bass. The significance is that the companies have achieved consensus on standards for a common NetBIOS interface, the result of eighteen months work, according to Dan Lynch, President of Advanced Computing Environments, the conference organisers. "It took nine months to get the specifications together, and a further nine months to do the work". The six vendor companies showed the 900 conference attendees applications such as PC Lan and Smart running between MS-DOS, Unix, and Xenix PCs and servers, and included the first products from each company to take advantage of the standard, including the PCS/1 PC server from Bridge and Excelan's LAN WorkPlace for Xenix and DOS operating systems which allows direct communication between dissimilar hosts, servers and departmental computers on the LAN without the need for gateways. Excelan's Technical Marketing Manager, Steve Spanier, said that the co-operation would lead to a wider arena networking access. "TCP/IP is growing fast, as less technical people are starting to use networks and demanding transparent access to network resources". Spanier expects the new standard, which has been placed in the public domain, to be widely taken up by vendors offering TCP/IP based products - Excelan, for instance, has a strategic relationship with the Santa Cruz Operation for TCP/IP with SCO Xenix. Also addressed at the conference were the beginnings of an agreement on network management standards for TCP/IP. However, said Spanier, "that probem is on a much grander scale - we've started later and the problem is bigger". It would be at least a year before any solid standardisation efforts were ready, he said.

RTI AND SUN JOIN FORCES ON DATABASE QUERY TOOLS FOR WORKSTATIONS

A new generation of user interface tools for database products that will take advantage of the facilities of graphics workstations are to be developed in a joint agreement between Sun Microsystems Inc and Relational Technology Inc. The tools will provide a window-based user interface allowing access to central databases without the need to use a query language, and will be licenced for other hardware manufacturers and database vendors in the hope of establishing an industry standard. The product will be built on top of X Windows and an enhanced version of Sun's existing SunSimplify product, which was developed originally for use with the Unify database, and will operate in conjunction with the networking and distributed data management connectivity tools underlying RTI's Ingres/Star database products. Versions operating with the Ingres database will be offered both under Sun/Unix and DEC VAX/VMS environments, with RTI distributing both versions. Sun will have rights to distribute the Unix version only, and in addition to Ingres will be licencing it for different database products in the future - it is claimed that this will be easily achieved as the interface generates SQL commands. Versions for multiple operating environments will also be developed and licenced "at a later date". RTI's Randy Livingston said that with the growing convergence of Unix workstations, 80386-based machines such as the PS/2, and Apple Macintoshes, all using bit-mapped graphics and a mouse, demand for this type of interface was growing. The first product is expected to become available in mid 1988.

SOFTWARE LABS FOLLOWS £17m NEC CONTRACT WITH £15m FROM LINKOR

After six years as a low-profile accounting software developer, Dublin-based Software Laboratories last week announced a contract estimated at £15m over five years with sales and marketing organisation Linkor based in Paris. Although the Dublin-based company was formed in 1981 it has only started to seriously market its product, Unigem, this year: its first major coup was an order from NEC in Australia, worth around £17m (UX No 146). Software Labs claim that Unigem is unique amongst the plethora of accounting packages currently available one of the reasons being that, it says, the system was specifically designed for the value added reseller market. The system consists of an on-line transaction processing environment, integral applications devlopment tools and a series of accounting applications with a database at the heart of it. Unigem can be converted by software houses to fit a multitude of different applications, claims the company, such as travel agent booking systems and trading systems. Unigem runs on any Unix-based system conforming to X/Open specifications. Software Labs expects to announce a number of contracts with manufacturers of Unix-based machines during the first half of next year as well as agreements with software and systems houses. When the company set up it was self-financing covering development costs by selling its software on a controlled basis. In 1986 the Irish government took a minority shareholding in Software Labs giving them sufficient money to start a marketing campaign. The company currently employs some 50 people, and the signing with Linkor gives them a "sales force" of 66, but next year the company expects to grow to around 200 staff most of which will be involved in development work.

PHILIPS BUILDS MEDICAL SYSTEM AROUND PIXAR CPU

An earlier agreement between Pixar Corp of San Rafael, California and Philips Medical Systems under which Philips seeded Pixar Image Computers machines with software developers has paid off for Pixar with multi- year, multi-million dollar contract. Under the contract, estimated at $5m in the first year, Philips will sell Pixar's first end-user medical system for three-dimensional volumetric reconstruction of computed tomography scans. The system will emerge as the new Philips Image Computer System 2000, which combines the Pixar CPU with a three- dimensional musculoskeletal software package, videocassette recorder and tape. Pixar, a Lucasfilm spinoff now owned by Steve Jobs, also has agreements with AI systemns vendor Symbolics and Alias Research of Toronto, and says it now has over 100 systems installed.

RADIUS MAKES LARGEST ACQUISITION TO DATE: £1.2m FOR WELSH FIRM

For the second year running, Radius Plc of Hull is celebrating Christmas with the acquisition of a computer company specialising in Unix. Cardiff-based Computerised Business Systems Ltd (CBSL) follows the purchase of Advanced Business Technology last year and Armstrong Micro Electronics in October, all bought to supplement Radius' customer and technical base as it makes the transition from a Texas Instruments systems house to a more broad-based company offering TI, Data General, and Olivetti/AT&T hardware, with an increasing (but still small) percentage of Unix business. CBSL was acquired for £1.2 million, made up of £120,000 cash with the rest in shares, and the 70 employee company will become the first Radius outlet for Wales and the West. Radius will also take on CBSL's main product line, the Profasy system for accountants, which has an existing user base of 300, an impressive figure to have built up from a single Welsh outlet, says Radius Chairman Edward Sharp. "We aim to make it a market leader" he said. According to Sharp Radius now has 5,000 programs on its books which it uses to provide complete systems for customers, and has a large number of technicians amongst its employees, now up to 300 in total. Last year Radius achieved a turnover of £7.5 million, with £1.5 million profit, increasing 25% during the first half of this year. CBSL turnover was £2 million. Sharp says that Radius continues to look for further suitable acquisitions.

GUIDE TO POSIX FROM 1003 GROUP BEGINS NEXT MARCH

The 1003 Posix Group will be setting up a working group to develop a "Guide to Posix based on Open Systems Architecture" at its March meeting to be held in the Washington DC area. The group says that an IEEE Guide is not a standard but a presentation of information and this guide will define the inter-relationships between the various Posix standards and other standards such as languages, databases, graphics, and windowing. The Guide will be limited to presenting information about approved standards projects and approved standards but may point out areas where additional work is needed. The document is aimed at people evaluating open systems so that they can see what standards exist and find out where to get information on them.

IRS TEST ENCORE AND ORACLE FOR TAX RETURN SYSTEM

The US Internal Revenue Service has gone to Encore Computer Corp for a Multimax 120 system to be used as an automated income validation application. The system, already installed at the IRS Service Centre in Ogen, Utah, is part of a pilot scheme. The system has the Oracle rdbms on it and Encore puts the success of its sale largely down to Oracle, saying that it has "a great commercial presence" and sees it becoming a significant factor in the sale of its systems.

TADPOLE MOVES INTO SOFTWARE WITH OWN V.3.1 PORT AND OPTIMISING C COMPILERS

Tadpole Technology is diversifying into the Unix software industry and will be offering Unix System V.3.1, optimising C compilers and its range of 68000-based boards. The company has done a direct port of the AT&T source and will be offering the source to AT&T licensees for a one off price of £36,500. Customers can then develop the operating system internally to suit their own needs. The Unix port will go into its first two beta test sites next week and the company expects it to be generally available before the beggining of March. The optimising C compilers will also become available in March: these are aimed specifically at RISC processors, but the company declines to specify which. During March NFS, Streams and TCP/IP will be added to the port. The operating system is intended for use with the Tadpole hardware but the Cambridge-based company says that it may consider doing other ports given "the right circumstances".

SWEDISH DEFENCE FINALLY AWARDS CONTRACTS NO ORDERS UNTIL SECURITY FEATURES ADDED

On November 24th the Swedish Defence Department officially awarded the supplier contracts for its second purchasing phase to both Norsk Data in conjunction with Data Industrier AB, and Unisys Sweden. The contract is estimated to be worth around £15m to the three companies, and each will compete with the other on the individual contracts. Although Norsk was expecting to have the first small orders this week, the department said that no orders would be issued until the additional security features demanded recently (UX No 154) could be fulfilled by the suppliers, who are now committed to providing those facilities. This is unlikely to be until Spring of next year, when Norsk predicts some large contracts are on the cards.

CHARLES RIVER TO DELIVER MULTIPROCESSOR UNOS, 68030 CPU NEXT YEAR

Charles River Data Systems, Framingham, Massachusetts, is preparing to deliver release 8 of its Unos operating system (UX No 5), a non-licenced version of Unix that is nevertheless claimed to be System V Interface Definition- and Posix-compliant. According to Computer Systems News, the new release will also have a Dedicated Auxilliary Processor feature that will enable one processor - out of a maximum of seven to be supported - to be dedicated to a single real- time function. Unos 8 is in beta test and is planned to be generally available by the end of next year. On the hardware front, the company is ready with a 68030 processor board that will be supported in the top two of its three machine models, the desk-top or rackmount Universe 200, the rackmount or tower Universe 400 and the cabinet Universe 600. The new VCP6000 68030 board will join the existing 68000-based VCP1000 - only used in the Universe 200 model - the 68010-based VCP2000 and 68020-based VCP4000 boards; it will initially use a 20MHz version of the new Motorola part, but a 25MHz version will follow in the second quarter, and the processor board has been designed for clock rates up to 33MHz. Only the VPC6000 board and a new VPC4000MP will be usable in multiprocessor configurations. While seven CPUs is the maximum, four will be optimum using the 68020 boards because of local memory limitations. All but the new 68030 processor need a second board for memory management. The Universes use a 32-bit VMEbus and are used primarily in real-time transaction and manufacturing applications. Pricing for the new products has not yet been set, but a machine using two VCP4000MPs will be about $23,000, four CPUs will be under $50,000.

BT INTEGRATES VOICE/DATA WITH MEZZA FOR PABX USERS

Already selling well in the United States and Canada, British Telecom's Mezza Communications System is about to become available to UK customers. Launched at Telecom '87 in Geneva during October (UX No 150) the Mezza is a Unix-based departmental multi-processor computer which integrates voice and data communications with computing features. The central system, or Information Manager, links up terminals known as VoiceStations (each equipped with digital telephone, qwerty keyboard, and high resolution screen) with ordinary two-wire telephone extension cable to a company's PABX system. Mezza owes its origins to an ill-fated Silicon Valley start-up, Sydis, that first showed its VoiceStation system way back in April 1983, when it used multiple Motorola 68000 processors to support up to 300 workstations offering integrated voice, data, and graphics. At the eventual demise of Sydis, BT stepped in and bought the technology and manufacturing rights of the system, and has since developed and updated the hardware for its own requirements. The workstations integrate advanced telephone facilities with automatic message capabilities, word processing, voice messaging, and office automation software. The main emphasis is on voice and data integration, allowing voice messages to be played back, adapted, or sent to other users with much greater control than, say, an audio tape recorder. BT signed an agreement with Quadratron a year ago allowing it to use and develop the source code of the Quadratron word processor for the Mezza, as well as the rights to distribute both the standard package and a product developed for voice annotation. Sold by Gandalf in the US and Canada, BT will now be concentrating on its own PABX customers as production is being ramped up at the Brentford factories.

IBM "PREPARES CO-PROCESSORS, NEW MODELS FOR PS/2 FAMILY"

With PS/2 clonemakers ready to start snapping at IBM's heels, the company - which announced yesterday that it has shipped the first 20,000 copies of OS/2 - needs to move the Personal System/2 line forward much faster than it did the original Personal Computer, and observers are collecting clues in an effort to predict what IBM will come up with - likely in a major April announcement. Marty Winston of the public relations firm Winston & Winston in Dallas, Texas - he came very close indeed to a spot-on prediction of the Personal System/2 announcement - hears that IBM is working on co-processors for PS/2. In particular, he looks for a co- processor to run the Synergy development environment from Matrix Software Corp of Boston. The Matrix software enables systems integrators to create a graphic user interface that acts like a combined version of GEM and Microsoft Windows, and Winston hears that version of this has been seen at IBM running four windows on a 4.77MHz 8088-based Personal seven times faster than does an Apple Macintosh II. A compressed assembler is used to speed operation with a ROM- based decompressor running on the co- processor - code-named Cynergy. Matrix declines to comment on the nature of its work with IBM but acknowledges that IBM is a customer. Within the last month Matrix has also started to ship its Layout computer-aided software engineering product, which runs under PC-DOS or Unix. The Matrix products will be available for OS/2 during the first quarter next year. Matrix is on the brink of having a UK subsidiary, expecting to be established in Plymouth within the next three weeks. The company has received funding from the Devon and Cornwall Development Bureau and hopes to work with Plymouth Polytechnic on development projects. Two further top-end PS/2s are also expected from IBM for sometime next year, the higher running at 24MHz. The other putative machine is a "Model 70" using the forthcoming 80388 16-bit bus version of the 80386.

EXCELAN TAKES NETWORKING TO THE DESKTOP WITH LAN WORKPLACE

Excelan Inc's strategy to enter the desktop market using its networking expertise has yielded LAN WorkPlace, a software and hardware package which allows Unix, Xenix or PC-DOS-based micros to communicate with dissimilar computers using TCP/IP protocols. LAN WorkPlace for PC-Unix enables Intel 80386-based micros running Unix System V.3 to be linked on TCP/IP networks. The Xenix version provides the same facility to users of Xenix System V on 80386 machines to communicate with dissimilar computers across a TCP/IP-based Ethernetwork and also supports the Santa Cruz Operation Inc's Xenix-NET packaged version of MS-Net for Xenix systems, and the latest release of SCO Xenix System V, Release 2.2. LAN WorkPlace for PC-DOS is unbundled as well as adding new capabilities to its existing offerings. Users can pick different components of product that will enable them to access to servers running Novell's Advanced NetWare 286 operating system and systems running Microsoft Networks protocols including Xenix, Unix and VAX/VMS hosts. Concurrently, users can gain access to files and applications resident on a full range of dissimilar host computers such as DEC VAX computers through terminal emulation, file transfer and remote utilities. With the PC-DOS LAN WorkPlace, a user can simultaneously be using a database system on a Digital VAX, be tied into the corporate mail system, and be using PC-DOS applications in the workgroup. All packages still require an EXOS 205T or 205E intelligent Ethernet controller board as well as the TCP/IP Transport System and Network Utilities. Options include: LAN WorkPlace HostAccess; LAN WorkPlace HostShare; LAN WorkPlace Driver for Advanced NetWare; LAN WorkPlace NetBIOS; and LAN WorkPlace Socket Library. The components of the LAN WorkPlace for PC-DOS will be available in December in a variety of configurations. The components include the 205T and 205E intelligent Ethernet controller boards for $795 and $695, respectively; TCP/IP Transport System and Network Utilities for $100; Driver for Advanced NetWare for $25; Socket Library for $250; NetBIOS for $50; HostAccess for $150 and HostShare for $100. LAN WorkPlace for Xenix 386 will be available in January 1988 for $695. A networking package that includes the new software with Excelan's intelligent controller board is $1,395. The LAN WorkPlace for Xenix 286 is out now at $595 as is LAN WorkPlace for PC-Unix, at $695. A networking package that includes the new software with Excelan's EXOS 205T intelligent controller board for MS-DOS micros is out now at $1,395.

CAMBRIDGE COMPUTER STUDENTS DESIGN THEIR OWN CHIPS - THANKS TO QUDOS

Cambridge University computer science students are able to design their own chips and get prototypes back before the end of term - at a cost to the university of £300 per chip - thanks to a new Cambridge company, Qudos Ltd. Qudos - Quick Design On Silicon - brings together Acorn Computers co-founder Dr Hermann Hauser, former Torch chief executive Peter O'Keeffe, and Dr Andrew Hopper, a designer on both the Cambridge Ring and the BBC Micro. The students design their chips on BBC Micros, 30 of which are used as terminals to a network of DEC MicroVAXes running the Qudos Quickchip chip design software. Qudos produces the prototype chips using a direct write electron beam which marks out the features of each of the chips to be prototyped one by one onto a multi- project wafer. The Qudos Quickchip and Minichip design packages were developed from work done at the Cambridge University Microelectronics Laboratory.

CONCURRENT ADDS PC-DOS TERMINAL SUPPORT, OFFICE FUNCTIONS TO RELIANCE

Concurrent Computer Corp Ltd can now offer full support for MS-DOS micros in its distributed Series 3200 networks with two new products, PENnet PC and Reliance Office. Reliance Office enables third party and user- developed programs to integrate with the Reliance Plus relational database. The Lex word processor from Ace Microsystems is available as an option as is the NEM/32 electronic mail system and C-Telex. Concurrent users can now access local and remote Series 3200 systems and networks from MS-DOS micros, initially across an Ethernet, with PENnet PC networking software. This is one step on from PENnet Plus which provides access to mainframes via IBM gateways and conforms to the Open Systems Interconnect standard. Concurrent says it also has a Unix System V version of PENnet for use with its superminis; a version for use with machines running the OS32 proprietary real-time operating system and one for those connected via X25. The new networking software was developed at the minimaker's UK base in Slough, Berkshire, has has already been installed at various beta testing sites, including Allied Irish Finance which uses it to connect Series 3200 machines, Personal Computers and an IBM mainframe over SNA. A site licence costs just under £3,000 enabling any number of MS-DOS micros to be connected.

SUPERCONDUCTIVITY: NOW THE DIFFICULT PART 'GETS UNDER WAY'

After the heady optimism over the prospects for superconducting ceramics, the cold douche of reality as researchers seek ways of taking the phenomena out of the labs and fabricating them into materials that could be used for practical applications. The claim from Georgia Tech that superconductivity was ob- served in a copper oxide ceramic at 227 centigrade was one of the few really bullish announcements to be made at the conference held by the US Materials Research Society in Boston, where most of the talk was of how difficult the materials are proving to work. AT&T Bell Laboratories did report progress on one key problem - that the ceramics in general cannot carry enough electricity for practical applications - saying that it had come up with a processing technique that creates a superconducting ceramic that can carry up to 1,000 Amps per square centimetre in a moderately strong magnetic field - one unexpected drawback that has emerged is that the ceramics tend to cease to superconduct when they are subjected to a strong magnetic field. According to the Wall Street Journal, the Bell Labs scientists achieved their success by melting the ceramic and cooling it in a precisely controlled environment that caused partial alignment of the crystals: it seems that the junctions between unaligned crystals have been a major source of poor electrical connections. The researchers believe that they can improve current capacities by a factor of 10 by refining further the melting and cooling technique. But still to be solved is a means of drawing the ceramics into wires that are not so rigid and brittle that they are well-nigh impossible to handle in practical applications. This is assumed to require strengthening them with other materials - but contact with almost any other material apart from silver seems to destroy superconductivity of the wires. Nevertheless, while solving the problems highlighted is crucial to high-voltage applications like power transmission and levitating trains, they are less so for microelectronics.

PHILIPS' TROPHY SYSTEM LINKS TRAVEL AGENTS TO "ALL RESERVATION SYSTEMS"

Philips Telecommunication and Data Systems has launched Trophy, a 125-program system said to be able to access virtually all airline, car rental, tour operator and hotel reservation systems. Available on a variety of single and multi-user machines, under MS- DOS, TurboDOS, Unix and Xenix, connected to central reservation systems over the public data network, Trophy emulates the different terminals used in reservation systems, providing information from different systems in a common screen format. Access to Prestel and other viewdata services is included. Travel agents subscribing to the service will have the option of installing a CD-ROM system containing all timetable information, and a LaserVision device that holds pictures of hotels and destinations. The CD-ROM and LaserVision services will be updated frequently. Trophy also includes accounting and invoicing modules. Using the muscle of its worldwide national sales organisations starting January 1 1988, Philips believes it can capture a major share of the travel industry market. So far, six airlines, including Cathay Pacific, which will handle sales in the Far East, and Pan American World Airways, have signed up and a number of travel agencies in Hong Kong are acting as beta test sites. Talks aimed at bringing American Airlines' Sabre reservation system into Trophy have begun.

COMPUTER CONSOLES RAISES $48m TO REPAY DEBT WITH SALE OF PART OF LEASE BASE

Computer Consoles Inc is raising a bit of cash for itself by selling 40% of its portfolio of leased computer-based directory enquiry systems to General Electric Credit Corp. The sale, for approximately $48m, has been made by the Waltham, Massachusetts company's wholly-owned Computer Consoles Leasing Corp of Rochester, New York, and will lead to Computer Consoles reporting an extraordinary net gain of about $4m with its fourth quarter figures. Under certain conditions, Computer Consoles could receive additional sums totalling up to $3m over 1989 and 1990. The sale is expected to be completed within a week and the proceeds will be used to repay all existing bank loans. Chairman and chief executive John Cunningham comments that "By closing this transaction we will materially strengthen our balance sheet and reduce our debt repayment requirements. Although this sale will result in a reduction of approximately $7m in lease revenues for 1988, it will afford a $4m reduction in interest expense. We believe it puts the company on a solid financial footing to exploit the rich technology that we have in our Rochester Communications Systems Division and our Irvine, California, Computer Products Division," concluded Cunningham.

SCIENTIFIC COMPUTER SETS UP IN PARIS

Scientific Computer Systems Corp of San Diego has formed its first European subsidiary, wholly owned Scientific Computer Systems France SA, in Paris. The new operation is headed by Pierre Hassid, who formerly headed the French SEL subsidiary, now Gould Inc. And why France first? Well the company has a contract to install an SCS-40 mini-supercomputer system at the main research laboratory at Ecole Polytechnique, Palaiseau. The 64-bit SCS-40 is fully compatible with Cray supercomputers, and will be used by the Ecole Polytechnique's various research facilities for applications in chemistry and molecular modelling. The Paris base will be used as a springboard into other European markets.

DATAPOINT AIMS STARPORT AT 60m TELE-SALES MARKET WITH PROSPECTOR ACD PACK

Datapoint UK has found a new application for its Xenix-based Starport system by turning it into an automatic call distribution system for telemarketing. Electronic telemarketing is a new market set for 45% per annum growth according to managing director of Datapoint UK and Europe Brian Gifford. Thorn-Ericsson, which claims to have made around £6.5m of business out of the UK automatic call distribution market last year, compared with Datapoint's £4.5m, is more conservative in its growth estimates of around 30%. Gifford estimates the market is worth £60m in the UK currently and a massive $50,000m in the US. Some 20% of Datapoint's business in the UK comes from its current automatic call distribution system, ACD, which is used mainly for in-bound calls. Its only serious competition in the UK comes from Thorn-Ericsson with its ASDP 162 and Sterling systems, and last but not least IBM's Rolm Corp. But this cosy threesome is in for some stiff competition from British Telecom, Datapoint's biggest customer in the UK for the ACD, and DEC next year. The two companies will be launching a co-developed system that ties DEC's VAX computers to a range of PABX equipment into the market for integrated voice and data applications. Telemarketing is just such an application and British Telecom demonstrated the system at Telecom '87 in Geneva in October, calling it Stanza. The new system from Datapoint is called Prospector, known for the last 18 months as Communicator in the US and sold through ex-Datapoint company Technacron. It is aimed at the low end of the market for systems supporting up to about 60 sales representatives. It consists of a console, a supervisor's display screen to monitor call activity and up to 128 workstations, after which they must be networked. It costs £5,000 to £7,000 per user, although the price could come down as low as £3,000 per desk, according to Gifford, in volumes of 100 users at a time.

EUUG - 10 NEXT YEAR - CELEBRATES WITH CONFERENCE

The European Unix systems User Group has its 10th birthday next year and will mark it with a Spring 1988 Conference hosted by the UKUUG at the Queen Elizabeth II Conference Centre across the road from Westminster Abbey. The Confernce is entitled "Unix around the world" and will discuss the importance of standards, portability, security and communications. Speakers from 15 different countries will give presentations concerning SVID, X/Open, Posix, secure Unix, Unix networking and real- time Unix. Bell Research Labs, Dana, MIPS, IBM (Haifa), Pixar, have representatives giving talks and a number of speakers will come from the academic world including the Universities of Tokyo, New South Wales and Kent in the UK. The conference will be held between the 13th and 15th of April and several one day tutorials will be given on the 11th and 12th. Members of the EUUG and /usr/group/UK are invited. Further information may be obtained from Sunil K Das, the Conference Programme Chair, on 01-253- 4399 or from Bill Barrett on 0763-73039.

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The launch of **Apple**'s implementation of Unix, A/UX, has "slipped a bit": the company will give no further details concerning the delay or the product except that it will be launched at **Uniforum** in Dallas next February.

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Harris Corp has signed **Asahi Optical Industries** to market its CX series of Unix minicomputers in Japan: the camera company will pitch the machines against the **DEC** VAX line, pointing out that they offer up to twice the price- performance of VA[illegible] of comparable power, and is looking to sell 30 machines, worth $15m, in the first year of marketing.

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Sec[illegible] that the key product in development at SA[illegible] Inc, the Boulder, Colorado company where **Matsushita Electronics** has taken a 52% shareholding, is a 64-bit microprocessor being designed for use in superminis. **Newsbytes Japan** reports that the basic architecture of the chip has now been laid down and current work involves the design of logic circuits; the partners will jointly market the resulting products in the US and Europe, while Matsushita will have exclusive rights in Japan.

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Toshi[illegible] has brought out a Japanese language version of its 80386-based T5100 laptop as the J3100SGT: the new machine uses a 16MHz 80386 with 80387 coprocessor and has 2Mb main memory and a 40Mb Winchester; it will support Unix and OS/2 as well as Japanese MS-DOS next year and costs $7,000; the company also has an enhanced 80286- based J3100GX for use in local nets, at $6,300.

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In the desktop arena, original Japanese microprocessors are making remarkably little headway in the home market, with the **Intel** and **Motorola** families showing dominance that is comparable with what they enjoy in the US and Europe: Motorola claims that it has captured "approximately 80% of the new designs for 32-bit high-end MPU sockets at key customers"; **Sony Corp**, **Fujitsu Ltd** and **NEC Corp** are among the few Japanese manufacturers currently offering workstations based on the 32-bit 68020.

Minigrams

The CCTA's contract for a distributed processing network has finally been awarded to **Olivetti**, almost a year later than expceted, bureaucratic reasons were given for the delay: Olivetti expceted to start installing the 3B2/600-based system November 1986 at the agency's Norwich offices - the contract is an experimental but has a potential value of £1.5m.

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The University of California, Los Angeles, known to its friends and alumni as UCLA, will use **Apollo Computer Inc** workstations and networking software to establish a "first-of-a-kind" computer network of scientists and scholars involved in the study of the human mind: UCLA's Cognitive Science Programme will use the Apollo network - initially of some 70 workstations - to link the university's Brain Research Institute, School of Medicine, Artificial Intelligence Laboratory, Linguistics Department, Physiology Laboratory, as well as the Biology, Psychology and other university departments; the Apollos and computers from a variety of other vendors will be networked across the 411 acres of the UCLA campus, enabling the various departments to exchange data and resources pertinent to their ongoing, interdependent research projects, and Apollo donated $1.5m in equipment, including the new Series 4000 Personal Super Workstations, Series 3000s, and 3-D graphics stations.

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Qudos Ltd, the Cambridge Quick Design On Silicon company, has a contract, initially for one year, to supply **Acorn Computers Plc** Archimedes 300 series RISC workstations to the Cambridge University Computing Service as part of the Project Granta five-year programme to put a personal computer on the desk of each of the 15,000 students and staff of the university: well over 1,000 machines, many of them Archimedes, are expected to be in place by the end of 1988; the computers will be linked via a fibre optic network to facilities like facsimile, and on to the Cambridge University Data Network, which links **IBM** hosts, Unix machines and various other computer systems.

Convergent Technology has started shipping its 386-based machine that doubles as a PC server and Unix machine (UX No 138) several months later than expected - Convergent said that availability problems caused the delay.

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Motorola Inc may not be providing any of its second sources for the 68000 family with masks for the 68030 or 68020, but there is still money to be made out of the 16-bit members of the family, and **Philips' Signetics Corp**, Sunnyvale, has begun shipping the virtual memory 68010 version of the part as the SCN68010 in 8MHz, 10MHz and 12.5MHz versions at $8 apiece in volume.

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Advanced System Architectures Ltd of Camberley, Surrey has orders worth nearly £100,000 for its Auto- G dataflow modelling software from Strategic Defence Initiative - Star Wars - contractor's **GEC Plc's Easams Ltd** and **Martin Marietta Corp.**

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ECAD Inc has reported third quarter net profits up 235.7% at $903,000, on turnover up 52.4% at $6.1m; net rose 88.5% to $2.0m, on turnover that rose 39.7% at $16.8m. Net per share rose 200% to $0.09 in the quarter, 69% to $0.22 in the nine months.

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Encore Computer Corp saw fourth quarter net profits of $114,000, compared with a loss last time of $1.9m, on turnover up 170.0% to $7.4m; net loss for the year to October 31 was $5.9m, down from a loss last time of $11.1, on turnover that rose 250.7% to $16.7m. Net per share was $0.01 in the quarter.

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Logitek Plc has reported first half net profits up 82.4% to £580,000, on turnover that was up 74.2% at £9.3m. At the pre-tax level profits were up 80.9% to £892,000. Net per share was up 42% at 5.00p.

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Logitek Plc's splendid results have helped it win **Altos Computer Systems**'s President's Award for outstanding sales, **Wyse Technologies**' distributor of the year and **3Com**'s Northern European distributor of the year.

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APRICOT SIGNS OEM DEAL WITH SEQUENT - PREDICTS £10 MILLION SALES IN FIRST YEAR

Apricot Computers is expanding its product range with the signing of a major OEM deal with Sequent Computer Systems. The five year strategic partnership will allow Apricot to assemble Sequent's Intel 80386-based Symmetry parallel processors at its Glenrothes, Scotland plant and sell on the machines to selective UK markets. Apricot Group Chief Executive Roger Foster said that the Sequent machines would account for around 10% of the company's business over the first year - representing £10 million worth in value. The deal involves a range of three machines: the VX 9300 is the low-end machine with from 2-6 processors, 8-32 MB memory, up to 1 GB disk and rated at 6 to 18 MIPS. The box supports up to 64 users and has an entry- level price of £40,000, and is a special configuration for Apricot, with Sequent saying that they will not sell on the box themselves for at least a year. The VX 9600 has from 2-10 processors for up to 96 users costing £80,000, and the VX 9800 uses up to 30 processors with an entry-level price of £120,000 (£400,000 fully configured). As the UK's largest DEC OEM, Apricot says it is no stranger to large systems, and will be selling Sequent kit exclusively into its key financial markets, the National Health Service and local authorities. It went for Sequent because they wanted a fully binary compatible range from PCs to minicomputers - this should be in place when the Unix V.3/Xenix merged product becomes available in the middle of next year. MS-DOS, OS/2 and Unix will be integrated via networking, with MS-DOS PCs seen as the "human interface" to OS/2 servers and departmental Unix boxes. Sequent's other major OEM agreement is with Siemens for the Nat Semi based Balance range, which Sequent CEO Casey Powell hinted would be upgraded to more powerful Nat Semi chips. Siemens has sold over 400 of the machines in Europe. Sequent UK claims 40 sales, with around 8 orders for the new Symmetry systems, which begin shipments this month.

HITACHI TACKLES VAX 8000 WITH ECL UNIX MINI

In the first serious effort to move Unix upmarket in Japan - and to carve a niche for itself on the world minicomputer market - Hitachi Ltd has launched a high-speed supermini built in ECL technology, claiming that it offers the best price-performance in the minicomputer world. The Hitac E7700, clearly pitched at the high end of the DEC VAX line and claimed to offer double the price-performance, runs System V.3 with BSD 4.2 and real-time extensions. Built around the Multibus, it has IEEE 802.3 Ethernet interface and implements AT&T's RFS Remote File Sharing. The processor is constructed of 2,000 and 5,000 gate-per-chip ECL arrays with extremely fast 200pS and 250pS gate delays, and implements a five-stage pipeline. The E770 supports up to four CPUs in multiprocessor mode, and initially two models will be offered. The 8.1 MIPS E7700H will ship in March at a typical $830,000, and the 6.3 MIPS E7700G at $645,000, will follow in July. Hitachi plans to offer the E7700 in the US and Europe.

SONY TO MAKE NEWS WORKSTATION IN THE US

The 68020-based News workstation, launched in Japan in January, is claimed to be the top- selling workstation there, and now Sony Corp wants to repeat the success on the US market. Accordingly, it will start manufacturing News at 200 a month at its Sony Microsystems Co San Diego, California plant, starting in February. The News workstation runs under Berkeley BSD4.2 Unix.

WALL STREET TIPS PRIME COMPUTER TO BID FOR APOLLO

Prime Computer Inc, Natick, Massachusetts, which acknowledges that it has a $350m or so war chest earmarked for acquisitions, declines to comment on Wall Street gossip that it is looking to take advantage of very depressed share prices and weighing up a bid for Chelmsford neighbour Apollo Computer Inc. Prime is particularly keen to expand the computer-aided design and manufacturing end of its business, and Apollo is an attractive target.

SIEMENS SET TO LAUNCH NFS-LIKE PC/DFS

Siemens is set to launch an NFS-compatible distributed file system, PC/DFS in January, which it will use to link up its complete Unix range with MS-DOS AT compatibles. Most of the development work has taken place at the 26-man Systems Development Group building at Woodley, Berkshire, but "a major US networking company" is also involved in the product, which is to be sold in the US as well as Europe. PC/DFS will allow Unix and DOS to share the same file structure, with DOS on the client side. The idea is to combine the advantages of centralised control with transparent distributed access to the network. Intelligent operator assistance software is promised for the future, and access to Siemens mainframes is also supported. A VT100 emulator for Siemens 97801 terminals, PC-TERM has also been developed at Woodley, and is currently under evaluation at Munich - it will also run in conjunction with PC/DFS. Siemens is promising to show at least some of the technology at the Which Computer Show next month, where it will also be demonstrating a new low-end workstation based on the National Semiconductor NS32032 chip

IRS SEEKING SECOND UNIX PLATFORM

The US Internal Revenue Service has sent out a Request for Information to vendors for a contract that is estimated to cover 3,000 Unix-based systems. A Request for Proposal is expected to appear next June. The IRS wants a "standard vehicle" for its computer systems and originally had a contract with Zilog that ran out in 1985. Since then the various offices have been making individual purchases as the need arose. Although Unix will be a requiremnt the agency is unsure of how it will be specified given the recent problems that the US Air Force Computer Acquisition Board has encountered in specifying the SVID and the uncertainty concerning the viability of Posix as a standard.

FINAL RFP OUT FROM AIR FORCE

December 22 has been set as the final bid deadline for the US Air Force's latest request for proposal concerning its controversial $4.5 billion contract (UX No 152) following protests from DEC and Wang in the autumn. The Air Force Computer Acquisition Centre anticipates awarding the contract next August. The General Services Administration board of contract appeals ruled in October that the Air Force should amend the RFP procurement specification to include more information on the testing procedures used to determine the "minimal level of functional compliance" and that it should "eliminate bias" from the use of the AT&T System V Verification Suite. The Air Force has now categorised the functions that it is looking for: at the minimal level system should conform to Volume 1 of the System V Interface Definition; then Volume 2; and finally Volume 3. At DEC's annual conference last month Ken Olsen, DEC president, said that the company is still likely to bid for the contract despite the Unix System V stipulation and that development work was being carried out within DEC to make Ultrix SVID conformant.

IPT TO FORM ANOTHER ALLIANCE AFTER APOLLO, APPLE DEAL

Following a joint marketing agreement with Apollo Computer little-known Information Presentation Technologies inc promises to have another similar deal lined up in time for announcement at Uniforum next February. IPT, Calabasus, California, will provide hardware and software to allow networks of Macintoshes to connect with networked Apollo workstations. Apollo will sell the uShare software and hardware as well as provide an unspecified amount of financial resources to IPT. The IPT product allows Appleshare to reside under Unix and the company describes it as being a high-class NFS having record locking facilities. uShare consists of a circuit board for Apollo Series 3000 or 4000 workstations and software for both the Mac and Apollo machines which allows the Apollo workstation to become a server for Apple and Apollo networks. The software uses Apple filing protocols and the server products include gateway features to let users send electronic mail between Macs, IBM PCs and Apollo machines across token-ring, Ethernet and Appletalk networks. The uShare package for an Apollo server costs $2,995, the interface card for both Apple and Apollo machines costs $295 each and the software costs $195 for each machine.

NORSK DATA UNVEILS INTEGRATED LINE FOR WORDPLEX USERS

Norsk Data A/S yesterday unveiled its solution for tying the Z8000-based 8000 system and the 90 series workstations from its Wordplex Information Systems Plc acquisition into its own product line. The solution is to offer an upgrade for existing Wordplex users and an integrated system for new users consisting of a proprietary Norsk Data processor running under Unix that can stand beside or stack vertically with the 8000 processor. Norsk calls the latter the Document Processing System and its own add-on processor the Information Processing System, IPS. The IPS-1 is a 16-bit ND-110 satellite supporting up to 10 users; the IPS-2 is an 16-bit ND-110CX for up to 16 users; and the IPS3 is the 32-bit ND-5400 for up to 40 users. The 8000 continues to run the Wordplex office automation suite under its Gemini operating system and the Norsk side will be offered with the OA3 suite, including spreadsheet, electronic mail, diary, telex, relational database query, report generator, free-text search and graphics. Full Open Systems Interconnection up to the transport layer is offered and Norsk Data has implementations of IBM, ICL, DEC, Honeywell, Unisys 1100, CDC and Siemens communications protocols.

INMOS TO CONCENTRATE ON TRANSPUTER; 300 JOBS GO IN COLORADO AS STATICS COME HOME

Inmos International Ltd managers were reportedly opposed to the idea of a Plessey takeover of the company on the grounds that Plessey would want to close its pilot line in Colorado Springs, Colorado, and bring the work done there back home to the UK. So it is ironic that Inmos' present parent, Thorn EMI Plc yesterday announced that it was going to do just that. Describing the move as "the last in a series of measures taken over the past two years to restructure the company", Thorn pointed out that Transputers and Transputer-related parts already account for over 50% of turnover and are expected to account for 70% to 80% by 1989. As a result, although it remains committed to the next generation of process technology for static RAMs, development and design of which has just been completed in Colorado Springs, that side of the business is not adequately profitable and further costs must be cut. It is therefore bringing the work back home to Newport, and closing the pilot plant in Colorado Springs at the cost of 300 jobs. The costs were taken in last year's accounts. Process and product development will now be done in the UK, "where a technological breakthrough means that future capital requirement for manufacturing has been greatly reduced" according to Inmos. Inmos will retain a US-wide sales organisation, customer support, and a test operation in Colorado Springs for its MilSpec customers.

INTEL "TO USE RISC FEATURES IN NEW ARCHITECTURE 80486"

The 80486 microprocessor in development at Intel Corp will be far from a straightforward enhancement of the 80386 architecture with new features. Rather, according to the Newsbytes news wire, it will be a completely new, but upwards-compatible architecture with application of some reduced instruction set computing technology. The wire hears that the RISC features will come to the fore in a new non-80386 mode that will execute most instructions in a single cycle. Intel has said that the 80486 will integrate 1m transistors, and that the company is working towards first deliveries in 1989. It has also said that the chip will retain binary compatibility with the 80386, and is being designed to deliver mainframe performance in multiprocessor configurations. The company has earlier said that it would be optimised for artificial intelligence.

MOTOROLA FINALLY ACKNOWLEDGES RISC PROJECT

Meantime Motorola Inc has finally acknowledged the existence of its Reduced Instruction Set microprocessor development project, saying that it is spending $20m a year developing the part. The planned microprocessor, which has been dubbed the 78000, will not be compatible with the 68000 family, but will reportedly offer complete RISC instructions and single cycle execution. But the up-coming 68040 is also said to include some RISC features to speed the execution of frequently used instructions such as the highly critical and often-used register moves. Although some sources don't expect the 68040 to arrive before the 80486, others say that the 68030 offers so little more than the 68020 that it will be a short- life product, and that the 68040 may arrive at the end of 1988.

SUN PLANS TO GROW SPARC TO TAKE ON IBM IN 1990

And Sun Microsystems Inc is betting on its Reduced Instruction Set SPARC microprocessor to propel it into the transaction-intensive business market with a 50 MIPS departmental processor likely to be built around the ECL implementation of the SPARC chip under development at Bipolar Integrated Technology Inc of Beaverton, Oregon. Computer Systems News hears that the Mountain View, California company is betting on an implementation of IBM's Systems Applications Architecture and a distributed relational database, plus a simple-to-grasp user interface for Unix, to keep up the growth momentum that has taken it to $537.5m sales in 1987 from $8.7m in 1983. Fruits of the ambitious development effort, pitched against IBM's 9370 and Silverlake, are expected around 1990.

NATSEMI ADDS IBMULATOR-TO-VAX LINKS, COMMITS TO UNIX, OSI

National Advanced Systems unit wants to shed its image as a pure IBM plug-compatible manufacturer and to major on the scientific market with the Unix and Open Systems Interconnection standards. As a first step it yesterday launched products designed to link its Hitachi AS/XL and AS/VL IBMulators to DEC hardware. The Cross Systems Series is designed to marry the DEC VAX/VMS environment with the IBM TSO and VM/CMS environments to the VAX. The hardware component is NAS*Net, a module that fits into XL and VL racks and connects directly to a CPU channel. NAS*Net contains three NS32532 microprocessors from NAS' parent National Semiconductor Corp, one acting as a channel interface, a second as a main processor and the third as an Ethernet controller, together creating a DECnet gateway with 28 logical links and diagnostics. The NAS*Link software on the AS turns the host into a DECnet node recognised by VMS. It is claimed to support both-ways transfer between DEC's All-In-One and IBM's Profs, and DECmail to VM/Note. The AS user accesses the VAX using RJE, TSO or CMS commands; VAX users can manipulate host files with DCL and access individual records. NAS*Net and NAS*Link ship in May at a typical £84,000; £40,000 NAS*Compute, for automatic translation of VAX-11 Fortran into IBM VS Fortran-77 follows on in the third quarter.

ICL AND APRICOT SIGN UP WITH UNIFY

The Unify Corporation has signed up worldwide agreements with UK hardware companies ICL and Apricot for the Unify relational database and Accell 4GL. ICL, which nas been working with Relational Technology to port Ingres across its range, including VME batch operating system mainframes, will now also offer the Unify products, which have been ported to the Unix and DOS DRS300 PWS workstations and the full Clan range. Said to be worth $75,000, the deal was struck mainly due to "pressure from markets served by ICL's overseas subsidiaries, particularly Australia and Holland", according to Jeffrey Anwell from Unify Corp. Anwell said that the company had no plans for a VME port. Apricot Computers (Edgbaston, Birmingham) has signed Unify as its "strategic database product" for its XEN and VX systems running Unix and MS- DOS, and will sell the products on through its dealer network, as well as using it in-house for software development. The cash value was not disclosed, but the two companies are thought to be working on an additional agreement to cover the Sequent machines announced this week.

SMALL INTERIM PROFIT AS ITL PLC LINES UP ACQUISITIONS TO FURTHER UNIX THRUST

The stemming of losses from its office workstation activities, now closed, helped ITL Information Technology Plc turn in an interim profit in its first set of results since going public in July. The half time pre-tax figure of £352,000 compares with a loss of £532,000 for the same 28 week period last year. Turnover rose 3.6% to £14.5m. ITL has traditionally done the majority of its business and made all of its profits in the shorter second half, in particular in the final quarter, but future prospects are not very clear at the moment. A £3m order from British Telecom International for a turnkey fault-tolerant network and X400-conformant software to replace the existing Telemessage and International Telegram switching system, and a major increase in customers for ITL's broadband Cablestream local area network are more than balanced, at least in the short-term, by the rapid drop off in trade with very long-standing OEM customer ICL Plc. Sales of front-end communications processors to ICL accounted for 12% of turnover last year but are not expected to be a significant factor in future. The impact of ITL's move into Unix with Sequoia Systems and Motorola Inc kit is unquantifiable. Group executive director Bob Finch says that the company has been preparing for the move for two years, and that the training department is already up to speed on Unix. ITL also has considerable expertise in C, the result of its now abandoned attempts to establish itself in the office market. Finch claims the switch to Unix is in direct response to customer demand. He is forecasting that the Professional Services software and training arm and the Momentum hardware divisions could with luck grow at 30% per annum.

Stripping out the office workstation business from last year's figures, the growth in the first half was barely 20%, so luck may well be necessary unless the recent Unix announcements lead to a surge in demand. Finch's levels of growth may rely on acquisitions and news on that front may be forthcoming soon. Managing director Doug Gemmell estimates the chances of one particular deal under consideration coming off at 50%. Ideal targets are Unix software houses in the same vertical market areas as ITL with turnover of around £5m. Despite the newfound commitment to Unix, the existing Momentum range will be supported for several years to come. A new, faster top-end machine will be launched during 1988. The shares fell 1p on the results to 74p, against a flotation price of 105p.

BRIDGE ADOPTS AT&T ENCRYPTION PROCESSOR TO MAKE LOCAL NETWORKS SECURE

Bridge Communications Inc - now a subsidiary of 3Com Corp - and AT&T have a novel application of AT&T digital encryption technology that will offer new levels of security for communications within local area networks. By using AT&T's T7000A Digital Encryption Processor, Bridge's Government Products Division has brought to market what it claims are the first local network products with data encryption capability along with industry- standard high-level network protocols. The T7000A digital encryption device enables data security by encrypting, or scrambling in a code, data before it is transmitted through the modem, then decoding the encrypted data at the receiving modem. Bridge's Secure CS/50 Communications Server and Secure NCS/AT Network Control Station are the first two members of a family of products providing data security and access control in sensitive or controlled environments. They are based on the US Department of Defense's TCP/IP Transmission Control Protocol/Internet Protocol. The new products employ AT&T's T7000A Complementary Metal Oxide Semiconductor device, introduced in 1985. Bridge says that the "unique" application not only offers cutting-edge security for proprietary transmissions, but also widens the scope of network users for the AT&T technology, claimed to be the fastest, lowest-power point-to- point encryption device.

COMPAQ COMPUTER COULD "GROW EVEN FASTER" BUT FOR SHORTAGE OF 80386s

Compaq Computer Corp sales up 80% for the first nine months of 1987 are continuing strong in the fourth quarter, president Rod Canion reports but the Houston, Texas company would be doing even better if it could get all the 80386 microprocessors it needs. Canion told financial analysts in Boston this week that the outlook for the company remained very strong. "In the next several quarters, Compaq has the opportunity for continued strong growth," he declared. Despite the firm outlook, however, Compaq will be "conservative" in its hiring, so as to be prepared for any unexpected nasties. He also acknowledged that Compaq had lost some market share to IBM in the 80386 market as a result of limitations on its supply of 80386 chips. Shipments in the fourth quarter are up, but Compaq is "missing quite a bit of demand because of the lack of availability" of the Intel chip. "We have been backlogged most of the year and have missed some opportunities that have gone to competitors," he said. Compaq has also been backlogged throughout the year on its fast 80286based Portable 3, which is just now getting to the point where Compaq is meeting demand. However there is a substantial backlog on the 386 Portable launched in September: "the new product is very successful, we are not meeting demand", said Canion. As for any worries about the competition, Compaq is unconcerned at speculation that IBM will cut Personal System/2 prices next year. There will certainly be IBM price cuts, he reckons, and there will likely be price cuts even by Compaq, but these will not be substantial.

OLIVETTI AND STRATUS TO IMPLEMENT FAULT TOLERANT UNIX

Following its inclusion in Olivetti's all-embracing Open Systems Architecture announcements last month, Stratus Computer Computer is reportedly working on a native port of Unix for its fault tolerant machines. Olivetti says the intention is to implement its X/OS version of Unix, which includes transaction processing enhancements, onto the Stratus-based CPS32 machine, so that it can be integrated more closely with the main LSX range. Currently, Stratus offers a Unix facility running on top of its own VOS operating system, which Olivetti says is growing in popularity, and the different boxes can communicate via TCP/IP. No date has been set for completion of the work, and Stratus says it has not yet decided whether or not it will offer Unix to its own customers.

APOLLO WORKSTATIONS BECOME AIR TRAFFIC CONTROLLERS

Apollo Computer has won a $2.6m contract from the US Department of Transportation to supply around 50 workstations for a new air traffic management system designed to avoid flight delays and enhance air traffic safety. The workstations, ranging from entry-level personal workstations to the 3-D graphics workstations, will be installed at the DOT's Transportation System Center in Cambridge, Massachusetts. The DOT's Research and Special Programs Administration developed the new Advanced Traffic Management System (ATMS) prototype using a network of Apollo workstations at the Transportation System Center. The ATMS system lets traffic managers view on a screen a display of every route FAA-monitored aeroplane in flight nationwide. ATMS gathers live flight information from computers at each of the 20 regional Air Traffic Control Centers. This information, which includes position reports and flight plans, is integrated and processed by a network of Apollo workstations and then sent to individual workstations at the Transportation System Center and at the Federal Aviation Administration headquarters in Washington DC, for evaluation by traffic managers. The 20 national Air Traffic Control Centers are expected to receive additional Apollo-based display systems next year and will be interfaced with the ATMS for extended evaluation and development. ATMS can also provide selective flight information allowing users to focus on specific geographic areas or on flights grouped by origin, destination, aircraft type, route, fix or altitude range and allows users to selectively display details of each flight including: aircraft identification, altitude, equipment type, ground speed and flight route. The user can adjust the scale and move the viewing area displayed on the workstation to focus on individual regions or airway segments. Previous traffic events can be replayed, letting traffic managers re- examine past situations. In addition to providing updated flight information, ATMS continuously monitors traffic demands and automatically alerts traffic managers of predicted congestion.

MULTI-USER ORACLE FOR 3Bs AND SCO's XENIX

Established amongst the big boys of the computer world Oracle Corp is now pushing into the lower end and has announced multi- user support for its AT&T 3B2 Unix and Santa Cruz Operation's Xenix Developer's Kit. The multi-user version of Oracle is a specially priced and licensed copy of the distributed relational dbms, packaged to help application developers on smaller machines become more familiar with the SQL-based technology, says the company. The "developer's kit" is intended to assist application developers and value added relicensors in evaluating Oracle, the Oracle claims that the enhancement of the Developer's Kit to allow evaluation of multi- user DBMS applications will permit realworld prototyping for these multi-user operating systems. The Developer's Kit for the 3B2 and Xenix PCs supports networking for TCP/IP under Oracle's SQL*Star distributed DBMS architecture. As a result Oracle says that users can link together all types of machines in a TCP/IP network and offer distributed access among the systems to all users. For a limited time, a Developer's Kit license for ORACLE with SQL*Forms, a 4th generation application development environment; SQL*Plus, a powerful ad hoc query system; and PRO*C, a C language programmers SQL preprocessor is available for $399 on both AT&T's 3B2 and microcomputers running Santa Cruz Operation's Xenix version 2.1.3. Standard, full-use licenses of Oracle and its associated tools for the 3B2 ranges from $6,000 t o $14,000, depending on the model of 3B2.

ADVANCED DIGITAL's TRANSFORMER INTERFACES MICROCHANNEL TO PC BUS

Advanced Digital Corp, Huntington Beach, California has come up with an IBM PS/2 MicroChannel converter board, the TransFormer 2, which it says serves as a host adapter from the MicroChannel to the PC bus for the IBM Personal. The TransFormer 2 therefore enables users to transfer most of their old - but perhaps expensive - plug-in boards with the PS/2 MicroChannel for complete system compatibility. Compatible with PS/2 Models 50, 60 and 80 (but not the 25 and 30, which are poor XT clones only masquerading as PS/2s), the TransFormer 2 fits into the PS/2 and is connected by a cable to the PC expansion bus. The product includes the TransFormer 2 board, cable and the ADC XI Card. Designed for compatible use with ADC's current bus expansion box, the TransFormer 2 can also be used with all ADC Personal Network software, including Novell's NetWare and in the future OS/2. In addition, the TransFormer 2 offers multipurpose compatibility with most other board enhancements such as RS-232 and Ethernet, and can run direct memory access across the board. TransFormer 2 is $695, and is available now in the US.

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Minigrams

Apple's A/UX Unix for the Macintosh II, due to ship early next year, is expected to support an Ada compiler so that the Apple machines can be bid in high-value military tenders.

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Two months after the UK announcement (UX No 147) **MIPS Computer Systems** has announced in the US that TIS Ltd of Bourne End, Buckinghamshire is its UK partner.

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Scientific Computer Systems Corp, San Diego has added an extended memory feature to its minisupercomputers that offers 1Gb of store: the option includes an upgrade from the **Cray** X-MP/24 instruction set to the functionality of the Cray X- MP/416, and also implements gather/scatter and compress index advanced vector instructions on the SCS-40 - these provide support for high-speed indirect addressing of array elements, reducing the number of cycles needed to reference an array element indirectly by factors of 20, and can result in overall program performance improvements of two to three times, as well as enabling vectorisation in programs that would otherwise not vectorise; the SCS extended memory option is out now at $16,000 per megaword.

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Teradata Corp's European subsidiary based in Thames Ditton, Surrey, has won its second major order this year from a UK insurance company for its Intel 80286-based DBC/1012 back-end relational database system for minis and mainframes: following Prudential Insurance earlier this year, the latest customer is Royal Insurance UK Ltd which is spending £500,000 on a 10-processor system.

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Hewlett-Packard Ltd is contributing $150,000 in cash and kind to the installation of a £3m **Inmos** Transputer-based 1 GFLOPS parallel processor from **Meiko Ltd** of Bristol for the Edinburgh University Concurrent Supercomputer Project: the machine will bring together 1,000 Transputers, each with 4Mb of memory, and Hewlett's Bristol Research Centre will have dial-up access to the machine, sharing projects with Edinburgh University researchers.

Seiko Instruments Electronics Ltd has signed for a reported $4m of **MIPS Computer Systems Inc** "microsupercomputers" from its Japanese distributor **Marubeni Electronics Inc**: Seiko will use the MIPS M/1000 as the compute server in its SX-8000 line of CAD systems, which currently has a customer base of over 250; the SX-8000 is a complete system for VLSI-level design and includes Seiko's own high-performance graphics workstation as part of the system; the M/1000 is being added to augment Seiko's existing **DEC** MicroVAX II-based servers, using the DECnet-compatible communications package, CommUnity, developed by **Technology Concepts Inc** to marry it in.

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NEC Corp has reported consolidated net profits for the six months to September 30 up to 10.7% at the equivalent of $72.0m on turnover up 6.8% to $9,376m: net per share rose 8% to 5.0 cents.

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Nippon Unisys plans to bring their workstation offerings together under the Unix operating system: at present **Univac** offers the DS7 with a proprietary operating system, and Burroughs the GC-1450, also proprietary, and the XE and B-10 series derived from the **Convergent Technologies** kit.

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Not all the UK Convergent orders are going to **TIS** - this week **Star Computers** announced a contract with **Fraser Keen**, city-based accountants, for three Convergent S320s linked over Kilostream lines supporting around 60 screens and printers.

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Cumana, Guildford, Surrey has optimised its OS-9/68000 Unix lookalike operating system for the **Atari** ST personal computers.

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Racal Redac has introduced an entry-level version of its Visula electronic design suite of software, Visula Entry, to run on IBM's PC-AT supporting IBM's EGA graphics, with 640Kb memory, an Excelan Ethernet interface and a floppy disk.

X/Open Chief Technical Officer Mike Lambert says that he is "disappointed" with how the forthcoming IEEE POSIX standard is turning out, saying it has been "compromised through consensus, so that a wide variety of operating systems can be implemented that are not necessarily portable" - X/Open's approach to POSIX will, says Lambert, be "a consistent approach to optionality, maintaining benefit to the user".

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Meanwhile, the American Unix user group **/usr/group** has published a second glossy booklet on the standard, called "POSIX Explored", which details progress made in 1987, changes from the trial use standard, and comparisons with other standards efforts, following the publication of "Your Guide to Posix" earlier in the year.

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Asset Computer Systems has launched a Unix-based multi-user personnel system aimed at communications and computer companies to control aspects of recruitment, training planning and resource planning to run on **Convergent Technologies**' S/Series.

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Torch Computers has signed an agreement with **Uniplex** to run the Uniplex II Plus office automation system on the Triple-X.

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Hawke Systems has announced that it now has DEC's Ultrix-32 available for the VAX products that it distributes.

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The **Sybase** DataToolset is now available for the IBM PC and DEC VAX running Ultrix and the Berkeley, California company has also announced DB-Library for IBM PCs running DOS 3.2 or higher which is a programming language interface for applications to access the Sybase DataServer and allow Sybase applications to be integrated under MS Windows with DOS 3.3.

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Everyone at Unigram.X would like to wish all our subscribers a very Happy Christmas and a prosperous New Year: the next Unigram.X issue will be dated week ending 2nd January 1988.

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