UNIGRAM/X

The newsletter for UNIX systems users

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AT&T WINS UP TO $946M DEAL WITH US DoD

Details are still rather thin, but AT&T has won business worth up to $946m with the US Department of Defence to supply hardware and software to the shadowy National Security Agency over the next three years; the deal also covers development and communications and DEC was apparently the main challenger for the contract, with IBM and Gould bidding earlier. The hardware includes 3B minis up to a mere 325 according to US reports.

NCR TOPS OFF TOWER UNIX LINE WITH 68020 MODEL

NCR has topped off its growing family of Tower machines with the Tower 32, which uses the new Motorola 68020 true 32-bit version of the 68000 microprocessor, and in the US costs $21,900 in typical configuration. NCR claims that it offers between two and three times the performance of the previous top of the line.

UNIX CASUALTY: US LOSSES SO FOXMEYER SHUTS DOWN IN UK

Despite modest profits overall for the year to March 31, pharmaceuticals distributor Foxmeyer Corp has sustained such substantial losses on its ambitious venture into the Unix systems market that it has decided to shut down its fledgling UK subsidiary in Gerrards Cross. The closure follows the US company's decision to cancel its stand booking at the Unix User Show (UX No 32). Closure of the UK operation comes despite the fact that it showed a small profit for the first quarter of 1985. A key setback has been the fact that the company's Vega 68010 machine, due in January, will not now be ready before September. Foxmeyer's pitch was to offer Computer Automation OEMs the CA-compatible TBL language under either Unix or the real-time TBX executive. The West German operation, comprising a salesman and a secretary, will remain in business.

In this week's issue:

SNA COMMUNICATIONS PROCESSOR, AMDAHL'S UTS JOIN NEW 3Bs IN AT&T LAUNCH

A strong pitch at the IBM SNA communications market characterised AT&T's broadbrush product introduction last week, which was much in line with the expectations detailed in UX No 31. The AT&T Communications Processor, origin uncertain although AT&T publicity suggests that it is based on a WE32100 chip, is designed to be used as a node in the company's 3B/Net, handling protocol conversion and linking the network to an IBM host. There are models for remote and local attachment to the mainframe with the latter set for first quarter 1986 at $27,000, but there are no details on the former. AT&T SNA-3270 provides 3274, 3278 and 3287 emulation on 3B2 micros for $700 and 3B5 for $1,500, available now in the US. BSC-3270 is available next month at the same prices. Amdahl's new UTS version of Unix System V, which runs under VM/370 on an IBM or compatible host, is announced as System V-VM, and source and binary licences will be available on lease only in October; no prices yet. New applications for the 3B micros and minis are on offer for vertical markets including retail, distribution, motor trade, general accounting, and a Communications Management Control System for managing a network - $25,000 on the 3B5. New compilers include UX Basic from UX Software of Toronto; RM/Cobol from Ryan McFarland; and Level II Cobol from Micro Focus. Relational Technology's Ingres and Informix for Relational Database Systems are all offered as 3B database managers.

The new hardware inlcudes the 3B15, which turns out to be a WE32100-based micro with 32106 mathematics accelerator; it takes up 16Mb main memory, up to eight Winchesters, each up to 279Mb, and up to four tape units. AT&T persists in the claims that 60 users can be supported simultaneously on the machine which AT&T rates at 1.4 MIPS and 300K Whetstone instructions per second; processor prices start at $54,500 for a CPU with 16Mb, going to $64,500, with first ships next March. 3B5s can be upgraded to 3B15s with a CPU swapout for $20,000. The memory, disk and tape controller and synchronous data link controller can also be upgraded separately. The 3B2/400 also includes 32100 and 32106, up to 4Mb main memory, one or two 72Mb drives, 22Mb tape streamer, 720Kb floppy and physical connection for 46 terminals, although no more than 25 can run concurrently. Rated at 1.1 MIPS, 200K Whetstones, it costs $19,950 to $36,550, with October ships. New terminals include the 4410 ASCII 80 or 132 column VDU, available now for $940; 4418 3270-compatible display at $1,065; and 4425 buffered display for $1,295. A six-pen plotter and a new line of modems complete the announcement.

SCIENTIFIC COMPUTERS TO MARKET HIGH LEVEL HARDWARE's ORION MINICOMPUTER

High Level Hardware Ltd of Oxford has signed Scientific Computers Ltd of Burgess Hill, Sussex to market its 32-bit Orion Unix mini non-exclusively. Scientific Computers the management buyout of Electronic Associates Ltd, will take the Orion into the industrial and scientific markets, where it already sells the 44-bit Symbolics 3600 microcoded Lisp machine. The Orion is comparable in size, speed and microcodability to the Symbolics machine, with 1Gb of address space and the potential to run applications developed on the more expensive 3600, which can cost up to £80,000 for a single user model. Designed as a re-search and powerful development tool, the Orion now also supports Lisp with a custom instruction set (CI No 81) - and it has a Prolog implementation which, for the time being, uses the standard instruction set. The Orion sells on price/performance, going for between £16,000 and £55,000, and High Level Hardware is also planning to offer a board-level version. The Orion has been adopted as the standard machine for comparative architectural research by the Alvey Programme and orders have been received from two Swedish universities, the university of Paris, and the Educational Research Centre in Dublin. High Level will continue to market the machine in the academic market, where it now has a presence in over half the UK's universities, with 53 installations with the machine also being used for general timesharing as well as more specialised applications. The marketing agreement is non-exclusive, although High Level is not talking to anyone else at the moment.

THORN EMI COMPUTERAID BRINGS IN TELEVIDEO's AT

Computeraid, the micro distributor subsidiary of Thorn EMI, announced Televideo's AT answer to the IBM 80286-based machine, to ship in four to six weeks at about £4,000 for the basic model. Computeraid says it will be pushing the machine as a high-end workstation particularly for Televideo networks based round the 80186+Z80 Personal Mini file server and Novell's Net/Ware, although it has 60 UK dealers pushing its products. The Televideo machine comes in two basic configurations and the main selling points against the IBM AT - besides price and networking - seem to be the standard 640 by 400 graphics resolution and a fast Televideo-developed disk controller. The machine also uses 8MHz 80286 against the IBM 6MHz version, and retails in the US at £3,995 with 256Kb CPU, 1.2Mb floppy, serial and printer port and monitor for the basic Model I; the hard disk Model II is $5,295 with 512Kb CPU and 20Mb, 35MS access time Winchester and will sell for "significantly less than £5,000" here - the policy over here is to be 10% cheaper than IBM. A multi-user Xenix version is also on the way but no dates as yet, and planned are integrated 20Mb tape backup, 360Kb floppy and more memory.

NOW IBM SIGNS FOR WOLLONGONG'S TCP/IP

Following that OEM agreement allowing AT&T to sell the TCP/IP communications software from the Wollongong Group of Palo Alto, California, the software company has announced an agreement under which IBM will sell the product with the IX/370 Unix under VM for mainframes. Not surprisingly neither company is keen to disclose cash details of the deal, but the software, to be called WIN/IX for Wollongong Integrated Network, should be out by the autumn. Wollongong also has an Ethernet TCP/IP package, WINS/PC, for the IBM Personal under PC-DOS, with a Xenix version dur later this year. WINS/PC costs $895, and Wollongong is looking for OEMS and resellers for the product.

BATELLE INTO BATTLE WITH DM PORTABLE RELATIONAL DATABASE

Battelle Institute Inc of Columbus, Ohio has announced its new relational database management system in the UK - called DM and released initially on DEC VAX, with IBM 4300 and 30XX versions to appear in May 1986, and a Unix version also in the works - although again not likely to appear before mid-86. Control Data also sells DM under its own name as the IM-DM on its Cyber 800 mainframes. The system is a general purpose data manager which deals with structured textual information as well as numeric data. Bat-telle aims to reach new markets with the system - including new areas of publishing, where it already has a strong user base, insurance and TV. The system is portable and supports up to 48 users on DEC VAXes, up to ten databases can be used at one time, and as many as 2,000 separate databases can be managed by DM. The system comes in four optional mod-ules, with report writer, screen manager, system and database administration tools and three compilers, starting at $29,000 for a base system, going up to $50,000 for a complete system. Its architecture supports hierarchical, network and relational approaches, and acts as an "open system" - able to serve user applications through its interfaces and host language pre-compilers - which are available for Cobol, Fortran and Battelle's own system language, Slang. A unified sublanguage sup-ports DM's data manipulation, fundamental query and screen management facilities, and applications are implemented on three levels of data independence - local, logical and physical - allowing rapid restructuring of databases. Security and integrity is dealt with through authority lists, pattern and range checks, and referential constraints ensure that only valid data can be entered into the system. The new system expands on the company's existing text-oriented management system, called Basis, which currently has 350 sites worldwide and is available on IBM, DEC, CDC, Wang, and Prime equipment, runs under Unix and is now being implemented on Siemens and Burroughs kit. The product has made three sales in the US - to the US Air Force, Bendix Corp and Los Almos National Laboratories and, in the UK, BP is testing it, and CitiCorp is due to begin testing in July. Battelle's turnover for 1984 was $10m - a 65% increase on 1983, and the company is currently growing at a more modest 40%, with 52 new sites established already this year.

GOULD SET WITH 32-BIT MICROPROCESSOR AS IT TAKES $150M WRITEOFF, PULLS AMI OUT OF STANDARD CHIPS

Details of exactly what is to be disposed of and how are still unclear, but Gould Inc is to dispose of the entire standard part side of its American Microsystems chip shop to concentrate entirely on custom and semi-custom parts. The decision will involve Gould in taking a $150m write-off with its second quarter figures, and operating profits before the charge are likely to be 15% down on the $18.1m achieved in the first quarter. Among the ventures now in question are the one with Voest Alpine in Austria and a similar one in Japan with Asahi Chemical Industries, which involved joint investment of $200m in a wafer fab plant. AMI has not been big in microprocessors, having majored on full custom circuitry, but has implemented a Z80, the S83, which incorporates 8-bit CP/M in on-chip ROM, for Zilog. It partners Texas Instruments on the ingenious Alterable Topography Microprocessor based on the TMS9900 chip. The fate of some of AMI's more interesting projects, such as the S83 for Zilog and the alterable topography microprocessor is uncertain. But we hear that AMI is close to to joining the 32-bit microprocessor stakes with the long anticipated microprocessor implementation of Gould Computer Systems' 32-bit CPU from the PowerNode and Concept minis, the current low-end version of which is an AMD 2901 bit-slice implementation of the long-standing SEL 32-bit architecture and appears in the PN6000 Unix machines. There is no word on the technology in which the new microprocessor is being implemented, but it is believed to be a single chip implementation of the CPU rather than a chip set.

DATA GENERAL "AUTUMN LAUNCH FOR 32-BIT MICROEAGLE"; MINIMAKER LAYS OFF 1300

Data General has been hard at work on a five chip implementation of its 32-bit Eclipse MV architecture for some three years now, and is reportedly almost ready to go with the first product incorporating the set, called the MicroEagle. According to MIS Week the new processor will make its debut this autumn in a desk-top machine coming in at between $10,000 and $12,000. Unlike the DEC MicroVAX II, which implements only a subset of the VAX instruction set in hardware with the rest made up in software, the MicroEagle is said to include the full instruction repertoire of the MV Eclipses. Data General recently announced lay-offs with a warning that it may report a quarterly loss; its shares were temporarily suspended ahead of an announcement that it must lay off 1,300 employees, 7% of its total workforce, and that it may report a loss for its fiscal third quarter to the end of the month. Despite the general gloom in the minicomputer and small systems market, the news is still something of a shock, because Data General had been doing particularly well with its newer 32-bit Eclipse minis, and had taken some substantial orders suggesting that it was building up a decent business in integrated office automation systems. Data General not only offers Unix variants on its large Eclipse minis, but on the DG 1 lap top it offers Venturcom's Venix. The news will raise big question marks over Hewlett-Packard's computer business because the HP3000 line competes in the same market as the Data General - and Wang VS - machines, and has problems of its own because of Hewlett-Packard's de-lay in getting out a 32-bit successor to the ageing 16-bit line.

...AS IT BUYS 10% OF CAE SOFTWARE COMPANY

Data General is set to make its debut in the $300m-a-year Computer-Aided Engineering chip design market following its move to take a 10% stake in CAE software house Cericor of Salt Lake City, Utah, paying $2m. Under the agreement, Data General gets marketing rights to Cericor's CDA 5000 suite of programs, which will be offered as a package with Data General's 32-bit Eclipses and Eclipse-based DS series workstations. The CDA 5000 software is specialised for design of analogue and digital circuits.

SPERRY COMMITS TO $42m OF TEXAS AI EXPLORERS

Although Texas Instruments has passed its NuMachine artificial intelligence computer over to Lisp Machine Inc it remains thoroughly committed to its new engine for running the Lisp artificial intelligence programming language, the Explorer, launched last October. A version of Unix for the Explorer is due shortly, and Sperry has firmed up its agreement to remarket the machine, committing to $42m of kit over three years. The 32-bit processor is built in the company's TI 74AS181 advanced Scottky bit-slice microprocessors and is built around the NuBus from the NuMachine. Sperry has bought $4m of Explorer hardware and software so far, and will use the machine as the basis of its Knowledge Workstation, described as an advanced artificial intelligence system. Sperry invested $20m last year in establishing an artificial intelligence laboratory in Minneapolis. Texas Instruments is also at work on development of a 32-bit microprocessor implementation of the Explorer CPU under a US government contract.

CROSS, TOP OFFICERS QUIT COLUMBIA TO START NEW FIRM

In what looks like one of the more cynical abandonments of a sinking ship, former Columbia Data Products president Robert Cross has left the bankrupt Personalike maker to start a new company, taking most of the top officers with him. Cross, who only in March was in London saying that Columbia would just break even on sales of $50m this year has formed Chesapeake Data Systems Corp in Columbia, Maryland with the former engineering, sales and finance vice-presidents of Col-umbia Data. The new company has been formed to build a multi-user 80286-based IBM Personal AT-alike to be manufactured in the Far East. Columbia Data, suspecting that the design of the machine is the one it had been planning to build, has won a temporary restraining order against Cross and his new company to prevent it from using proprietary information or soliciting Columbia Data's customers.

MCI PREPARES TO JOIN IBM CAMP IN BATTLE WITH AT&T

The phony war between IBM and AT&T ended last week when IBM made its most aggressive move yet into US telecommunications, buying Aetna Life & Casualty out of Satellite Business Systems and agreeing to exchange the entire company for an initial 18% stake in MCI Communications. IBM has agreed not to take its stake in MCI above 30% - but it made the same agreement when it bought into Rolm Corp, which nevertheless is now 100% IBM-owned. MCI does not have the resources, and does not want to dilute its equity to the extent of taking all the assets of the McLean, Virginia satellite communications company, so IBM is keeping the Realcom subsidiary of SBS, and also the SBS 4, 5 and 6 satellites. SBS Realcom, Real Estate Communications Corp, offers installs and operates communications services in office property developments and has a joint venture with the Ameritech Chicago-based Bell operating company to install communications services in office buildings US-wide. From now on, provided the IBM-MCI Communications agreement in principle gets over all the regulatory hurd-les - and with the number of vested interests eyeing the moves of the two companies there are likely to be plenty of objections - MCI will be seen as an IBM company in all but name in a way that Intel is not, because in May 1984, the Federal Communications Commission agreed to waive the restriction which barred IBM from offering SBS services to its own customers. It is likely that IBM will shortly start marketing not only Satellite Business Systems but MCI services to its biggest customers - most of which are presently users of AT&T's long-distance services. SBS adds 200,000 customers to MCI's base of nearly 2.5m users, which already give MCI about 5% of the US long-distance phone market. MCI is about the same size as Intel, IBM's other major investment, and reported 1984 net of $59.2m on turnover of $1,960m. Satellite Business Systems will add $500m or so to MCI's turnover this year, making it a very substantial company indeed with turnover approaching $3,000m, which is a little under one tenth the size of AT&T. But it has been expanding its international network very rapidly and only last week announced service to a whole string of small countries, having lined up connections to most of the major countries of the world already. In the UK context, Satellite Business Systems already has a substantial link with British Telecom, and if the proposed acquisition goes through, MCI will become an important player in the UK international telecommunications market. Underlining the importance IBM attaches to SBS, earlier this month it announced that it was working with SBS to eliminate the delays inherent in transmitting data over satellite links - using MCI equipment. It is noteworthy too that while none of AT&T's competitors in long-distance telephone services is making money, MCI is much the least unsuccessful, and is not suffering in the way that companies like GTE-Sprint and United Telecom are. MCI has just had the disappointment of seeing a Chicago jury award it only $113.4m in its anti-trust suit against AT&T - much less than it had hoped for. The cash payment to be made by IBM to Aetna Life & Casualty for its minority stake in SBS has not been given, but IBM will be exchanging SBS for 45m new shares in MCI, worth some $427m giving it 16%, plus 7m warrants worth $15 apiece and convertible into additional MCI shares, taking its stake up to 18%. It will also take options on $400m of other MCI convertible paper which if exercised will take its stake to as much as 30% - but even 18% is a higher stake than it started out with in either of its other two major investments, Rolm and Intel.

Satellite Business Systems, which last month forecast that it might turn its first profit this year is strategic to IBM's future plans, so why should IBM appear to cede control of it? The answer is that in the medium term, MCI will need so much more cash to invest to compete successfully with AT&T that IBM can afford to wait for MCI to drop into its lap like a ripe plum.

IBM DECLARES WAR ON DEC, OTHERS IN ASCII VDU MARKET

One of the biggest crunches in the big IBM announcement of price cuts and System 36 enhancements recently was the company's declaration of war in one of the last bastions it does not already dominate - the low-cost ASCII display market. Apart from the Personal Computer, almost all IBM machines use EBCDIC displays, but the mini and microcomputer world is ASCII, and the new displays will clearly be used on the AT when multi-user capability is available on it, as well as with the IX/370 mainframe Unix, which drives ASCII terminals. The $695 3161 includes emulation of ADDS Viewpoint, Haseltine 1500, Lear-Siegler ADM3A and ADM5, Televideo 910 and IBM's own 3101, which is discontinued. The $1,095 is a high-performance ASCII screen with slow scroll, windowing, four page memory, download definable function keys, exchangeable keycaps on the soft board **and DEC VT52/100 emulation in an optional $50 ROM**, which enables the 3163 to be configured as VT220. Volume discounts are 20% off for 500-up, 25% off for 1,500-up, and the apply in combinations of the two plus any 3101s already on order.

1,000 GO AS NATSEMI SHUTS MALAYSIAN PLANT

The recession in the semiconductor industry is having painful consequences for all the third world countries which eagerly wooed chip-makers in the hope of winning a secure new source of employment, and one of the most ambitious, Malaysia has been dealt a body blow by National Semiconductor with the news that it is shutting its assembly plant in Seremben, putting 1,000 people out of work. NatSemi insists that the closure is because the plant is not suited to its integrated inventory system and is not a direct result of the recession in the semiconductor industry.

X/OPEN MAKES ITS MIND KNOWN ON PORTABILITY

As we go to press, so does the 800 page Portability Guide prepared by the X/OPEN group. The group of six European manufacturers (ICL, Bull, Nixdorf, Philips, Olivetti and Siemens) has published its thoughts on the subject of making source code portable between machines. The guide will cover all those diverse factors such aas floppy disk and tape formats, compilers, and interfaces which at present cause critics to claim how un-portable Unix can be in terms of applications. As we suggested in UX No 16, the manufacturers are endorsing specific software products in the process; C-ISAM (from Informix developer Relational Database Systems) is the file access package everyone should be using. The group has also settled on Micro Focus' Cobol compiler. The guide will be on sale to software developers, systems integrators and suppliers, and other interested parties. Anyone anxious to spend $75 to ensure that their code fits X/OPEN's portability standards should contact Basil Cousins at ICL Reading (0734) 586211.

BT'S SX1 SYSTEM TURNS GRAPHICAL SPECS INTO HIGH-LEVEL CODE

British Telecom took the opportunity at the recent Unix show to show its SX1-Cados system which automatically generates high-level language code from graphical specifications. It uses top-down design techniques: a system is described with a hierarchy of charts, with each level showing more and more detail. When the SDL chart or flowgraph represents a single algorithm, the system then generates the required code, handling all the control flows, directly from the charts on the screen. BT's Trevor Matthews claimed that the system encouraged better, structured, code that was easier to supervise and maintain: "The extended flowcharts more accurately mirror what the designer wants to do, and added decision tables make the design simpler to maintain as it is easier to see what is happening." The user enters a basc chart description, and SX1 then lays out SDL diagrams, state transition diagrams, progression charts, flow graphs or Petri Nets on the screen. These are then checked and annotated before the editor checks that the chart is complete and translated the diagram into a a text description from which the C code (or Pascal, Coral or PL/M) is generated and compiled. BT is already working on a Chill code generator and is looking at Ada. It is also developing more chart-level debugging tools such as tracing ther path of the data flow through the diagrams. It is currently available on the Bleasdale Unix machine for £7500 or on a Vax running VMS or Ultrix for £15000. Another graphics system at the show was the Vision 2 drafting and general industrial graphical package developed by HRC Micro Organisation in Sheffield.

Simulating a nuclear power station in action from 1200 drawings

Director Howard Briggs is expecting an order from the US nuclear power industry, as a manufacturer has developed a system to simulate a nuclear power station in action from 12,000 technical drawings, but it takes them over 60 hours to input one drawing. The workstation developed by HRC (a Bleasdale machine running Vision 2 with a graphics screen and digitising board) can cut this time by 75 per cent. HCR will input the data and produce the drawings in Sheffield ("where there are lots of highly-skilled draughtsmen made redundant by traditional industry...") and network the data to the US where the simulation will be run.

ALVEY SEEKS A WAY TO MAKE ITS FORTUNE

Fortune (nothing to do with the manufacturer of the same name) is a three year operation aimed at developing a Unix-based documentation support system for software engineers. Computer Analysts and Programmers, CAP, is orchestrating Fortune and sharing its £3m costs. Fortune is aimed at one of the most neglected - and expensive - areas of software development. The idea is to produce a system which will automate the documentation process as much as possible, incorporating text processing and graphics, and the ability to feed material straight through to laser printers and typesetting equipment. The resulting system will, according to system architect Douglas Mullin, run on "the sort of thing which will sit on everyone's desk by the late eighties" - cheap, high-powered windowing workstations with large memory and address space and networking. That would make the benefits of Fortune available not only to large-scale products houses, but to run-of-the-mill DP departments who at present get snowed under with paper. The system should improve the quality of feasibility studies, proposals, reports, and actual end-user documentation, and eventually be incorporated into production of Integrated Project Support Environments. OWL develops systems based on the Guide publishing software developed at Kent University by Peter Brown, and is aiming to get its own Inprint documentation software out early next year. The Fortune team is also looking at the Sun Microsystems workstation, ICL's PERQ, Whitechapel Computer Works' MG-1, and the Interleaf software. Other components are likely to include Adobe's Postscript for sending text to typesetters, and a database such as Informix for "intelligent" cross-referencing of code and text. At present the Fortune project is in the early stages of assessment, with members of the consortium working independently to set objectives in their own area. Other participants include the University of Kent, CAP's Newcastle research associate MARI, and the Cambridge-based firm of information designers (this is apparently how documentation consultants wish to be known) Baddeley Associates. Development of a prototype Fortune is planned for the second and third year.

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INTEL CONFIRMS JOB CUTS

Intel this week duly announced the broad swathe of lay-offs which had been forecast - but at 950, the cuts are a little lower than the forecast of 1,200 to 1,400 earlier this year. The cuts represent 4% of the workforce, and involve closure of its smallest and oldest wafer fabrication plant, which employs 100 in Santa Clara, California. Despite the cuts, due to start next Tuesday, Intel expects to report a profit for the second quarter. It does not expect to make any further job cuts - 900 went in February - but is also shutting up shop for one week next quarter, putting the entire workforce on unpaid leave. Merit rises are also frozen at least until first quarter 1986.

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Rodime, currently shipping 10Mb 3.5" Winchesters from its Scottish plant, is ready with the new 20Mb model at its Boca Raton, Florida plant, reports **Electronic News.**

AT&T has been ordered by the **Federal Communications Commission** either to restructure the tariffs for its Accunet packet-switched service or shut the thing down - within 60 days: the FCC reckons that AT&T is pricing the service below cost.

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Latest intelligence on the forthcoming **IBM** Personal Computer 2, which is now not expected to emerge until around the turn of the year, is that it will use the bus of the Personal AT, come with up to 2Mb of main memory - the chip is expected to be the 80286 - and will definitely use only 3.5" floppies: the argument for the switch to 3.5" floppies is that the whole industry is going that way , and the pain of conversion will be even worse if it is postponed any longer.

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We now hear a code name for the **IBM** operating system in development for the Personal Computer family, which if it ever sees the light of day will be IBM's **own** jealously guarded product with the interfaces tightly controlled: it is BB-DOS which has nothing to do with the French erstwhile love goddess but of course stands for - what else? Big Blue.

Minigrams

Underlining how serious **Fujitsu** - and indeed Japan Inc - are about Unix, Fujitsu says that it is looking to sell 300 copies of **Amdahl**'s System V version of UTS Unix in Japan over the next two years: **InformationWeek** points out that Amdahl has so far sold only 145 copies of UTS in the first five years of marketing - but that number is likely to soar with the gathering momentum behind Unix - and the fact that **AT&T** itself is now marketing UTS as well.

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Industrial Networking Inc has beaten the **Gould-AMI-Concord Data Systems** joint venture and **Motorola** to market with a chip set to implement the MAP Manufacturing Automation Protocol local networking standard: the Santa Clara, California company has a two-chip CMOS gate array set integrating 15,000 gates in total, which will be available in September, and will also be used as the basis of its token bus network.

High-Level Hardware of Oxford has quadrupled the writeable control store on its 32-bit bit-slice Orion Unix mini to 32K-words using 100nS 8K-by-8 static RAMs from **Toshiba.**

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Meantime the unbelievable gall of US investors who seem to believe that they have a divine right to make a profit was in evidence again this week when one Frederick Chou launched what he hopes to make a class action suit against **Sperry Corp** on behalf of investors who bought **options** on Sperry between June 13 when it announced that talks were underway with Burroughs and June 17 when they were called off: options are normally regarded as either an out-and-out gamble or a means of hedging a high-risk situation, but Mr Chou is seriously suggesting that he was unaware that the first announcement of talks was a kite to test market response until the **Wall Street Journal** mentioned it after the affair was over - despite the fact that the Journal noted it as analysts' speculation the day after Sperry went public.

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Covidea Corp is the name chosen for the proposed four-way viewdata home banking joint venture between **Chemical Bank, Bank of America, AT&T** and **Time Inc** (UX NO 33); why Covidea? You're meant to think co-operation, computer, video and idea explains the **Wall Street Journal.**

OLIVETTI WILL TAKE $27m OF 3Bs FROM AT&T THIS YEAR, SELL $312m MICROS IN US

Olivetti's OEM agreements with AT&T and Xerox for its M24 personal computer are giving the company a remarkably strong balance of trade surplus. Olivetti reported this week that it expects to import $27m of 3B minis and micros into Europe this year from AT&T, against just $4.6m last year. But exports of M24 IBM Personalikes to AT&T alone are expected to reach $256m this year, up from $147m last year, and Olivetti now has a second nice US OEM agreement, with Xerox, on the M24, and looks for that to bring it $56m of US sales this year. So far this year, AT&T has taken $94m of M24s from Olivetti, and the Italian has taken $9.2m of 3Bs. All this heightened activity has grown Ing C Olivetti & Co group turnover in the first five months of 1985 by 35% to the equivalent of $1,010m. Parent company sales grew even faster, up 51% to $614m. Group sales re forecast to rise 28% for 1985 as a whole, taking the company to $3,000m.

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Cray Research had been expected to ship two of the new Cray 2s this year, both to US government laboratories, but a third is now expected to go in - at Minnesota University.

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AT&T is taking the Chinese market very seriously indeed: we hear that the company has 40 people working full time in the People's Republic and the US on laying the phone giant's plans.

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TDI of Bristol has joined **Motorola**'s Freeway value-added reseller program, taking the company's 6300 and 6600 machines, which are based respectively on **Convergent Technologies'** Miniframe and Megaframe: the machines are being taken on the 68000-based machines TDI gets from Sage Systems, and from newcomer **Pinnacle Systems,** Dallas, Texas, in which it has invested.

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Number 36

NIXDORF PICKS NS32000, UNIXALIKE TO UPGRADE 8850

Nixdorf Computer AG's Nixdorf Computer Corp in Waltham, Massachusetts is beta testing the first models in a new generation of the 8850 machines which were derived from the key-to-disk systems made by Entrex, the company acquired by Nixdorf to spearhead its attack on the US market. Nixdorf chose the NatSemi 32000 family for the new machine, the 8855, providing more power for users of the existing 8850 range, which is built around the Data General Nova architecture. The 8855 uses a 32016 with I/O offloaded to Intel microprocessors. Nixdorf has undertaken the substantial job of writing software to provide 8850 emulation on the 32000, allowing 8850 programs to run unchanged under the new Nixdorf C Operating System, NICOS, described as Unix-like but not licensed from AT&T. The hardware is designed in the US, and the German parent is providing a similar emulation for the DPEX software it sells with the 8850s. The next generation of the machines, due next year, **will bring the two sides of the development together under true Unix System V.** The 8855 has up to around 1Gb disk, 2Mb RAM and between 48 and 96 terminals - which implies an awful lot of I/O offloading onto support chips. Nixdorf in Germany is said to be working on similar timescales to the US company for the release of the 8855, and with Nixdorf's current aggressive attitude in the UK it can't be too long before the machines arrive here. Nixdorf is also taking on Pyramid Technology's 90x RISC minis in a £35m worldwide marketing deal (UX No 33).

WHITECHAPEL SET TO LAND £5m FUNDING AS ECCLES QUITS

Whitechapel Computer Works, the East End of London venture capital start-up which developed the MG-1 Unix workstation, is about to announce third round funding of around £5m (UX No 16). The money will go towards Whitechapel's increasing working capital needs, and product development. Currently Whitechapel is shipping between 60 and 70 of its NS32016-based machines a month, but production volumes are increasing. Founding managing director Tim Eccles left the company at the start of the month but maintains his equity stake. Marketing director Mike Cole is acting MD while the company looks for a permanent replacement. Peter Smith of Newmarket, one of the company's initial backers commented: "When a company is growing as fast as Whitechapel, strains appear on the management side first of all, and we have advised them that they need to strengthen the management." Newmarket, Baillie Gifford and Greater London Enterprise Board put £1m into Whitechapel in the first and second rounds and will all be subscribing to the third round. Whitechapel has recently been introducing some of the facilities promised when it launched the MG-1 last year, and has replaced its earlier version of Genix 4.1 BSD from NatSemi with its own port of 4.2, named 42-nix, which supports Ethernet. 42-nix is supplied as standard with new MG-1s; Genix users get it for a "nominal" upgrade price. Other enhancements include the Oriel window manager.
Quest International has been appointed for on-site maintenance.

HEWLETT-PACKARD SET WITH HP9000 SERIES 300 LINE

Hewlett-Packard is preparing to announce a new family of Motorola 68010 and 68020 workstations as the Series 300 members of its HP9000 family. The new line consists of a low-end model with 10MHz 16-bit 68010 CPU and a high-end model with 16.6MHz 32-bit 68020 CPU. There will be a choice of four bit-mapped displays: 12" mono and colour units putting up 512 by 400 pixels, a 19" colour display putting up 1,024 by 768, and a same resolution 17" black-and-white display. The machines run under the HP-UX Unix, and new releases of Hewlett-Packard's Basic and Pascal are offered. Main memory starts at 1Mb, rising to 7.5Mb, on each, and prices will start at $3,500, with a minimum configured system costing $5,500 and a fully-configured system costing $55,000.

In this week's issue:
Page 2; Future Technology Systems sets up new company to sell **Banyan** Unix-based PC network servers; **Wootton Jeffreys** picks up £1.4m funding; **CMI** pushes SNA/3270 communications for IBM Series/1 under Unix
Page 3; Integrated Micro Products' 68020 board and machine; **ComputerVision** fights back with electronic CAD software for workstations
Page 4; AT&T; a look at the consequences of the massive National Security Agency computer contract; and of that **IBM** stake in communications company and AT&T competitor MCI.
Page 5; Details of the new **AT&T 3B models** with the WE32100 processor announced in the US a few weeks back together with SNA/3270 communications and System V for IBM mainframes.
Back page; news in brief

DIGITAL RESEARCH "TO DO TOPVIEW-GEM FOR IBM's QUICKSILVER RISC"

IBM has commissioned Digital Research to develop a TopView-compatible version of its GEM Graphics Environment Manager for its forthcoming Quicksilver 32-bit RISC workstation under a $4.5m contract, reports **Computer Industry Daily.** The RISC is expected out any day now, but initially running Unix (Ux No 35); the TopView version is likely next year; Digital Research has been doing a TopView-compatible GEM for some time, and IBM is also expected to offer it on an add-on Personal board. That's the good news from Digital Research: the bad is that up to 120 of the 420 employees are to go and founder and chairman Gary Kildall is replaced as chief executive by president John Rowley.

FUTURE TECHNOLOGY MAY TO SELL BANYAN NETS

Future Technology Systems of Beith, Ayrshire has set up a new subsidiary, Future Technology Communications Ltd, which has taken on board the Banyan virtual networking system on a non-exclusive basis. FTC is based in Wallington, Surrey, and describes itself as a systems house specialising in communications systems; it will also sell the IBM Personal and Olivetti M24. Launched in March in the US, the product, from Banyan Systems Inc of Westboro, Massachusetts, is a 68000 Unix box aimed at the corporate personal computer market and links the IBM Personal and bus-compatibles to mainframes via local area networks. These currently include Ethernet, Omninet and Proteon's Pronet, together with asynchronous local area networks for dial-in access. Version 1.2 due for release in September will also support Arcnet and IBM PC-Net, and when it appears, the company will be orienting itself towards IBM's Token Ring cabling system. The 68000 or 68010-based Banyan system box runs Unix System V, with PC-DOS co-processor. Running at 10MHz, the system incorporates a 60Mb tape, 8Mb RAM and a 40Mb to 400 Mb disk per server. At the back end, the system communicates with other environments via SNA protocols, for 3278 emulation and the X25 public data network. Banyan also has a name and address facility system called StreeTalk, which allows browsing so that global communication between personal computers is possible regardless of location. The system's shared services offer disks, printers, back-up and electronic mail sharing by any personal computer configuration. Security features include passwords, administration lists and access rights lists with back-up and recovery. An entry level system starts at £5,000 with an average configuration at around £20,000. The system sells in the US via Honeywell and distributors have recently been set up, including Morriss Decisions of New York. FTC is looking for £1.2m for its first year, while Banyan, formed in 1983, now has 30 US users and hopes for profit by early 1986.

NOW CMI GOES SNA/3270 COMMUNICATIONS FOR IBM SERIES/1 UNDER UNIX

Following IBM's announcement as Series/1 IX of the Serix System V for the Series/1 minicomputer from CMI Corp, Troy in Michigan, CMI is now positioning the mini as a communications box linking Unix micros to IBM hosts. It has signed a $650,000 three year porting and marketing contract with Pathway Designs Inc to port and resell Pathway's Unipath SNA/3270 software for the Series/1 under Serix. CMI, best known as a leasing company, is an IBM master Value Added Reseller for the Series/1 and will sell the software through its network of VARs. The Unipath software for the Series/1 is due in September, probably costing about $4,000. CMI announced a C compiler for the Series/1 under the EDX recently (UX No 35).

WOOTTON JEFFREYS LANDS £1.4m VENTURE CASH EN ROUTE FOR THE USM

Wootton Jeffreys plc, the systems, software and consultancy group has landed £1.4m in backing from Grosvenor Development Capital and Close Investment Management, in exchange for 23% of the equity. The company distributes Prime minis, writes traffic control software and is a substantial national and local government contractor. It has recently moved into supplying Unix systems, courtesy of its Systems Designer code generation software which can now produce Unix Pascal code. It is looking for £4.5m turnover for the year to the end of this month, up from £3m last time, and is on target to make £400,000 pre-tax on it. Until recently a partnership, Wootton Jeffreys sees the new injection of cash as a step on the way to an Unlisted Securities Market quote.

US STARTUP BASIS HAS MAI-COMPATIBLE BUSINESS BASIC FOR UNIX, PC-DOS

Another company has come up with a Basic compatible with the MAI Business Basic for the old Basic Four minis, reports **Computer Systems News**; it is startup Basis Inc, of Albuquerque, New Mexico, whose Business Basic Extended, BBx, is written in C, handles multi-user applications and runs under Unix, Xenix, single user PC-DOS and multi user DOS networks using IBM's PC Network, Novell's Net/Ware and Microsoft Networks. BBx costs $195 for the single user DOS version, $495 for the networked versions and $695 under Xenix/Unix. The best known vendor of Business basic is Science Management Corporation.

IMTEC PREPARES TO ANNOUNCE DISAPPOINTING YEAR-END FIGURES

The Imtec 256 and its Quix "Unix-compatible" operating system from Imtec, Britain's leading micrographic equipment manufacturer, seems to have had an unsuccessful start and the company is set to disappoint shareholders yet again when it reports for the year to last March. It is likely that the company will miss last year's pre-tax figure of £845,000 by some way following a disappointing performance by the Motorola 6809-based Imtec 256. Imtec, based in Stanmore, Middlesex, developed the computer and a suite of applications in a bid to offset the slow growth in its mainstream micrographics business. The multi-user 256 has an entry level price of £6,650 which includes some applications, 21Mb disk and 256Kb memory. Imtec has made big claims for the computer but with only an 8-bit CPU in what most people reckon is now a 16-bit world, and its own proprietry operating system, it looks badly positioned. Imtec is now considering selling some of the applications it has developed, including an accounting package, as separate products - but to do so will have to reimplement them under some flavour of Unix, probably Xenix. Imtec claims Quix is close to Unix - with a Unix-compatible C compiler but with speed advantages and more user-friendly features. At the half year stage Imtec achieved pre-tax profits of just £21,000 against £140,000 for the same period for the previous year. More ominous was the marginal decrease in turnover, down 3% to £4.63m. An important reason for this serious drop was the suspension of Government grants for innovation. As these grants will be harder to win in future Imtec might have lost a major financial crutch.

CHIP STOCKPILE, EARLY DESIGN EFFORT GIVE IMP THE EDGE WITH 68020 SYSTEM

One of the more interesting UK-built hardware products to emerge recently is from Integrated Micro Products in Consett, County Durham, which has been extremely quick off the mark in designing and building a board based on the Motorola 68020, also due to go into a system running Xenix 3.1 (UX No 11). IMP tells us that it has stockpiled a "substantial" number of the chips since it completed the design around the start of the year - they also now seem to becoming much more freely available (UX No 35) - and as a result is able to supply 68020 boards. The ET-68020 board uses the full 32-bit VMEbus, uses private bus for memory access and has a proprietary memory management unit. The chips so far available from Motorola have been rated at 12MHz, but IMP reckons it has no problems running at 16MHz with no wait states and it says that the board was designed to handle the forthcoming 25MHz version of the CPU. The board sells at £4950, compared with Motorola's current pricing of £5,214 for the MVME131 SBC with memory management. IMP is already using Xenix for its 68000 board, which fits into a range of systems from two to 16 users. Although it expects to do more business from 68020 board sales to OEMs, both industrial suppliers looking for high performance 32-bit single board computers and computer manufacturers, IMP will be using the ET-68020 as the basis of the Mentor multi-user system, which it aims to ship in September. The Mentor takes from 2Mb to 16Mb memory, and uses IMP's 68000 disk controller board; there is support for two serial lines on-board but IMP reckons that the machine will support up to 34 lines altogether by the addition of up to two 68000-based controller input-output boards, each handling 16 ports. Basic price for a system with 2Mb CPU, 45Mb disk, floppy and two serial lines is about £22,000; a more likely configuration with one of the 16-user serial input-output boards would be about £25,000. Following the showing of the machine at last month's Unix show at Olympia, IMP is planning a launch sponsored by local MP Ernest Durham on July 25. It currently distributes its products from its Consett base but is looking to set up a distribution network.

COMPUTERVISION STEPS UP UNIX, ELECTRONIC CAE EFFORTS

ComputerVision was keen enough on getting some good publicity to bring over a selection of the Continental press for the European announcement of a range of products aimed at taking on the likes of Daisy Systems, Mentor Graphics and Valid Logic who have so far been running away with the market for front end processing systems for electronics design. The new products, announced on the eve of the Silicon Design Exhibition at Wembley, include the IBM Personal AT based Personal Engineer schematic capture workstation, software for the CDS 3721-E Unix workstation which is based on Sun Microsystems hardware, interfaces from the CADDS 4X software to both the Personal and workstation products and a variety of third party electronics design packages. Admitting that over the past two or three years it has felt "heavy pressure" from workstation vendors, Computervision's new products fall into its strategy of moving towards Ethernetworked Unix workstation systems, with its mainstay CDS 4000 mini to take a more subsidiary role in future (UX No 30). The Personal Engineer schematic capture package joins recently announced mechanical design software for the AT, and users can also create hierarchical schematics and display waveform graphics from simulations run on the CDS 3721-E, and the total cost is "under $20,000" . The interfaces announced include the CADDS Connect Interface, CCI, which allows Personal Engineers or CDS 3721-E workstations to emulate terminals to the CDS 4000 CADDS 4X systems, and transfer data to and from CADDS 4X. There are also format translators to allow schematics data produced on workstations to be fed into Racal-Redac or Scicards PCB layout systems. The company has also produced the first fruit of its efforts to move the CADDS 4X software itself onto Unix workstations with the ElectroCADDS/3000 PCB package for the 3721-E, which is based on Sun Microsystems hardware now largely built by ComputerVision. Other software includes the VALE VLSI Advanced Layout Editor, and third party software including Hilo-3, an enhanced version of the widely used Hilo-2 simulator from GenRad, and Symbolic Layout/3000 from Micro Electronics Centre of North Carolina. The specialist electronics design vendors already use specialised hardware to cope with CPU-intensive, repetitive tasks like simulation and PCB routing, and ComputerVision indicated that it is likely to go the same way, possibly by buying in specialised hardware, or using the expertise of its Munich-based Grado Software and Computer Systeme acquisition, or both.

VLSI: ZYMOS INTEGRATES MOST OF IBM AT CPU ON SINGLE CHIP

In an effort to demonstrate the benefits of its 2 micron standard cell CMOS process technology, Zymos Corp, Sunnyvale, California has integrat-ed the entire array of support chips around the 80286 on the IBM Person-al AT motherboard bar one onto a single chip, reports **Electronics**. The weekly trade paper notes that the part, called Poach for PC on a chip, integrates 87 support circuits - everything bar the 8042 universal peripheral interface on-to a chip which consists of 21,443 gates, 11,642 gates and 230 bonding pads, and measures 450 by 450 mils. The company suggests that anyone wanting to use the chip in an AT-alike could omit some of the un-necessary features to reduce the size of the part to 350 by 350 mils, at which point, unpackaged, the chips would go for about $50 a shot in quantity. The company has a 2 micron library of over 1,000 cells, and reckons that in 2 micron design rules, its CHMOS III standard cell technology undercuts gate array prices, coming down to between 0.2 and 0.3 cents per gate.

AT&T's NATIONAL SECURITY AGENCY CONTRACT PUTS UNIX IN THE FRONT LINE

News of AT&T's massive three-year contract - worth up to $946m if all options are taken up - with the US National Security Agency, a nest of super-spooks compared with whom the CIA is a model of frankness and accessibility, unfortunately reached us in dribs and drabs, so that we were unable to give it the prominance it deserves. It is the first really major contract won by AT&T's fledgling Information Systems subsidiary, and gives the AT&T 3B computers a credibility which they were expected to take a lot longer to earn - after all, they were announced only 15 months ago. It's worth noting, however, that the biggest estimate of the number of 3B machines required is a mere 325 - which however you do the sums leaves most of the cash to go on networking and services; AT&T over here also tells us that the terms of the contract mean that the NSA is not committed to taking any one piece of hardware over the three year period, but can change its requirements according to what is available. The contract should have the entire Unix community cheering from the rooftops, because for the next two or three years, Unix is going to need a champion with the gravitas of AT&T - at least until Japan Inc (and Europe Inc?) start seriously selling Unix in the US and Europe as one company. Chuck Hickey, president of Digital Research spinout Microport Systems told **Computer Systems News** that "Very soon we should see all government Requests For Purchase calling for Unix". Equally sweet for AT&T is the fact that the contract was won in the face of competition from the old enemy - the 3Bs to be supplied under the contract will be Tempest-protected, which means that eavesdroppers will be unable to detect what is going on inside them by picking up any stray radiations, and IBM bid Tempest-protected 4300s. And AT&T did not just beat IBM either: nearly all the big names in the business - Honeywell, Sperry, Data General, Gould and Perkin-Elmer - were in there pitching, all being eliminated leaving AT&T to slug it out with the resident supplier, DEC, which might have been expected to walk it but for that essentially correct but often dangerous decision to design the 32-bit VAX from scratch with only an afterthought PDP-11 emulation mode.

Good for AT&T, bad for DEC

It suggests that, given the enormous software base linked to three major operating systems - RSX-11, RSTS, RT-11, DEC should have done a parallel development of a 32-bit PDP-11. The cost to the National Security Agency will be that much higher because of the need to convert, and there is little doubt that US government agencies will see a move to Unix as the last conversion they will have to make: with so many players in the market, there is little danger even of their having to go through the kind of conversion IBM has been forcing on its top-end users with MVS/XA. The contract is seen as being particularly good for AT&T and particularly bad for DEC because many other US government agencies follow the lead of the NSA in their computer procurements. Even IBM acknowledged the supreme value of the business: **Electronic News** quotes an executive of the company's Federal Systems Division, Gerry Ebker, saying "Other intelligence and security agencies look to the NSA as the lead for designing their own computer networks: any firm with a major role in NAS has opportunities to expand throughout the government". The only twinge of disappointment for AT&T is that although the machines will be installed all over the world, the NSA's work is so secret that AT&T is unlikely to be able to take potential customers to see what would otherwise been a magnificent reference installation. The Tempest machines be manufactured at the AT&T plant in Oklahoma City which also builds the commercial models.

MCI LINK DEMONSTRATES THAT IBM HAS AT&T CLEARLY IN ITS SIGHTS

There is more than meets the eye in IBM's nonchalent tossing of Satellite Business Systems to MCI Communications in exchange for up to 30% of the equity of the expanded company, and, as we suggested when the story broke, IBM's target is AT&T Co. Because unless IBM has a strong strategic motive in buying the company, MCI just doesn't fit. IBM is accustomed to reclining on plush pre-tax profit margins of around 25%, but MCI operates uncomfortably on the kind of wafer-thin margins where every spring can be felt and most of them are threatening to burst through the ticking. And in the normal course of events, IBM - even the new IBM - does not buy into a company operating on those kinds of margins. One or two of the shrewder industry watchers on Wall Street have been mulling over this, and the answer they have come up with threatens sleepless nights for AT&T Co and the managers of its long-distance phone service.
While IBM reckons that it has every right to move into telecommunications if it wants to - the airwaves are free for all, aren't they? - it regards computers as its own private hegemony, and doesn't see any reason why AT&T should have an easy ride into the business. And even if AT&T doesn't make any money for years and years, its very presence is a malign influence - especially when it has the gall to leave IBM at the starting gate in the bidding for the $946m three-year NSA contract. IBM's real enemies - when it is not screwing them down to unbeatable OEM prices for products like 3.5" floppy disk drives which it wants - are of course the Japanese.

Japan Inc

But AT&T is getting uncomfortably close to Japan Inc, which reckons that its Unix operating system is about the only thing in the computer industry which has any chance of wresting away IBM's overwhelming dominance over its private fiefdom. So how does IBM's deal with MCI weaken AT&T? No-one can know for sure until it starts happening, but five will get you 10, once IBM is safely in the driving seat, MCI will start price cutting on long-distance telephone service - indeed it has already started - and will tell its anxious outside stockholders that for the present it has to sacrifice profits for market share if it is to justify the investment necessary to get into and stay in the big league. IBM salesmen will at the same time be telling all IBM's big customers - most of them currently AT&T customers as well - how wonderfully well those superb Rolm telephone switches mesh with the MCI infrastructure, what a superb international network MCI now has for them to reach all their far-flung overseas bases. And who gets hurt in all this - apart from MCI's stockholders? Who but AT&T, uneasily clinging on to 85% of the US long-distance market. AT&T's response has to be to sacrifice its own profits in a price war. But where were those profits intended to go? Why, into bankrolling its ambitious entry into the computer business. All of which looks like game and set to IBM, which wins the match when the strain on MCI's own finances become so great that even the IBM link is not sufficient to hold up the share price, and IBM is able to buy out the independent shareholders for a song.

AT&T ENHANCES 3B LINE WITH WE32100 PROCESSOR, SNA COMMUNICATIONS

Although AT&T's 3B machines have hardly set the world alight either here or in the US - apart of course for that massive defence contract announced a few weeks back (UX No 34) - AT&T is committed to the WE32000 architecture which forms the basis of the 3B2 and 3B5 machines, and the enhancements and new models announced recently - so far in the US only and not by AT&T's European partner Olivetti - pushed up the performance of the range and brought in the SNA communications vital for selling the machines into networked mainframe installations. The new 3B models, covered briefly in UX No 34, are the 3B15 line, comprising the 3B15/101, 3B15/201 and 3B15/301, plus the 3B5/101, /201 and /301 enhanced versions of the existing 3B line and a new desktop machine, the 3B2/400, fitting in above the existing 3B2/300. The main feature of the new machines is of course the WE32100 more powerful CPU based on the architecture of the WE32000 (UX No 6) in the original 3Bs, along with the new WE32106 maths co-processor.

Absurd ratings

AT&T is gradually scaling down the originally absurd estimates of the number of terminals that can be supported by the 3B series; the 3B5 family was originally said to support up to 60 users - now the new top-end 3B15 is said to take 60 users, while the new 3B5s are restricted to 48. We give AT&T's estimates of numbers of users as a guide to comparing the machines with each other rather than for any absolute power rating. The top-end 3B15 features a 32100 cranked up to 14MHz "for supporting a larger user community" and rated at 1.4 MIPS, 8Kb cache as in both the original and the new 3B5s, from 2Mb to 16Mb memory expandable using 2Mb cards. There are three models, the 3B15/101, /201 and /301, differing mainly in expandability; all have 32100, 32106, 2Mb memory and include Unix System V.2.1 supporting demand paging. The 3B15/101 has three extra memory slots, five input-output slots and one general-purpose slot, while the /201 and /301 have seven memory slots, 15 input-output slots and three general-purpose slots. The main difference between the 3B15/201 and 3B15/301 seems to be that the /301 comes in a bigger basic box - 67" high by 32" wide by 28" deep which allows more compact configurations when large amounts of disk and tape storage are added than the 31" by 30" by 31" basic box with extra horizontal and vertical "growth units" of the 3B15/101 and /201. The 3B15s support up to four 0.5" tape drives and four disk drives on the /101, eight on the /201 and /301; disks can be 40Mb, 134Mb or 279Mb formatted capacity. Extra cabinets with 14 more input-output slots can be added. Options include the I/O Accelerator, based on the WE32000 with 256Kb RAM and 96Kb EPROM, supporting synchronous and asynchronous serial interfaces. Prices for the base systems with disk controllers but no peripherals are $54,500 for the 3B15/101, $64,500 for the 3B15/201 and 3B15/301. The enhanced 3B5 models announced at the same time correspond to the identically numbered 3B15 models, coming in the same boxes with the same level of expandability, and can be field upgraded to the 3B15 by a CPU swap for $20,000, which is the difference in price between corresponding 3B5 and 3B15 models. The 3B5/101 uses a 7.2MHz WE32000 - although there is a clock upgrade to 10MHz at a hefty $5,000. The 3B201 and /301 use 10MHz 32100, and although the 32106 coprocessor is mentioned in the literature, it is not specified as either standard or an option for the machines at present. List prices for core systems, configured as the equivalent 3B15 models, are $34,500 for the 3B5/101, $44,500 for the 3B5/201 and 3B5/301. The 3B5s come with either System V.2.0 or V.1.0, not the V.2.1 paging release.

Expandable 3B2/400

The 3B2/400 is a more powerful desktop machine than the existing 3B2/300; it is twice the height at 7.2" but has the same 18" by 22" footprint. The announcement was accompanied by price cuts on the 3B2/300 of about 20%. A 10MHz 32100 is standard and the machine takes from 1MB to 4Mb memory, expandable with 1MB or 2Mb boards, with six to ten integral RS232 ports and one or two parallel ports depending on configuration, 720Kb floppy, 23Mb cartridge tape and one or two 30Mb or 72Mb disks. It has up to ten expansion slots, allowing a total of 46 serial ports by the addition of boards supporting four serial and one parallel port each - AT&T claims that 25 simultaneous users can be supported. "Suggested" configurations include a 1Mb CPU with six serial ports, one parallel port, 30Mb disk, floppy, cartridge and Unix for $19,950, up to a 2Mb system with ten serial and two parallel ports, two 72Mb disks, floppy, cartridge and Unix for $34,950. The same configurations with 31016 maths co-processor are an extra $1,500. System V.2 is standard; V.2.1, with demand paging and mandatory file and record locking is extra. AT&T's marketing pitch in the US naturally puts more emphasis on the networking and communications aspects, since it pushes the machines as part of a strategy of supplying complete computing and communications systems to large users as well as the VAR emphasis seen from Olivetti over here.

68000-based real time o/s for communications processors

The AT&T communications processors, which have Motorola 68000 CPU running their own real-time software, provide a gateway from the Ethernet-based 3BNet to local or remote SNA networks, offering 3270 emulation to mainframes running MVS for 3Bs running swapping versions of System V.2.0. Users can switch between SNA sessions and 3B applications withoput having to terminate the mainframe session. The processors- model 1 for local IBM channel connections, Model 2 for remote networks - emulate the IBM 3274 cluster controller, 3277 or 3278 terminals and 328X printers. Model 1 is due for general availability fourth quarter 1985, Model 2 the first quarter 1986; no prices yet. For providing 3270 emulation for 3Bs directly connected to IBM mainframes via SNA or bisynchronous connection, AT&T is offering the Emulator+ products; they run on 3B2 and 3B5 under System V.2. Extra hardware is also required: an Intelligent Synchronous Controller card at $1,475 for the 3B2, a synchronous data link interface and I/O accelerator card costing a total of $11,200 for the 3B5, and the mainframe must have a 37X5 front end processor.

Application Program Interface

Software pricing for SNA software is $700 for the 3B2, $1500 for the 3B5, and the same for Bisync versions. AT&T is also offering the Application Program Interface, a library of routines that can be linked into 3B programs to allow C applications to control the functions of the emulated 3270 terminal. AT&T says that API includes "multi-session" capability so that users can run an Emulator+ session while API runs in the background. API is $100 for 3B2, $200 for 3B5. The addition of the SNA products is vital to lend credence to AT&T's claims of being able to connect anything to anything in corporate networks, and joins the growing list of communications facilities for the 3Bs; these include 3BNet, the PC Interface, and the Starlan twisted pair local area network.

UNIGRAM/X

Convergent Technologies has introduced a Voice Processor box for its N-Gen workstations which brings together in one 8" by 12" by 2.5" box modem, codec for speech digitising, Digital Tone Modulation Frequency, auto-dial, and switching matrix to tie it to voice and data networks. It supports speech message store-and-forward, storage being done on the N-Gen disk, and the UK price is about £2,000. It was developed and is made by Convergent Technologies.

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And there's a bit of good news from **Convergent Technologies** amidst all the current gloom: the company says that orders have not fallen off to the extent it expected two months ago when it instituted a string of cost-cutting measures so it is ending the freeze on hiring new employees.

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Systime has been threatening for some time to bring a counter-suit against DEC over the long-running dispute between the two companies, and late last week it filed with the EEC Commission a claim for damages against DEC for unfair competition and breach of copyright.

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A few more details on the microprocessor NUXI System V.2.2 from **The Instruction Set** in Kentish Town, London; the company is offering NUXI for Motorola 68000, Intel IAPX-86 and NatSemi 32000 families and says that in addition to SVID compatibility it will also conform fully to the recently announced X/OPEN standard.

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AT&T has now confirmed our story that it is putting considerable effort into the Chinese market (UX No 34), saying that it has opened an office in Peking to work more closely with ministries and government corporations; it also has an order for a Number 5 ESS public telephone exchange from Wuhan in Hubei province.

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Phaser System Inc, the San Francisco company which supplies the Micro/SPF editor and ASCII-EBCDIC converter, and VDAM Virtual Disk Access Method, as part of Micro Focus' VS Cobol Workbench and has been marketing the Micro Focus product in the US has filed for Chapter XI bankruptcy protection, saying that the micro-to-mainframe market has failed to develop as quickly as forecast.

Minigrams

Sperry Corp's interest in 68000-based fault-tolerant machines - it is an investor in **Sequoia**, has taken sample machines from **Auragen** and took a look at **Synapse** (the latter two now both in a state of suspended animation, UX No 35) arises from the fact that according to **Electronic News**, the mainframer wants to top off its 5000 line, currently 68000-based Unix machines from **NCR** and **Arete** with progressively fault-tolerant 68000-based transaction processing systems.

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Encore Computer Corp has now formally announced its Multimax Unix machine, but without giving many details: the box from the Wellesley Hills, Massachusetts comes with from two to a striking 20 **National Semiconductor** 32032 microprocessors, is rated at 1.5 to 15 MIPS, and costs from $115,000 to $600,000; deliveries are due to start by the end of the year - and first production models are earmarked to go to **Sperry**.

– o –

Few standards win such enthusiastic endorsement so quickly as the MAP Manufacturing Automation Protocol formulated by **General Motors Corp** with a little help from its friends: it was little more than a bright idea at last year's NCC, now **Motorola** is saying that it will have the whole seven layers implemented on a single board, called the MVME 335, "sometime next year"; the work is going on at the company's Tempe, Arizona facility and the **Intelligent Networking Inc** joint venture between **General Electric** and **Ungermann-Bass** (CI No 27) will assist with the first four layers, with **CADlinc** doing layer five; it is not known whether Motorola will have outside help in implementing the top two layers.

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Ferranti Computer Systems has joined the gathering clans endorsing the **General Motors**-sponsored Manufacturing Automation Protocol, MAP, and is encouraging would-be users to install broadband networks ahead of MAP being set in concrete; it hopes they will pick its Ferranti Broadband offering.

– o –

Pricing on the **NCR** Tower 32 (UX No 34), so far only announced in the US, is £21,900 for 1Mb CPU, 46Mb disk, 45Mb cartridge tape, plus base Unix V subset; the machine is due in Europe later this year.

Ominous news from **Alpha Microsystems** , currently spreading Unix across its range of 68000 family machines; it reported a first quarter net loss of $870,000 against a profit last time of $938,000, on turnover down 9.2% to $12.3m.

– o –

Zilog Systems Division is the latest taker for the Newcastle Connection distributed Unix software developed at Newcastle University and marketed by Mari Ltd: the software will be marketed on Zilog's System 8000 Unix boxes.

– o –

Logica has announced release 5.2.2 of the Unity Unix under VMS from **Human Computing Resources** of Toronto; based on System V, the new version supports VMS 4.0 and Logica is offering it at 50% discount before August 1985; prices are from £1,300 for single user to £4,000 for four users, plus VAT.

– o –

Flexible Computer of Dallas, Texas has announced the Ada programming language for its Flex/32 multi-CPU OEM box; the language takes advantage of the parallel processing possible with the machine and will be available third quarter.

– o –

The forthcoming 32-bit Micro-Eagle desk-top Eclipse MV processor on the way from **Data General** (UX No 34) is expected to be based on a five chip im-plementation of the full MV/8000 CPU - the original Eagle - in 2 micron NMOS: it consists of CPU, floating point arithmetic unit, input-output unit, microsequencer and burst multiplexer; all paths will be 32 bits wide, and it will have virtual address space of 4Gb; it is being designed to deliver about half the power of the MV/8000 CPU, putting it just below the MV/4000.

– o –

The European Unix User Group wants papers for its autumn conference in Copenhagen, September 10-13; there are both technical and industrial sessions and authors should submit titles and 250-word extracts to Helen Gibbons at the EUUG, Owles Hall, Buntingford, Herts SG9 9PL.

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UNIGRAM/X

The newsletter for UNIX systems users

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Number 37

PYRAMID ADDS TOP-END TRUE SYMMETRIC DUAL PROCESSOR...

Having shipped 200-odd of its 90x Reduced Instruction Set Unix mini since October 1983, Pyramid Technology, based in Camberley over here, has weighed in with a dual-CPU machine claimed to have 1.3 times the performance of the VAX 8600 at two thirds the price. The new machine, the 98x Isoprocessor, follows Pyramid's initial attempts to get a multi-processor version running with the 90mx announced in January (UX No 12), which ran an asymmetrical version of the OSx dual System V/Berkeley 4.2 Unix port in a master-slave arrangement. Pyramid reckons it has now perfected a symmetrical version of the software for the 98x which has twin CPUs, each 25% faster than the 90x and also features a faster disk controller. Existing 90x users can field upgrade to the 98x, which is said to be 2.5 times faster and has a limit of 256 serial lines as opposed to 128 on the 90x, for about £90,000; the 90mx is effectively superseded by the 98x but Pyramid says the new software will run on the 90mx. The 98x Isoprocessor has basically the same Schottky TTL CPU as the 90x, but with the clock cranked up to 100ns - 10 MHz - from the 125ns of the 90x and some design changes to handle the faster clock speed. Pyramid has used the AMD 29116 bit-slice processor for the new disk controller, said to have an overall bandwidth of 11MBytes per second - the company says it has found disk throughput up by 20-50% on single disks, more using multiple disks - and Pyramid reckons the bandwidth is sufficient to accomodate faster disks as they come along. The new OSx is symmetrical in that both kernel and user code can execute on either CPU, and Pyramid has added a semaphore control mechanism to handle code and data protection. Pyramid reckons it gets 1.75 times the single CPU performance out of the 98x - no word on adding further CPUs although the machine was designed from the start as a multiprocesor. Pyramid also has new C, Pascal and Fortran compilers that take advantage of the 98x register-intensive architecture. The 98x is due to ship in volume in October 1985; a system with 8MB CPU, two 470MB disks, 6250 bpi tape drive, 32 lines, console and 32-user OSx licence is £307,000. There is also a single CPU version, which is also field upgradeable to the dual CPU model and is £168,000 for a 4MB CPU with 415MB disk and tape drive. Founded in December 1981, the Mountain View, California manufacturer has absorbed $27m funding and says it has been profitable since September 1984.

...DETAILS NIXDORF DEAL

The agreement between Pyramid Technology and Nixdorf Computer AG, revealed here (UX No 33) is now out in the open. Nixdorf has agreed to take $35m of Pyramid processors over five years, and also pays $6.5m this year for an unspecified stake. The agreement will take the machines into wider markets than the traditional VAX/ Unix users targetted by Pyramid; Pyramid will also leave the market to Nixdorf in Germany, Austria, Switzerland, Holland and Spain, and Nixdorf will do maintenance in the US where Pyramid has no presence. The two have also agreed joint development, and Nixdorf's membership of X/Open, the European Unix Manufacturers' club is a useful route for Pyramid to absorb the X/Open System V enhancements.

OLIVETTI CUTS 3B2 PRICES AHEAD OF NEW 3B LAUNCH

Olivetti in the UK has come in with price cuts on the low-end 3B2/300 micro, ahead of launching the new WE32100-based 3B models including the 3B2/400 (UX No 36) later this year; a low-end system with 512Kb CPU, 10Mb disk, 720Kb floppy and two ports is down just £300 to £8995. With 1Mb CPU, 30Mb disk, floppy, six serial and one printer port the price drops £1,500 to £12,995.

CORVUS, ONYX TEAM UP AT NCC AS MERGER NEARS APPROVAL

Corvus Systems Inc has crossed the first hurdles towards its proposed merger with San Jose neighbour Onyx+IMI Inc , getting approval from the US Securities and Exchange Commission, and only needs approval next week at the meetings of the two companies' shareholders this week for the agreement to become definitive. Meanwhile the two shared a stand at last week's NCC in Chicago, showing Onyx office software on a new $10,000 68010 workstation from Corvus due for volume production early autumn. The 68010 Cheetah workstation, aimed at OEMs and networked using Corvus' Omninet, follows Corvus' earlier attempts at an OEM workstation with the 68000-based Scorpion, which was taken on as the MicroSystem NX by Honeywell but then dropped (UX No 19). The Cheetah is $9,995 for a base configuration with 10MHz 68010 running demand paged Unix System V - the Scorpion came with System III, 800 by 620 bit-map screen and window manager, 68000-based disk controller, 24Mb disk, 1Mb main memory expandable to 5Mb and 640Kb floppy. The Corvus-Onyx combination will be called Corvus Systems Inc - Onyx is currently divesting itself of the IMI disk business acquired earlier - and will be headed by Corvus president Michael D'Addio; the Onyx line will get Omninet and the companies will merge manufacturing operations (UX No 20). Onyx' European marketing manager, Jean-Marc Bouvier, left about a month ago to join DEC; Mike Holland, formerly of Corvus distributor Vistec is now heading the UK sales effort. We were expecting both a low-end Xenix system and a top-end 68010 machine from Onyx around May; no announcements yet on those.

PLEXUS SIGNS, OTHERS EYE MULTIPLEX UNIX/PC LINK

Network Innovations, the San Fransisco company that developed the Multiplex software launched last month as Ingres/PClink by Relational Technology over here (UX No 31), also has Plexus signed up as an OEM and is attracting interest from a number of manufacturers of Unix systems. The Multiplex PC-Unix link software takes an unusual approach in that it presents the Personal user with a familiar Lotus-like interface with menu options which are used to select tables from a Unix database; Multiplex automatically downloads the file to the Personal, converts it to the format used by Personal software, loads your Personal package and logs you off the host - the whole idea being that there are far more Personal users familiar with Lotus than there are that know or want to know the Quel or SQL database query languages. Network Innovations was formed by two ex-Plexus people including marketing director Jim Groff. So far it has concentrated on database versions, saying that most users buy a Unix machine for the database in the first place and the first thing they want to know - before they put down the money for the Unix box - is how to tie in their existing Personals. The Unix end of the Multiplex software accesses the database by the programming interface to the query language, and Network Innovations is doing versions for manufacturers that will support different databases by just changing the configuration parameters; Ingres, Unify, Informix and Oracle are supported at present.

Not so easy

All those databases either use now or will offer in future the SQL query language devised at IBM, which you might think would make interfacing to most of them fairly straightforward. Network Innovations points out that it still has to produce custom interfaces because SQL only defines the manipulation of tables themselves and doesn't for instance define the syntax of the things you have to do first like showing what tables there are - probably as a hangover from SQL's IBM mainframe origins where if you don't know what tables you're allowed to get at you probably aren't authorised to get at them anyway. The company may do some work on tools to do similar things with native Unix file systems in future, but notes that it's generally possible to produce some sort of solution for ordinary Unix files using straightforward file transfer and format conversion utilities, while for most databases the file structures used makes that approach impossible. Network Innovations works with two pricing structures - either $695 per host and $195 per Personal or a blanket charge including the rights to make as many copies of the Personal end as you want; RTI charges between £1,200 and £10,000 under the latter scheme. Network Innovations is only shipping evaluation copies at present; general availability should be late this year.

VALID LICENCES GRAPHICS EDITOR IN SIEMENS TECHNOLOGY AGREEMENT

Siemens is to implement CAD vendor Valid Logic's Unix-based graphics editor on a new 80286-based workstation, in an extension of an original technology cooperation agreement dated April 1984. Recently we have seen a flurry of developments in the CAD/CAM area from various divisions of Siemens; this one is apparently an agreement with Siemens' central research group and Siemens "expects hundreds of installations of Valid's product, both internal and external". The software licencing agreement is a departure for Valid in that currently it only sells software with its own hardware, which provides much of the profit margin. Valid is particularly proud of its graphics editor and has been loath to offer it to other companies in the past, but as standard hardware drops in price particularly with the advent of Personal AT-based workstations, the company is looking to increase its software income from licencing it to other manufacturers; more agreements are on the way and we are likely to see it on both specialised and more general purpose hardware in future. Valid has also announced a 68020 upgrade for its 68010-based systems; the cost is around $20,000 for a 68020 product, but existing users of the 68010 product who want to upgrade to the 68020 can do so for $10,000. Siemens is investing heavily in building up a variety of design and engineering systems for internal and external use (UX Nos 20, 23).

CADMUS OFFERS MACINTOSH-COMPATIBLE GRAPHICS, DISTRUBUTED FILE SYSTEM

Peripherie Computer Systeme, of Munich, has shown considerable innovation in design in building its Q-bus Cadmus 9000 from the ground up and doing its own Unix ports; in the US, Cadmus Computer Systems has concentrated very much on marketing the graphics capabilities of the product and has a couple of software developments of its own which have been generating a fair bit of interest over there - although so far there is no word on introduction of the products by PCS or PCS's UK subsidiary PCS Cadmus. The two products are a library of graphics tools compatible with the Apple Macintosh graphics interfaces, and the Unison distributed file system. The CadMac mono graphics system provides tools for building windowing interfaces to applications complete with icons, pop-up menus and mouse control. It emulates Apple's User Interface Toolbox, providing a library of routines compatible with Mac system calls. Cadmus describes the CadMac development as a step towards a "fully integrated graphical interface" for the Unix workstations - future elements include an icon-oriented editor, Unix graphics interface and networking with Macs (see story on Lutzky-Baird). CadMac also supports Tektronix 4014 and VT-100 emulation windows concurrently displayed on the same screen. The other product which caught our eye was the Unison distributed file system, which is integrated into the Unix kernel and works over Ethernet using the TCP/IP protocols. We don't yet have details on how Unison compares with other distributed software like the Sun Network File System or the Newcastle Connection, but it supports transparent access to remote files anywhere on an Ethernetwork and also demand paging across the network, so that, as with Sun's NFS, diskless workstation nodes can page in programs and data from remote disks as needed.

JOHN CUNNINGHAM QUITS WANG FOR COMPUTER CONSOLES

In a surprise announcement Wang Laboratories said that president and chief operating officer John Cunningham had resigned to become chairman and chief executive of Computer Consoles Inc, the maker of telephone directory inquiry systems and fault-tolerant office automation minis and micros whose Power$_6$ Berkeley 4.2 Unix minis are sold by ICL and Sperry among others. Cunningham is also putting a phenomenal $2m into Rochester, New York-based Computer Consoles in return for 3.9% of the company, taking 400,000 newly issued shares at $5 apiece, with an option on a further 400,000. Saying that he wanted to run his own show, he apparently picked Computer Consoles over similar offers from Apple, Prime and Apollo. Cunningham, heir presumptive to founder An Wang at the Lowell, Massachusetts office systems specialist - An Wang's son Fred Wang is more an engineer than a front man - will remain on the Wang board. And chairman An Wang, who had been president for 30 years when Cunningham took over two years ago, reassumes the additional post. CCI called off a proposed acquisition by office systems manufacturer NBI in February (UX No 14) and said then that it was being hit by "pressure on earnings"; Cunningham reckons that the market "positioning" needs a revamp.

VISUAL TECHNOLOGY SELLS ITS 80286 XENIX BOX TO LEE

Although Lee Data Corp finally decided against buying troubled VDU and microcomputer manufacturer Visual Technology Inc of Tewkesbury, Massachusetts, it did not stop coveting the Visual 2000 80286-based Xenix machine which actually pre-dates IBM's Personal AT and has up to 16 serial ports against just three on the AT (UX No 4). Having loaned Visual Technology $3m ahead of the aborted acquisition agreement, Lee Data has now agreed to waive repayment of the loan and pay another $100,000 in return for all rights to the Visual 2000, which will now be renamed the Lee Data System 2000. Lee plans to market the upmarket micro direct to end users and is prospecting in Wang territory around Lowell, Massachusetts for a sales base. It will transfer manufacturing to its Minneapolis headquarters in the medium term and in the interim, the machine will continue to be manufactured at Tewkesbury. The slimmed-down Visual Technology will now concentrate on its IBM and DEC-compatible VDUs, and will still sell its Commuter portable Personalike, to which most of its problems are attributed. Visual had been looking for a UK distributor for the 2000.

MERCURY ZIP 3232 ARRAY PROCESSOR DOES 16 MEGAFLOPS

Mercury Computer Systems of Lowell, Masschusetts has harnessed the power of the Advanced Micro Devices 29325 array processor chip to create a three-board add-on array processor for Qbus and Multibus computers. The Zip 3232 is claimed to enable a DEC MicroVAX II to do scientific calculations at 16 Megaflops - floating point operations per second - at a quarter the cost of rival solutions. Aimed at applications in signal, image and scientific processing, it comes on three boards, and starts at $9,750 for a 16 Megflops version, $7,500 for 8 Megaflops. Add-on 2Mb memory boards cost $3,900 and 512Kb boards are $1,950.

IBM ADMITS SNAGS ON SOME PERSONAL AT DISK CONTROLLERS...

Following reports of unreliability with hard disk versions of the Personal AT, IBM has discovered a snag in the disk controller chip installed in about one in 10 ATs - ones manufactured in the US at the end of last year. The snag, which only shows up on models fitted with a hard disk, affects ATs with serial numbers between 5019001 and 5141250 and between 0054001 and 0146900 - but anyone worried can get a free floppy disk from IBM which checks out the controller. IBM will also replace the faulty Texas Instruments chip free of charge.

...NO IBM PC2 THIS YEAR - OFFICIAL

To quell speculation and possible damage to Personal sales, William Lowe, the new chief of Entry Systems, has told the **Wall Street Journal** "there was no PC2 in plan when I arrived, there is no PC2 in plan now". Several observers - and one or two insiders - insist that the Personal Computer 2 was never anything other than confusion over the new floppy-only XT, but IBM developments often become products only days before they are announced, and other machines using 80286s and 80186s certainly exist as possible future products within IBM. In May, IBM was suggesting to dealers that there would be no Personal Computer 2 before late in the fourth quarter. When it comes, the new machine is expected to be a downgraded AT.

NATIONAL SEMICONDUCTOR HAS BUSLESS SINGLE BOARD 32016 COMPUTERS

National Semiconductor has unveiled a line of board-level computers built around its NS32016 pseudo-32-bit microprocessor and designed them to eliminate the need for bus connections to enhance the speed. The basic ICM-3216 consists of a CPU board which includes a 10MHz 32016, NS32082 memory management unit, NS32201 timing control unit, NS32202 interrupt control unit, and NS32081 floating point unit, with on-board SCSI interface for disk and tape drives, and a 1Mb memory board connected by a DIN plug rather than a bus, so that data can be accessed at up to 10MHz with no wait states for bus arbitration. The boards cost under $3,000 in single quantities, and are designed for use in workstations, CAD/CAM systems, robotics, data acquistion and process control, and the preferred operating system is the System V/Series 32000 version of Unix System V.2. A full 32-bit ICM-3232 with 32032 is planned within a year.

MIPS SEALS ANOTHER $9.1M VENTURE CASH FOR RISC BOARD DEVELOPMENT

MIPS Computer Systems, the start-up formed to develop boards and systems around a reduced instruction set computer design in Mountain View, California last October (UX No 8) has demonstrated that despite the computer industry recession, there is still venture cash in the US for promising propositions by raising $9.1m in its second round of financing to add to the $1.5m raised in the first round. Contributors include Mayfield Fund, which put up the original seed money; Institutional Venture Partners; Kleiner Perkins Caufield Byers; Merrill Pickard Anderson & Eyre; Mohr Ventures; and Hill, Keeley and Kirby. MIPS is reportedly concentrating on selling to workstation manufacturers needing power at the top end, which is an area brought sharply into focus by IBM's plans to offer a RISC based Unix workstation (UX No 34).

ZILOG TIES UP WITH LUTZKY-BAIRD TO OFFER UNIX-MACINTOSH NETWORKING

A product which provides networks of Apple Macintoshes with a Unix-based true file server could give a sorely needed boost to the Apple Macintosh in the corporate environment is being marketed by Zilog Systems (Europe) in the UK. The product, Ultra-Talk, comes from Lutzky-Baird in Los Angeles and uses the Zilog Z8000-based System 8000 as a server to Macs linked by the Appletalk twisted pair network; files are stored in the Unix hierarchical directory structure on the System 8000 disk and are accessed by the Mac via the familiar menu interface. Ultra-Talk has been in Beta test for the last few months and Lutzky-Baird tells us that it has been shipping for the last two weeks. The announcement comes at a time when Apple has pulled out of direct marketing, leaving it to distributors to sell to both small and corporate users. Lutzky-Baird told us that it wanted to exploit the "superb" user interface of the Mac by turning it into a proper multi-user system rather than a standalone workstation; other companies including Touchstone Software, author of the PCworks package, have developed Mac - Unix file transfer and terminal emulation packages but Luzky-Baird considers that the network approach gives a far greater bandwidth. Appletalk provides cheap physical links between machines but according to Lutzky-Baird the only peripheral which can be shared is a printer, and there is no print spooling; in addition to the file server facility Lutzky-Baird also provides electronic mail and is developing a print spooler for to allow print files to be queued for output on the Apple laser printer announced by Apple with Appletalk. Ultra-Talk also supports "virtual disks" on the Unix disk as opposed to file sharing. Although so far the Zilog version is the only one available, Lutzky-Baird is also working with the Cadmus Computer Systems machines and other boxes from unspecified manufacturers; it says that the main problem is that although the Ultra-Talk software is portable you also need the software and hardware on the Unix host to drive the lower level Appletalk protocols. Lutzky-Baird will market both through OEMs and from its own sales office; end user pricing is $2,000 for the Unix software, plus $300 for the software needed for each Macintosh. The company is two years old, has hitherto specialised in consultancy and Ultra-Talk is its first product.

PHICOM TAKES 20% OF MICRO-ENGINEER BENCHMARK TECHNOLOGIES

Kingston-upon-Thames company benchMark Technologies, designing high-performance MS-DOS and Xenix Intel microprocessor-based boards for OEMs in niche markets, has a £250,000 investment for 20% of its equity from £40m public company Phicom, along with an OEM agreement with Phicom subsidiary Trend Communications giving Trend a manufacturing licence to benchMark's 80186-based MS-DOS 3.1 boards for as yet unannounced Trend products. benchMark was the first customer for accountant Arthur Young's High Technology Group, formed specifically to provide management and financial skills to new companies, which sees the investment by a user as a nice example of the way new companies can get round the hostile City attitude to electronics companies, since benchMark spent several fruitless months seeking venture capital before signing the Trend/Phicom deals. benchMark's current offerings are the 186, with 80186 and MS-DOS 3.1, and, at prototype stage, an 80286 "applications processor", which uses the 80186 board for input-output and will run MS-DOS and Xenix. It says it has 15 OEMs signed for its boards and those announced include Italian Telecom, for unanounced products, Ampex for fingerprint workstations and Pagitek for typesetting terminals; Trend, which is also currently doing benchMark's manufacturing en route to producing its own boards in volume, will be using the boards in Tempest radiation-shielded terminals for military applications, and secure commercial products. benchMark, a development company formed in May 1984 by consultant engineers Yavuz Ahishalilar and Osman Kent, claims to avoid the crowded personal computer market - although it offers optional IBM compatibility - by producing high-performance boards which are configurable enough to be applied to specialised markets; it has coined the term Sysware to describe its offerings, which actually run the real-time executive bRTX which supports other operating systems as tasks. Other "standards" offered include Microsoft Networks and GKS graphics - the combination is claimed to be flexible enough to allow OEMs to get specialised systems running quickly yet provide good performance. Phicom's Bruce Rattray joins the benchMark board; benchMark reckons it is already profitable and "will be surprised" if it does less than £750,000 this year. 32-bit systems are planned for late this year, and to do so benchMark will have to use processors from other manufacturers; since the only likely way to go with a 32-bit system is Unix, given the fact that benchMark already offers real-time facilities with bRTX, the company could be one to watch as a supplier for products like high performance Unix workstations for specialised applications.

RYAN-MCFARLAND ADDS XENIX/286 FORTRAN, LOGICA TO OFFER XENIX 68K COBOL

US compiler developer Ryan-McFarland, based in Cheshunt, Hertfordshire over here has been making a flurry of product announcements recently - both for its RM/Cobol and the Fortran 77 standard RM/Fortran. The company is close to completing a version of RM/Fortran for the IBM Personal AT under Xenix, which will be the first Xenix/286 version, should fit nicely with the impact the AT is making in the scientific/engineering markets as a low cost workstation; field testing should be complete this month and the company expects to ship production copies in September. The version needs the 80287 arithmetic co-processor, and both the Xenix base system and development system. The Xenix product joins versions for MS-DOS including a PC-DOS version marketed by IBM for the Personal and AT. It will cost $750, the same as the existing RM/Fortran for the 68000 family, for which the development team is in the UK. The company says it has no immediate plans for a NatSemi 32000 version. Meanwhile Ryan-McFarland has contracted Logica to port RM/Cobol to Xenix on the 68000 family and distribute it through Logica's OEMs; that version joins a large range of implementations on machines ranging from 8-bit CP/M to IBM 4300 under VM/CMS, including a version for the IBM System 36 mini marketed exclusively by IBM in the US but recently announced by Ryan-McFarland over here. Ryan-McFarland's other products include the RM/COS Cobol Operating System, said to give better performance with its compiler than other general purpose operating systems, and there is a large directory of applications.

MANAGEMENT SHAKE-UP IN THE WIND AT MICRO FOCUS

The Laister syndrome, still bringing pressure on Sir Kenneth Corfield at STC, is also making itself felt at Micro Focus Group Plc. Chairman Bryan Reynolds is coming under increasing pressure from some of the company's top managers to give up his role as chief executive in favour of a new man. A source close to the company describes the atmosphere within Micro Focus as extremely volatile. One of Micro Focus's top executives told our sister paper **Investment Computergram** that Reynolds is trying to do too much: "The company needs to be restructured with more emphasis placed on traditional line management. Reynolds believes he can do it all, but he can't, and all that is happening is that more mistakes are being made and a number of employees are feeling more and more frustrated. We desperately need a management restructure at Micro Focus." Paul O'Grady, co-founder with Reynolds of the company, has also come in for criticism. While no one denies O'Grady's ability as a salesman, his management skills as head of sales and marketing are viewed as weak. It is now felt that O'Grady should concentrate on closing big contracts and hand over more of his day-to-day management responsibilities to someone better suited to running a fast-growing company. There are also grave doubts about the financial management of the company, and a number of investors and Micro Focus executives are putting pressure on Reynolds to appoint a new financial director. So far he has refused to accept the need for such an appointment. "Micro Focus is no longer an entreprenuerial start-up. It has to begin acting like a big company or the future could be in grave doubt," says one executive.
There might also be cause for concern over sales of the new VS Cobol Workbench which is now regarded as being the key to Micro Focus's future. Following the slow-down of the US market sales of the product are thought to have been slow to take off. A week or two back, Phaser Systems Inc of San Francisco, a software company which helped Micro Focus develop the workbench, filed for Chapter XI bankruptcy protection (UX No 36). Phaser blamed its financial problems on the decline in the micro-to-mainframe market at which the VS Cobol Workbench is aimed. Micro Focus rebuts this by saying that Phaser had serious management problems which led the company into bankruptcy. On the positive side there is now a strong suggestion that IBM itself might start selling VS Cobol in the US and the UK. Overall, the poor morale - evidenced by the fact that Micro Focus people are complaining to outsiders - means that rapid action is needed to secure the company's future health.

NOW HEWLETT-PACKARD TAKES 11% OF CERICOR INC

The world seems to be beating a path to the door of Cericor Inc, which writes computer-aided engineering software for design of digital and analogue circuits in out-of-the-way Salt Lake City, Utah. Following the agreement under which Data General is putting up $2m for a 10% stake in the company, coupled with an agreement under which it will package Cericor's CDA 5000 design suite for marketing with Data General hardware, Hewlett-Packard has paid the company a similar compliment, taking an 11% equity stake. Terms of the latter agreement have not been disclosed.

RIDGE CUTS PRICES FOR CAD/CAE MARKET, UPGRADES RISC WORKSTATIONS

Ridge Computers, building RISC computers in Santa Clara, California, recently announced upgraded versions of its Ridge 32 scientific machines with improved price/performance, plus a new version of the CPU claimed to improve floating point performance by 100% to 300% - which Ridge approximates to between 30% and 100% overall performance increase.

UK "High priority"

The company has an agreement with Bull of France whereby Bull markets and manufactures the machines for its traditional markets, including Germany, Scandinavia, Belgium and Spain(UX No 20); Ridge is currently evaluating methods of taking on other European markets, says that it has found "significant demand" for its type of product in the UK and that organising marketing in the UK is high priority. Ridge says that for most of the machines, it has doubled the memory and disk storage of previous base configurations for about a 20% increase in price; where the memory and disk have not increased there is about a 10% price cut. The original 1Mb memory boards are replaced by 4Mb boards, and 4Mb is now standard on the models, except the /330 which has 8Mb. The new models are the 32/130 and 32/330, with 150Mb disk and the new enhanced CPU, and the 32/110 and 32/310, with the original CPU and 78Mb and 150Mb disk respectively.
The /310 and /330 have five more expansion slots than the /110 and /130. Prices are $39,000 for the 32/110, $47,000 for the 32/130, $56,000 for the 32/310 and $69,000 for the 32/330. Ridge offers the machines as either single user workstations or with up to four users; the /330 with 8Mb will now support up to 8 users. Ridge is also working on a new CPU with around 2.5 times the current performance; that is not expected for about a year (UX No 20). The enhanced CPU is also available as an upgrade for existing workstations at $11,500. Also announced were enhancements to the Ridge Operating System, for which Ridge rewrote the kernel from scratch offering System V compatibility; these include the Remote shell and C shell Berkeley enhancements.

30% discount

Eyeing the growing CAD/CAE market, Ridge also announced a discount scheme in the US where the sale of software packages from independent vendors leading to a Ridge hardware sale leads to a hefty discount on the system price of as much as 30% by bundling in features like Ethernet interface, Fortran, larger disks and printers. Eleven packages are included in the scheme including Nastran, Ansys and several versions of the Spice circuit simulator, as well as software for chip design. Ridge reckons its RISC-based CPU is adaptable enough to be able to compete on price performance with the specialised hardware offered by electronics design system vendors for functions like simulation and PCB routing: for example OmniCAD, of New York, announced PCB routing software at the Design Automation Conference recently and chose Ridge hardware as the vehicle - an OEM deal is being negotiated. AT&T recently took a stake in OmniCAD and is jointly marketing products in an attack on the CAD market.

Stirring the pot again and suggesting that the weight of opinion on the board is swinging towards a merger rather than trying to raise new cash and go it alone, **Sperry Corp** chairman and chief executive Gerald Probst says that Sperry will pay "close attention" to possible merger arrangement, but won't sacrifice its future to "near-term expediency": he also points out that it was **Burroughs** which withdrew its offer for Sperry, not Sperry which turned it down.

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Sperry Corp cites strong commercial computer sales as the reason for a storming 19% first quarter growth in turnover: in part this is no doubt a reflection of the fact that the top-end 1100/90 is approaching its peak in the delivery cycle - it will probably get a mid-life kicker quite soon and be ready for replacement in the product line late next year or early in 1987 - but the news from Sperry is undoubtedly encouraging in that for the past couple of years, sales have been almost static.

- o -

We've never taken very seriously suggestions that **AT&T** was planning a bid for **DEC** - surely the telephone giant wants things which will complement its 3B computer line, rather than add more of the same - and now both companies have stated firmly that there is no truth in the rumours.

- o -

Elxsi, building multi-CPU scientific machines in San Jose, California, has a version of the Berkeley Spice 2G5 circuit simulation software adapted to take advantage of parallel processing using several CPUs on the Elxsi System 6400; it says that by adding 300 lines of Fortran to the 20,000 line program, Spice ran on a four CPU system at more than three times the speed of a single CPU version.

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Elxsi has also done a similar trick with **Gateway Design Automation's** Aidssim concurrent fault simulation program.

- o -

PCS Cadmus, in Newbury, has two new languages for its Cadmus 9000 68000 Unix machines; FranzLISP, from Franz Inc provides both interpreter and compiler for the Lisp dialect, and Cadmus APL is Dyalog APL from Dyadic Systems.

Minigrams

AT&T and **Computer Sciences Corp** of El Segundo, California, a big supplier of systems to the US government among others, have an agreement on office automation products under development at CSC, says **Electronic News.**

- o -

And **AT&T** has formed **AT&T Medical Diagnostic Systems** to market the results of research at its **Bell Laboratories** hothouse.

- o -

Colex, based in Ascot, has announced the DM/6 development module, a six slot VMEbus system typically using the VME/681MP 68000/80186 board set and offered with operating systems including System V.

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Altos Computer Systems' new UK software applications directory, due early autumn, has over 150 Xenix applications suitable for the UK market, claims the company; it is in three parts, Altos labelled software, third party software running on Altos machines, and Unix/Xenix software not qualified by Altos.

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Motorola distributor **Hawke Electronics**, in Sunbury-on-Thames, has System V/68 on Motorola's VME/10 and EXORmacs systems and VMEbus board sets.

- o -

Unix and PC-DOS software distributor **Sphinx** in Maidenhead has a file transfer package developed in-house and called Sphinx-Link; for transferring data between Unix machines, the package costs £895 and is distributed in source form.

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ICL Holland has signed **Marathon Computers** of Gouda, Netherlands to be a TraderPoint dealer for the 68010-based Clan microcomputer which runs under UniPlus+ System V.

- o -

Hewlett-Packard Co is extending the temporary closures it is making in response to weak market conditions by closing most of its manufacturing and administrative facilities one or two days each month to cut costs: 45,000 employees will have to take unpaid leave during the shut-downs, and while sales and service offices will remain open, hours will be curtailed with pay adjusted to accordingly, which means a 5% cut for 14,000 US staff.

The first **Cray** 2 ordered in Europe is due to go to the **University of Stuttgart:** delivery of the $20m machine is set for fourth quarter 1986.

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One of the more promising startups right now is **Sequent Computer Systems**, formed by Intel refugees in Portland, Oregon 18 months ago to build the Balance 8000 multi-NS32032 Unix machine aimed at the office and transaction processing market: the company feels secure enough to be able to place a $1m OEM order with **Systek Inc** the other end of the coast in San Diego, California for MTI-1600B direct memory access multi-channel communications controllers which enable up to 150 users to communicate with a 12-processor Balance 8000, at 16 users per controller.

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Human Computing Resources, of Toronto, Canada plans to offer run-time licences this quarter for its VAX Unity, which runs as a task under VMS; they wil go out through HCR's "European distributors" - which of course include **Logica** over here.

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ComputerVision Corp of Bedford, Massachusetts has cut its 5,700 workforce by about 100 people.

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Competitive pressures in US telecommunications have never been so fierce, and rivals **MCI** and **GTE-Sprint** are smarting over **AT&T's** latest coup, which puts the entire US telephone population in touch with a very select community of - just 62; "It's an absolute coup," MCI told the Wall Street Journal, "We expected some kind of competitive response to our deal with **IBM**, but this is certainly one we didn't contemplate", while GTE was willing, but said it didn't know how to reach directory enquiries for the destination in question - because AT&T is now offering phone service to Pitcairn Island, where the tiny population, most of them descendents of the Bounty mutineers, share just one telephone.

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Number 38

ALLIANT MEGAFLOPPER HAS AUTO-PARALLEL FORTRAN

Alliant Computer Systems Corp, based in Acton Massachusetts, is making perhaps the most sophisticated attempt yet at combining multiple CPUs into a high-performance Unix-based engineering system claimed to outperform the VAX 8600 at a fraction of the price an with a top end performance of 34.6 MIPS, 94 MFLOPS. The Acton, Massachusetts startup, formed by Data General, DEC and ComputerVision staff, last week announced a range of machines which combine a number of 68012-based interactive processors with multiple proprietary computational processors, with a Fortran compiler which takes unchanged VAX source code and decides how parts of a program can be distributed among them for parallel execution. Up to eight of the compute processors and 12 interactive processors can be included, all sharing the same virtual address space, and a key feature is a switch implemented in CMOS gate arrays which dynamically connects the computational processors to shared memory, providing a combined sustained bandwidth of 376 Mbytes per second. The computational processors, also built from CMOS gate arrays, have instructions to support vector processing and parallel processing; the Berkeley 4.2 operating system has been adapted to maintain two queues of tasks - compute tasks of which only one is active at any time, split over the available computational processors, and interactive tasks including input-output, operating system and general Unix tasks each of which is allocated to an available interactive processor. If a compute task has input-output requirements, it is replaced by another on the computational processors while the interactive processors carry out the input-output functions. Alliant is marketing the system in two forms; the expandable FX8 which in entry level configuration of one computational processor, two interactive processors, tape, 376Mb disk and 8Mb memory is $270,000 - with eight computational elements it costs $670,000. The non-expandable FX1 is $132,000 for the entry FX8 but with only 67Mb disk - but Alliant still claims that it produces 12MFlops, 4,450K Whetstones. Alliant has five systems sold, three of which are Beta sites; production models are on 90-day delivery. Alliant is working on a parallel C.

NCR "BLOWS UP ON UNIX FOR THE NCR/32 CHIP SET"

NCR has reportedly put on ice its project to implement Unix on a processor built around its innovative NCR 32 chip-set. According to **Electronic News**, the decision has been taken because the NCR 32 version turned out to be no more powerful than its own Tower 32 machine which is built around the 32-bit Motorola 68020. NCR will continue to offer NCR 32-based processors to run the ITX operating system; other customers are - Honeywell for an unannounced virtual memory DPS 6 model, Celerity for a scientific Unix workstation, and Hytec Microsytems in Oxford here for the M1 to run 8 and 16 bit code alongside Unix.

APOLLO OPENS UP DOMAIN ARCHITECTURE

Engineering workstation market leader Apollo last week launched an "open-architecture" program which decouples the Domain resource sharing software from the proprietary token ring local area network, opening the way to extend Domain to a wide range of network architectures. Also announced were 68020 top-end workstations, new software and price cuts on existing models (see inside story). It announced a swathe of intitial communications products for linking IBM SNA, DEC VAX/VMS and IBM Personals to its Domain networks. Apollo, which pioneered the Domain features of transparently accessing remote files and resources over networks, says that it is committed to eventual support of the ISO/OSI networking model, extending Domain to mixed-vendor environments and connecting Domain rings together via other networks including Ethernet "backbones". The company introduced the first product for connecting together up to five physically separate Domain rings into a single logical system; Domain/Bridge, for which Apollo has adopted the Xerox Networking System protocols, allows connection either over T1 lines or 2MBit/second coaxial cable. Domain/Bridge-A, for wide area communications, is £7,925; the coaxial cable version /Bridge-B is £8,395. Domain /SNA, which needs a controller board plugged into Domain workstation or server and makes SNA capabilities available to the whole Domain network, is two optional packages; Domain/SNA-3270 and the /SNA-3770 RJE software, and either can be run in one workstation screen window while another window handles other functions. Price is £1,605 per node for software for either the 3270 or 3770 packages, or £6605 per site.

UNIFORM DOES LOTUS UNDER XENIX-286 - BUT NO GENERAL PURPOSE DOS CONNECTOR UNDER UNIX ON 80286

Uniform Software Systems, based in Santa Monica, California, developer of the Connector software for running PC-DOS programs0 under Unix, has a version for Xenix on the IBM Personal AT in beta test - but has found so far that it has to develop application-specific versions for the AT and so is starting with Lotus 1-2-3. The Connector was shown at Uniforum in January for PC/IX on the Personal XT and costing a mere $299; the sales of that product seem to have suffered from the low penetration of PC/IX itself, although a version for the multi-user AT obviously has more appeal.

Protected

The problem in getting DOS programs to run on the AT under Xenix apparently centres round the protected mode on the 80286, which of course doesn't arise on the unprotected 8088; Uniform has found that big real mode programs like Lotus have to be individually adapted to run in protected mode because they have their own methods of memory handling, leading to application specific Xenix Connectors. Uniform hopes to release first versions of the AT product in September. Uniform's other products include the Extender, software which allows Lotus to run in up to 1Mb in protected mode under PC-DOS on the Personal AT, claimed to double the size of spreadsheet that can be built up; it is an alternative to Intel's hardware Above Board solution.

CALLAN DATA PRESSES ON WITH 68012, MULTI-68020 RICOH DEVELOPMENT AFTER EUROPEAN, US SALES DROP

Callan Data Systems, hurt by poor US sales and an unsuccessful start in Europe which has led to the closing of the Heathrow European office, is nevetheless pushing ahead with the introduction of a machine based on the Motorola 68012 and has opened up a little on its forthcoming multi-68020 machine developed under an agreement with Japanese copier manufacturer Ricoh. Callan closed down the European base after failing to generate the hoped for business, although European general manager Bill Macpherson is still acting as a consultant and there are still a few European resellers for Callan's hardware, which is mostly targetted at OEMs. founder Dave Callan told Unigram that it would "not aggressively pursue " the market. The Unistar 312, which uses the Motorola 68012 extended memory addressing variant of the 68010, supports up to 16Mb memory and 16Mb virtual memory per process and runs Callan's first virtual memory System V (UX No 8). It also includes internal 265Mb HSMD - the faster version of SMD - 8" disk, and up to 32 ports. With 4Mb CPU, 32 lines, disk and tape streamer it costs $68,735 list price with pricing slanted towards OEMs; discounts start at 35% for single machines. The 68020 machine, due next year, uses up to four of the processors each able to run any process or the kernel, with processes allocated by the operating system to available processors. To avoid contention for the shared memory, a 64 bit wide path is used to reduce the number of memory accesses, and each CPU has cache. Callan has a long-term relationship with Ricoh, which is helping to fund development although no word on what Ricoh wants to do with the 68020 machine. Callan's sales, down by 50% compared with last year, have been particularly badly hit by the problems at Texas Instruments, which is Callan's largest customer and was installing machines for a worldwide manufacturing control system.

Texas cutbacks

Callan attributed 90% of the slowdown in sales to TI's cutbacks; Callan reduced its staff from 60 to 37 earlier this year, closing some other sales offices. However there is a note of optimism in that US Government sales have been strong, and the company is seeing more interest in the newly introduced Unistar 312. In the long term Callan is looking to tie up with a company with more resources; assuming the company survives the current rocky period, Callan hopes that sales of even the 68010-based Unistar 300 will pick up because it reckons the overpopulated low-end market will clear considerably by the end of this period with many of the 68000-based startup manufacturers falling by the wayside.

AFTER £250,000 COMPASS INVESTMENT, QUARTZ PLANS INCLUDE UNIPLEX FOR SEQUENT BALANCE 8000

The investment by Newbury-based Compass Peripheral Systems in software and systems house Quartz Ltd of Basingstoke prior to taking on the Sequent Balance multi-CPU Unix box (UX No 33) has been announced as £250,000 in return for a "major share" of Quartz. Compass, which specialises in DEC add-ons, will take and distribute the machines from Sequent and provide maintenance while Quartz will do the sales and marketing. Compass can also add extra peripherals; the Balance 8000, which runs the load-balancing Dynix version of Berkeley 4.2, currently on up to 12 NatSemi 32032 processors, has Multibus and SCSI interfaces with DEC Q-Bus and Unibus interfaces a likely addition in future and Sequent provides the source code to device drivers facilitating the addition of peripherals. Quartz has specialised in porting and enhancing Redwood International's Uniplex office software since the early days of the product - Redwood managing director Peter Osborn is a director of Quartz and Redwood has a small stake in the company - and will naturally enough be porting Uniplex to the Balance 8000; it says that the software will be fed back to the US because Sequent is interested in getting office software on the machine. Initially Quartz will be selling to end users and has seen interest so far for both general timesharing, and for running big Fortran programs where Quartz says that the floating point co-processors available for each CPU are an attraction.

TDI RUNS P-SYSTEM UNDER UNIX WITH MOTOROLA VAR DEAL, ADDS XENIX BOX, MODULA 2 OPERATING SYSTEM

TDI of Bristol last week finally launched the Mosys operating system based on the Modula-2 language and accompanied it with a new top end machine with Xenix support in its 68000-based Pinnacle range and an £1.8m OEM agreement to resell Motorola's Unix boxes. TDI is the UK distributor for the p-System and the Motorola 6300 and 6600 will also be the first hosts for a p-System under Unix System V implementation developed by software house Focus of Hanover. TDI originally intended to launch Mosys, which is derived from work headed at the ETH Zurich institute by Pascal and Modula-2 originator Niklaus Wirth, last year, but launch was apparently held up by a dispute with neighbour Robinson Systems which was collaborating on development. TDI claims that Mosys, written in Modula-2, is completely modular - the language prevents you doing anything else - with strictly defined interfaces to the functional modules so that it can be easily configured for new environments and new modules can be written. It currently runs on 68000 and 512Kb memory is advisable. Initial release, at £795 for the Pinnacle and Stride 68000 machines sold by TDI, includes compiler, editor, text procesor and debugger; it supports windowing and much more is on the way because TDI reckons it has so far tapped only 10% of the ETH software. The Pinnacle XL, joining the existing 68000-based Pinnacle developed by Dallas startup Pinnacle Systems in which TDI has a stake, adds a second 12MHz 68000 for disk and serial input-output, takes up to 40 serial lines and 600Mb disk storage, is set to ship from September 1 and costs £9,995 with 2Mb CPU, 20Mb Winchester and 800Kb floppy; p-System is standard, BOS, Mosys, Mirage are options and Xenix V from Logica is on the way. TDI has already designed a 68020 board to be offered as a field upgrade for the XL; the two 68000s will stay, one handling disk input-output and one handling terminals . The agreement with Motorola under the Freeway VAR program is for £1.8m of the Convergent Technologies 6300 MiniFrame and 6600 MegaFrame to form the top end of the TDI range; the p-System runs as a task under Unix and has its own disk area. TDI has been in the bidding for the p-System business being sold off by Softech after losses (UX No 30).

WEINER ELECTED TO HEAD USR/GROUP; GEISLER IN AS BOARD EURO-REPRESENTATIVE

Bruce Weiner, formerly head of the ill-fated Digital Research is the newly elected head of the US usr/group; group founder Bob Marsh stood down from the board in June, and Sphinx managing director Pamela Geisler has been elected to the board as the first European representative. Larry Crume of AT&T Japan remains on the board; usr/group is seeking to increase the links with and input from user groups in other parts of the world. The 1986 usr/group sponsored Uniforum exhibition and conference has been set for February 4-7 in Anaheim, California.

ICL BACKS UP THIRD PARTY SOFTWARE PLANS WITH SOFTWARE INDUSTRY CENTRE

ICL formally opened its £400,000 Slough Software Industry Development Centre Monday, attempting to finally lay to rest its history of first open conflict and then uneasy relations with UK third party developers. The centre will provide access to the full range of ICL hardware including unreleased products, later to be linked by the Oslan Ethernet local area network, and forms part of ICL's drive to promote business via third parties, of which Unix will be a key element; it hopes to increase market share largely through the Traderpoint distributors over the next three years. Around 15 software houses are collaborating on development of new products, while the Software Agency Agreement has attracted 40 software houses with 90 products being vetted by ICL or already being marketed by ICL sales force for 20% commission. ICL still puts £20m a year into developing its own vertical market applications, such as packages for local authorities targetted mainly at large system users. If the Centre is successful, a European centre is likely and possibly more in the UK; a successful relationship with the software industry would represent a remarkable turnaround since the days when ICL set up the Dataskil software arm with the express aim of dominating the ICL software market. Although Dataskil was disbanded under Rob Wilmott's orders, ICL was afterwards regarded with justifiable suspicion by software houses. There will be a number of consultants in residence at the centre, who will then bring in ICL specialists from ICL divisions for specific problems. There are one or two of the Datapoint Clan 68000 Unix machines in the building, although none were on show at a staged demonstration featuring eight vendors and none of the software houses we spoke to seemed to have got their hands on one yet; ICL says that units will be going to software houses from about September but it will not be announced until there are a good number of applications ready - expected to be around the end of the year. Initially Clan will go out through distributors and will provide developers with an incentive to port applications which can then be moved to other ICL Unix implementations, which will eventually support the X/Open European manufacturers standard, including the forthcoming Unix under the mainframe VME operating system. ICL's appearance at the Unix show at Olympia in June has apparently resulted in no less than 75 further software houses with which ICL is talking with a view to putting out Unix applications. Among the software houses demonstrating products were McGuffie Brunton Software Systems, which claims 300 sales of its Jobber manufacturing and Trader business management, and is simultaneously developing both enhanced C Unix versions and, in collaboration with ICL, a Cobol System 25 version instead of the original asembler for which ICL is providing the coding effort and which McGuffie Brunton hopes will appeal to standards-conscious corporate customers. It has not yet decided on hardware to sell with the Unix version. Pentagon Business Systems, a 30-strong software house and distributor based in Walton-on-Thames, Surrey, is developing Unix versions of its software, which includes the Ledger-Master and OrderMaster packages originally developed by ICL, and may become a Clan distributor. Thorn EMI's EPS Consultants already sells Unix versions of its FCS-EPS financial modelling software, and is "waiting for ICL" for a Unix box.

APOLLO ADDS 68020 STATIONS, CUTS MEMORY, TOP END SYSTEM PRICES

Apollo Computer last week turned the heat up in the workstation market with 68020 models of its Domain systems and price cuts on memory and top-end machines. The new machines, which Apollo is fitting between the low-end 68010 stations and the top-end DN440 and DN660 proprietary CPUs, are rated at 1MIPS, include 68881 floating point co-processor - floating point was an option with the 68010 machines, take 2Mb or 3Mb memory and start at £15,000 list price for the mono DN330 diskless workstation with 1024 by 800 17" mono screen and Domain local area network interface. Also announced were the DN560 colour station at £33,000 and the DSP90 server at £17,000. The 68010-based DN300, DN320, DSP80A and DN550 can be upgraded with 68020, 68881 and 2Mb or 3Mb memory for £7,000-£10,000. Apollo is adamant that it will ship in September - October over here - saying that it will be the first vendor to ship a 68020 product in volume. The top-end mono DN460 with 4Mb CPU drops from £55,730 to £37,265; the colour DN660A with 4Mb comes down from £68,230 to £46,670 and the memory price reductions - down to between £2,360 and £2,830 per MB from £4,487 - also affect pricing of low-end models; the entry DN300 with 1MB is £9,340.

Avoiding competition with its own CPU

The company claims to have "leapfrogged" DEC's MicroVAX II with the new machines; Apollo is currently restricting the 68020 models to 3MB aparently to avoid competing with the top end DN460 and DN560 which have an Apollo-designed bit-slice processor with the instruction set of the 68000 family. It says that while the top-end DN460 and DN660 are comparable in CPU speed, they offer advantages in greater memory space - up to 16MB. 12MHz 68020s will be used initially, following up with 16.67MHz parts when available - probably around year-end.

"Undecided on new top-end architecture"

Apollo says it has not yet decided on a new top-end architecture; a Reduced Instruction Set processor is a possibility - it is reportedly talking to RISC board developer MIPS Computer Systems (UX No 24). Also announced were a 3D graphics package to be supplied as standard, and a Dataproducts laser printer. Apollo has modelled the 3D Graphics Metafile Resource on the emerging ANSI PHIGS standard, due for public review this October; the initial release handles wireframe images, with shading to follow. The Domain/Laser-26 printer from Dataproducts prints up to 26 pages per minute at 300 dots per inch resolution; it costs £30,095 with RS232 interface or £32,925 with Centronics-compatible interface. Apollo has also adopted the Adobe PostScript page description language which allow printer output to be described in printer-independent form and is becoming widely adopted; Adobe also allows Domain stations to support the Apple LaserWriter. Apollo also introduced dual 86MB disk configurations for top-end systems.

APOLLO ADDS VAX, PERSONAL LINK

Rounding up the networking products announced by Apollo as the first steps in its open architecture program; all remote facilities are available from either the Aegis or Domain/IX Unix interfaces provided by Apollo. Domain/Vaccess-1 supports both bidirectional login and file transfer with Vaxen over Ethernet using TCP/IP protocols; it needs an Ethernet card plugged into a "gateway" workstation or server. It costs £4,715 per site - up to 100 nodes - for software only. Apollo worked with Microsoft to use MS-NET to link IBM Personals, ATs or compatibles under DOS 3.1 into Domain networks allowing them to act as terminals for non-graphics Domain features like mail, access the Domain file system and network peripherals and store Personal files on Domain disk servers. Domain stations also get access to DOS ASCII files on Domain servers. Domain/PCI-1 uses RS232 link from one Personal to Domain node and costs £670 per node; Domain/PCI-8 uses an eight RS232 port card plugged into a Domain station and costs £6040 per node.

ACT LOOKS TO 80286 BOX, TELECOM KIT, DIRECT SALES TO BOLSTER GROWTH

Applied Computer Techniques has no intention of resting on its laurels in the battle to survive and thrive in an increasingly competitive market, and in addition to the 80286 machine planned for September, which will mark an attempt on the scientific, technical and design markets (UX No 35) the company has telecommunications products ready for launch at the same time. Just what, it is not saying, but don't look for an executive workstation with computer and telephone combined: the company does not think that is the right way to go. It is likely to be a joint venture with another company. An important criticism of ACT in the past was that its reliance on dealers meant it did not have the right structure to sell to large corporate accounts, but the company has now also moved to change this. It has formed a major accounts sales team to chase large corporate accounts - but there will be no conflict with dealers: this team will then pass the business onto ACT's dealership chain. A big advertising and marketing campaign for Apricot Inc in the US is planned for October, featuring the new 80286 machine, which was to have been announced there last month but was not ready. In the future, Apricot Inc will put increasing emphasis on attacking niche markets in the US while also sticking to the mainstream business market with its existing Apricot range. The imbalance between supply and demand for the IBM Personal AT workstation is beginning to ease, certainly in the UK, and likely in the US as well, but there may still be a narrow window of opportunity for ACT, and the company is actively seeking scientific and technical software for the machine, which is expected to use Xenix as its prime operating system. Overall, the company says that it is trading successfully and is on target to double profits to £16m in the current year to March 31 1986.

UNIX EUROPE GETS FRENCH FOOTHOLD BY SIGNING DIGITAL RESEARCH'S DOFFE

Unix Europe has made the first steps towards setting up offices in central Europe(UX No 20); it has signed up Francois Doffe, formerly Digital Research's French OEM sales manager, who will be working from Paris, probably to be later followed by the establishment of a French UEL office. The next appointment is set to be a representative in Munich; UEL is in the later stages of selecting someone. While the rest of Europe goes on holiday, UEL finds itself surprisingly busy; companies are ordering source licences before they go on holiday in the hope that they will be processed by the time they get back.

INTEGRATED BUSINESS COMMUNICATIONS' X25-TELEX-ASYNC BOARD WINS £3.5m ORDERS

Windsor-based Integrated Business Communications, whose shares are traded over the counter in London, has already chalked up £3.5m in orders for a new high function communications board for the IBM Personal Computer, which had its official launch last week. Written in C, the software is also claimed to run with Unix, as well as Concurrent DOS and Turbodos and of course PC-DOS. Called IDACX-SBC, the hardware and software combination enables IBM Personal or compatible users to communicate using any mix of X25, telex and asynchronous interfaces through four comms ports. The board, which plugs into a Personal expansion slot, is based on a Z80B CPU with up to 256Kb of RAM and comes with its own multi-task-ing control program leaving the Personal free for other things. Selection, transmission, reception and forwarding of messages involves single keystroke selection from overlapping window displays or can be performed automatically by applications. The software includes optimum routing algorithms, costing facilities and an editor - data encryption, protocol conversion and facsimile support should follow. Although local area networks are not officially supported yet, it will be possible for messages from several micros to be queued on a single file server for transmission over the appropriate media. More than one card can be attached to a single Personal and the ports can be assigned to any combination of X25, telex and dial-up or leased lines. The card has an STD bus allowing it to be connected to a wide range of other cards for things like data acquisition. IBC sees a big market for the card in providing communications for data acquisition systems, and has already taken a large order for a process control application. Distributors which have already taken it include Computer Marketing Associates, Persona UK, PC Upgrade and Thame Systems. Sperry, with a joint value added network service venture with IBC, will also sell it. End-user prices range from £1,140 to £2,335. IBC was formed in 1983 to exploit the booming communications market and has raised £1.3m over the counter in equity finance.

TEKTRONEXES FORM SATURN TO DESIGN SCIENTIFIC RISC

Tektronix formed Tektronix Development Corp to try to keep would-be entrepreneurs employed by the company in the family, but the approach has failed in the case of Saturn Computers Inc, formed in Portland, Oregon by six engineers from the Engineering Computing Systems division - without funding from Tektronix. Saturn's plan is to design and build a high performance reduced instruction set computer for use as a scientific and engineering front-end to conventional computer systems, President Peter Rux told **Electronic News** that development would take 18 months to two years.

TOLERANT SYSTEMS STARTS WITH TRANSACTION PROCESSING UNIX

Developing fault tolerant machines is extremely difficult, as shown by the number of companies which have failed in the attempt; a safer approach seems to be to initially produce a machine which has enough distinctive features to sell in non fault tolerant configurations and takes the pressure off while the features needed for continuous processing are perfected. That is the route adopted by Tolerant Systems, of San Jose, California, which tightly couples multiple NatSemi 32016 processors into a single CPU and is offering the resulting Eternity machines with its TX version of Unix adapted for transaction processing. Tolerant has added transaction commit or backout, and pre-image logging to the Unix kernel - saying that for transaction processing, you can't afford the degradation caused by layering those facilities on top of Unix - and has introduced a hardened file system and faster access for big files. The three 32016 units in the Eternity System Building Block are a User Processing Unit, running the Unix scheduler and user proces-ses, a Real-time Processing Unit running TX and one or two Input-Output Processing Units; an Ethernet interface to further CPUs is provided but not pushed - Tolerant has so far announced neither multi-CPU nor fault tolerant configurations but is planning major announcements early 1986. It claims that under its system architecture, fault tolerance comes "naturally" once it has got the on-line transaction processing right. Tolerant plans to ship only 25-30 machines this year; it aims to sell almost exclusively to OEMs, with a handful of sales direct to users to "keep in touch". So far it has half a dozen machines out with potential OEMs, two of which are said to be "very significant" - Sperry is among those reported to have been talking to the company - and it hopes to close those two deals by the end of the year. David Caplan, president and chief executive officer, joined in November from Convergent Technologies, where he was vice-president and manager of the data systems group (UX No 7). The company has also recently added marketing expertise in the shape of John McNulty, VP marketing and sales a former Intel and Honeywell veteran last seen heading Computer Consoles' office systems group. An entry-level system with 4Mb CPU, 128Mb formatted capacity disk, six communications ports, 1600 bpi tape drive and the TX software is around $80,000. Tolerant has raised around $2m in two rounds of venture funding so far.

UNIGRAM/X

PLEXUS ADDS NEW P/60 DISK CONTROLLER, 256K RAMS

Plexus Computers Inc has moved up to 256K RAM chips for the P/35 and P/60, providing 1,2 or 4Mb boards and pushing up the maximum memory on the P/35 from 2Mb to 8Mb and on the top-end P/60 from 4Mb to 16Mb. Prices are £4,337 for 1Mb, £8191 for 2Mb and £14,456 for 4Mb; existing P/60s can be factory fitted with 16Mb for £50,594. Also announced in the UK is a new disk controller for the P/60, the Enhanced Mass Storage Processor, which supports a new 600Mb Fujitsu disk drive; the EMSP handles up to four SMD drives with transfer rates of 1.9MB per second and Plexus reckons that the combination provides 30-40% performance improvement on the P/60. The EMSP with 600Mb drive is £20,238.

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According to **Electronic News**, **DEC's** MicroVAX II is in a play-off with **AT&T** and **Sequent Computer** to provide **Xerox Corp** with a 32-bit office system to join the Xerox and **Olivetti** micros it is now selling; Ethernet, comprehensively supported by DEC, would provide a link.

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Not too surprisingly, the **AT&T-Philips Telecommunications** joint venture made a loss of $17.5m on turnover of $188m in 1984, its first year of operation: the loss is attributed primarily to adaptation work on the AT&T Number 5 ESS public digital telephone exchange.

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British Telecom and **AT&T** duly announced their satellite communications agreement on Thursday: **Texas Instruments** is the first customer for the service, with AT&T putting in an earth-station at the company's Richardson, Texas headquarters linked to its Skynet International service, and Telecom installing one, linked to its Satstream service, at the Texas headquarters in Bedford, UK.

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Samna Corp continues to notch up blue chip accounts for its Word line of word processing software: we hear that the Atlanta company is helping **Hewlett-Packard** to install the software on an unannounced line of office automation systems.

Minigrams

Looks as though **Fortune Systems Corp**'s cash reserves may have seen it through to a revival; it has announced results showing second quarter net up 469% at $222,000 on turnover down 28.1% at $14.6m; at the mid-term, the net loss was $3.6m, up from a loss last time of $3.3m, on turnover off 31.0% at $24.4m. Net per share was $0.01 in the quarter.

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Sun Microsystems is rumoured to have called off its plans for going public in the near future, although it apparently remains a long-term plan. Sun in the US declined to comment.

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Sperry Corp faces a monster lawsuit from one **Sona Corp** of Milpitas, California, which feels mightily aggrieved at being done out of an OEM contract it thought was in the bag: it alleges that Sperry was committed to taking 100,000 of its portable IBM Personalikes worth $970 apiece when it suddenly cancelled the agreement in mid-January; it wants satisfaction in the shape of $60m damages, $1.5m for the cost of adapting the thing to Sperry's requirements, and $250m in punitive damages - and the case comes up September 20.

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Getting a couple of incredulous enquiries about that **AT&T** image capture board, announced at the National Graphical Association conference (UX No 25) and said to display 32,000 **on-screen** colours, we asked AT&T about it; that query seems understandably to have got lost among the labyrinthine corporate communications channels, but **Island Graphics**, which developed a paint system for the product, tells us that the simple solution is that the board sacrificed the resolution to get the colour range, allocating 15 bits to storing the colour shade but with only low to medium resolution.

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Djavaberi Bros, developing compilers in Foster City, California, has added a Sun Microsystems version of its Modula-2/68 compiler to the existing native Charles River Data System UNOS version and VAX BSD 4.2 to 68000 cross compiler. The price for native 68000 compilers is just $495, and versions for Motorola VME/10, Integrated Solutions Inc, and VAX/VMS 4.1 are under development.

Compiler developer **Philon Inc** of New York has signed with **DEC** to make its compilers available for the VAX and MicroVAX under the Ultrix Berkeley 4.2; they will go out under the Digital Classified Software programme in the US. Philon currently has Basic, Cobol and C with Fortran, Pascal and RPG due this year.

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Flexible Computer Corp, building multi-CPU Unix machines for technical markets in Dallas, Texas, has a six-CPU machine under evaluation by **Martin Marietta** for applications such as CAD/CAM, simulation and classifioed applications.

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Pragma Ltd , in Rickmansworth, Herts, has software to allow output from the troff text formatter onto Lasergrafix printers that it sells; the product Qtroff is £1,400.

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An user group for **Relational Database Systems** Informix is being set up; Neil Urquhart of distributor **Sphinx** in Maidenhead is organising the first meeting in London on September 5.

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One of the finest tales we've heard in a long time comes from **Electronic News** which reports a rather embarrassing little gaffe that revealed to the world that **IBM** is well down the track with its own 40Mb miniWinchester - but that all may not be quite well with the drives yet: the folks at **Computer Memories Inc** over in Chatsworth, California were glumly picking through a batch of 20Mb drives they'd supplied to IBM for use in the Personal AT, but which had been sent back because there was a label on upside down or they weren't quite the right shade of black, when they found something which made their entire day - nestling in among their own problem children was a clutch of 40Mb drives, each with a neat little IBM logo on it.

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UNIGRAM/X

The newsletter for UNIX systems users

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ZILOG SYSTEMS DEFECTS TO AT&T'S WE32100

With Zilog still unable to deliver the 32-bit Z80000 in quantity, over two years after it was announced, Zilog's Systems Division has opted for AT&T's WE32100 chip as a CPU for a forthcoming top-end machine. The move is the biggest boost for the AT&T chip in the open market so far, and follows the announcement of a WE32100-based fault tolerant machine by NoHalt Computers.
Zilog's Z8000 never managed to repeat the mass market success of the Z80, and of the companies that adopted it initially, several have moved away including Plexus, which defected to the 68000 family. While Zilog Systems Division's System 8000 is one of the more established Unix boxes around and the company has managed to produce performance enhancements including introducing faster versions of the Z8000, the continuing non-availability of the Z80,000 has clearly brought matters to a head. Zilog now says that it is targetting the Z80,000 primarily at the military market; it is already a second source for NEC's V-series chips, which are compatible with the Intel line. Meanwhile the Systems Division has signed another three US VARs in contracts totalling $2.1m.

INFORMATION BUILDERS FOCUS PACT WITH AT&T

Information Builders today announces a joint marketing agreement with AT&T for a Unix version of Focus - the leading fourth generation language in the IBM world. AT&T itself is one of the largest users of the original IBM-mainframe-based Focus and the Unix System V version is being developed on and targetted at its 3B range of Unix minis and micros. It is due to go out on early release in the second quarter of next year. The announcement follows Martin Marietta's disclosure of plans for a Unix version of the IBM mainframe Ramis II system, a major Focus competitor (UX No 26). The first non-IBM version of Focus, running on the DEC VAX, is now out on general realease and Information Builders confirmed that Focus for Wang's VS line will follow early next year. Cohen was speaking at the European Focus User Group meeting in Rome where he also previewed release 5.0 of Focus, featuring FocCalc spreadsheet and a full screen editor. Information Builders claims 1,750 sites for Focus.

In this week's issue:

LOCUS LAUNCHES UNIX/DOS FACILITY AS MULTISYSTEM MERGE

Locus Computing Corporation, of Santa Monica, which was responsible for the OS/Merge concurrent System V/MS-DOS facility for the AT&T PC6300 Plus, also launched the product itself for other 80286 hardware as Multisystem Merge, and already talking to several OEMs.
But the product may not be quite the universal panacea that it seems; as we suggested in UX No 47, 1Mb of low memory is divided into a 640Kb partition to run PC-DOS in real mode and a screen area used by both operating systems while Unix runs in protected mode in the rest of memory, the result being that 1.5Mb memory is needed to run the combined system. And while Locus says that it has not found any problems running PCDOS programs, AT&T has taken the precaution of adding extra memory management hardware to prevent unruly PC-DOS programs from overwriting other areas of memory this is apparently most likely when switching from protected mode to real mode, and to take advantage of planned future OS/Merge enhancements. AT&T's agreement with Locus provides exclusive rights to sell the software to end users until July 1986; Locus said that it would take OEMs six to nine months to incorporate it in a new system, and thus . Locus has been best known for its PC Interface Unix file transfer and terminal emulation software for IBM Personals; the PC Interface already stored DOS files within the Unix file system and thus an important part of the Merge technology was already in place. It first implemented Multisystem Merge on IBM's Personal AT; it says that it suggests an end user price for OEMs implementing the product of just under $900, but expects the product to be bundled with hardware in most cases.

NATIONAL SEMICONDUCTOR SETS 32332 LAUNCH FOR MID-NOVEMBER; ADDS 32000 BASED OEM BOXES

National Semiconductor has set formal announcement of the 32332 top end member of its 32000 microprocessor family for mid-November, and intends then to demonstrate a prototype board with the CPU chip. At a London conference last week, the company also filled out details of its ICM series of 32000-based OEM systems, additions to its Advanced Peripheral Product Solutions support chips and signing European distributors to support custom design using gate arrays.

"No improvement"

Saying that NatSemi has seen "no improvement" in order levels, and is not looking for a "modest" upturn until next year, Don Beadle, Vice president managing director, Europe said that "it is clear that until orders pick up we will be under increasing pressure"; he was pushing a theme of survival via greater cooperation and feedback from customers which he claimed had already contributed to the design of the ICM series and the introduction of the gate array service. The Integrated Computer Module range, announced back in August, is designed for the small Unix systems market, using NatSemi's System V/Series 32000 port; the theme is to decrease reliance on using buses with the associated contention problems by integrating the 32000 CPU chip cluster onto a board with memory, using a separate 16-bit Minibus with 32016 input-out processor for the less time critical input output operations.

Personality cards

NatSemi is introducing a series of "personality cards" which hook up to the Minibus for interfacing to other peripheral devices and standard buses. The forthcoming 32032-based ICM-3232, due third quarter 1986, has CPU including 32082 memory management and 32081 floating point units on board with 2Mb memory; more no wait state memory can be added in 2Mb boards linked by a 32-bit Maxibus. SCSI interface, four serial and one parallel port are provided via the input-output processor. The initial offering, the ICM-3216, is a simpler arrangement with off-board memory and no separate input-output processor in the standard configurations. Pricing for the ICM-3232 will be "less than £3,000 in OEM quantities" - the delays in introduction are largely due to developing a version of Unix split to work efficiently over both 32032 CPU and 32016 input-output processor; pricing for the ICM-3216 is not fixed but samples are available and full production is due mid-December. The introduction of custom gate array design facilities at distributors is aimed to add four design centres to the five operated by NatSemi in Europe; the distributors will be responsible for finanmcing the arrangement themselves with backup and training from NatSemi and a German distributor has already been signed, with a UK company due to announce in the next month and others planned in France and Sweden.

INTEL ADDS QUAD 80286 APEX, 8MHZ 286/310

That auxiliary processor version of Intel's 80286-based System 310 which was floating about a few months ago has now emerged as the Apex system with not just two but up to four processors based on a new model of the 310, the AP, with 8MHz 80286s instead of the original 6MHz. The new Xenix based 286/310 AP, which is a field upgrades for the 6MHz systems, start at around £15,000 with 40Mb disk; APs can be upgraded to APEXs by adding further CPU boards and memory for around £3,000 upwards. A full system with four boards is about £30,000 with 40Mb disk, 45Mb tape streamer, eight ports and 4MB memory. The main CPU in the Apex manages system resources, allocating user processes to one, two or three slave CPUs. Each slave schedules its own tasks. Slaves can also be dedicated to specific tasks; Intel suggests that its iDIS database could be allocated to a specific processor for systems with high transaction throughput, although the processor will still rely on the main CPU for disk input-output. To improve disk throughput, part of memory can be configured as RAMdisk; with the 310 AP, a new mass storage subsystem has also been introduced which uses track caching for a claimed further 10% disk throughput. Each CPU is an iSBC 286/12 board with 80286 and 80287 maths co-processor, and AP and Apex systems also have separate 80186-based serial line and disk controllers. Each CPU comes with either 1Mb, 2Mb or 4Mb RAM, making total system memory up to 16Mb. Upgrade systems are shipping now; full Apex configurations are planned around the end of the year.

SEQUENT PLANS EURO EXPANSION BY END 85; UK DISTRIBUTOR COMPASS MAKES FIRST SALE

Sequent Computer Systems, of Portland Oregon, looks set to drastically expand its European presence by the end of the year; it has signed Swedish distributor Macrotek for its Balance 8000 multiple 32032 Unix machines, and says that it is talking to distributors in Germany, France, Benelux, Italy and Israel with a view to getting them on board by the end of 1985. Compass Peripheral Systems of Newbury, Berks, which is so far Sequent's only other European distributor and signed up as UK distributor earlier this year in conjunction with Basingstoke Unix specialist Quartz, has now announced its first Balance 8000 sale, to Sir William Halcrow & Partners a civil engineering company in Swindon; Halcrow is the first European site for the machine. Sequent also said that a new release of its Dynix load balancing operating system, which is based on Berkeley 4.2 , is currently on Beta test; this will introduce full compatibility with AT&T's System V Interface Definition, and will also support System V user level features allowing users to switch between the 4.2 and System V environments. Sequent has built 90 of the Balance 8000, 45 of which have gone to paying customers; the machine has been in production around a year.

FAIRCHILD LIFTS VEIL ON ITS 32-BIT CLIPPER CHIP SET

Schlumberger's Fairchild Camera & Instrument has now acknowledged the existence of and lifted the veil a little on its forthcoming 32-bit microprocessor, existence of which was first revealed here in April (UX No 21). Called Clipper, the arithmetic-logic unit is part of a three-chip CMOS set, the other two parts being identical cache memory management units. The processor is described as a reduced instruction set computer designed to run Unix, and, like the ill-fated Intel iAPX-432 32-bit set, to use one or more standard microprocessors as input-output processors. Where Intel specified the 8086 only, Fairchild has designed the Clipper to take any of the standard 16- or 32-bit parts - 68000, 80286, Z80000, 68020, NS32000 or whatever. And several such input-output processors will be needed to keep the Clipper busy. Originally designed to cycle at a sizzling 40MHz, the first version has a 30nS cycle time, which means a clock speed of 33MHz. That's fast: even the IBM 3090 is less than twice as fast, with a machine cycle of 18nS, and Fairchild rates the Clipper as five times as powerful as the DEC VAX-11/780. The two caches - one for operands, the other for data - are attached to the ALU by separate 32-bit buses. The CPU, which integrates 132,000 transistors in 2 micron double metal CMOS, consists of 32-bit ALU, integer pipe with three port 32 by 32 register file, and serial 64-bit double-bit shifter; a 64-bit floating point unit with register file and eight 64-bit registers; pre-fetch logic to support an 8-byte instruction buffer; and macroinstruction ROM to execute sequences of standard machine instructions. As usual with RISCs, each machine instruction executes in one cycle. Each cache implements two 32-bit virtual address spaces, one for supervisor, one for user mode, and there is a 128-entry two way set associative translation lookaside buff-er for the most recently used translations. The Clipper is designed to support from one to eight standard microprocessors as input-output processors, and only with several front-ends and a multi-application workload will be needed to get the best out of the Clipper. The set is unusually rich for a chip described as a RISC, including 101 instructions, which are hard-wired rather than microcoded for maximum speed. The macroinstruction ROM has space for 2,048 microcoded combinations of the bas-ic set. Samples of the three chip set, are planned to be available in June next year for a pricey $2,451, with volume set for fourth quarter 1986. But people wanting to design the part into future top-end systems can start work immediately with a set of DEC VAX cross-compilers and utilities. The package includes assembler, C compiler, processor simulator, module performance analyser, debugger and utilities. Initial software for the Clipper itself includes Un-ix System V.2, optimised Fortran, C and Pascal compilers and assembler.

ORION HAS UNIX SNA PACKAGE AFTER JOINT DEVELOPMENT WITH APPLE

Orion Group Inc, another in the growing group of vendors developing SNA products for Unix machines, has come up with a package jointly developed with Apple Computer, which is distributing the product. Orion's sna62 software-only package, written in C under Unix, supports the Logical Unit 6.2 level, which allows communication between network devices with a greater degree of independence from host mainframes and is currently the hot topic in SNA communications. Berkeley, California based Orion is seeking OEMs for the package and said it is close to agreement with two Unix systems manufacturers.

DEC ADDS MULTIPLE ETHERNET LINK IN US

DEC has added the LAN Bridge 100, which links multiple Ethernetworks, so far in the US only. Networks can be running different protocols including DECNet, TCP/IP and XNS, as with Bridge Communications' GS/3-M gateway announced recently (UX No 49). DEC claims that the bridge will also support different network media including broadband and fibre optic. The 68000-based product costs $8,000 for coax connections and $8,500 for linking in fibre optics, with shipping due to start January 1986. Also announced was a complementary monitoring package, RBMS, for access control and diagnostics across networks controlled by a LAN Bridge 100; due in March, RBMS ranges from $600 for the MicroVAX II to $1,500 for the VAX 8600. And, after DEC's insistence that it was adhering to non-proprietary standards for direct support of network protocols other than its own DECnet, and that a gateway approach would be taken where suitable for proprietary non-DEC protocols, it has unveiled the VMS/SNA link for the MicroVAX II, supporting SNA communications up to the LU6.2 level and targetting the MicroVAX as a departmental computer for big IBM SNA corporate networks.

SNAGS FOR PC WINDOWING TERMINAL EMULATION PROGRAM

US developer Structured Software Solutions has run into some unforeseen problems in introducing FACET - which turns an IBM Personal into a Unix terminal with windows, discovering that alterations are needed to the async line driver of the host Unix machine before FACET can be run. Structured Software are in the process of talking to various manufacturers and currently FACET is only available on the IBM PC/AT running under Xenix but should be available on high volume, low cost machines such as Altos within 60 - 90 days. FACET, written in C, turns a PC into a multi-function windowed terminal when linked to a Unix or Xenix system host computer, it allows ten terminals to be emulated simultaneously from one PC. FACET costs $195 for the PC and $249 for the host and took one man eight months to do. FACET is Structured Software's first product, the twelve people there have primarily been involved in consultancy and contract work since the company was founded six years ago.

ARETE SNAPS UP TANDEM FOUNDER TO HEAD MARKETING

Arete Systems Corp, ramping up production following that $35m OEM deal with Sperry, has snapped up Tandem Computers co-founder and US marketing vice-president David Mackie to head up its own marketing. Mackie takes over the work formerly handled by Arete founder Beau Vrolyk, who moves over to vice-president of business development, investigating marketing strategies and opportunities for the manufacturer of multiprocessor 68000-based Unix systems, reports **Computer Systems News.** Mackie's responsibilities will focus on expanding the customer base - something like 75% of Arete's output goes to Sperry. Vrolyk, who recently put Arete's output at 120 machines a month, said that the company will focus on vertical markets where it will produce machines for specific applications; he cited as an initial example Byte magazine's use of two of the machines for for data communications conferencing and mail. Arete' revenues were $12m in the year ended June 30 1985, the company looks to double that this year. It has had $15m in four rounds of funding so far.

UX SOFTWARE READY WITH COMPILER, PC-DOS BASIC; SEMADS DISTRIBUTOR IN UK

UX Software, the Toronto developer of the Oasis and ANSI compatible UX-Basic+, is planning to announce a native code compiler and a PC-DOS version of the product at the upcoming Comdex exhibition in Las Vegas. The native code compiler should remove the need to pay for run time licences for reselling UX-Basic applications. Meanwhile London EC1 systems house Semads is distributing UX-Basic over here; it has already used the product to convert a variety of its own Oasis packages to run under Unix including a range of accounting software and packages specialised for the construction industry and civil engineering. Prices for UX-Basic are from $500 for the IBM Personal up to $6,000 for large systems.

FLEXIBLE SIGNS INTERNATIONAL MARKETEER

Flexible Computer, building multi-CPU machines in Dallas, Texas, has signed up Lionel Agar, formerly head of Gould Computer Systems' international marketing, to seek sales in Western Europe and Canada. Flexible, whose Flex/32 uses up to 20 NatSemi 32032-based CPUs running under Unix or a real-time operating system for building into parallel processing OEM applications, has also picked up two more sizeable sales for the Flex/32. Infoflow, of Indianapolis, represents an early commercial sale and is planning to use it for an on-line database information service. And Falcon Systems, in Washington DC, is taking a $400,000 machine to supply for an unnamed US government reserach project involving a network of scientific processors. Flexible reckons that revenues for the third quarter 1985 were $1.1m, against just $200,000 in the second quarter; the company was founded in January 1984.

CONVERGENT ENHANCES N-GEN NETWORKING

Convergent Technologies has been a committed exponent of local area networking from the birth of its first product, but is now moving towards international networking standards. The company, based in Amersham, Buckinghamshire over here, has added two networking devices for its modular N-Gen 80186 ore 80286-based workstation line, the Model XE-001 and the Model XC-002, and it has also announced a new version of its CT-Net software package, Version 3, which supports the new devices. The Model XE-001 allows an N-Gen workstation to be connected to an Ethernet network and the XC-002 adds extra serial channels to the two channels built into the standard N-Gen workstation. CT-Net has added support for Ethernet and works with the Convergent Cluster, using RS-422 technology, to link up to 16 N-Gen workstations to a single master station. Convergent resellers over here include TIS in Bourne End, Buckinghamshire, Zygal Dynamics, and the Convergent Solutions subsidiary of Star Computer Group.

MASSCOMP REPORTS LOSS; ADDS MC 5000 IN UK

Masscomp's new 68020 machines, announced in the UK last week, look even more important for the company following the announcement of a first quarter net loss of $3.3m. The new multi-CPU MC 5000 series, which was launched by the builder of scientific and engineering Unix systems in the US October 1st (UX 48) succeeds the original MC-500 announced back in November 1982; Masscomp will be looking for the new hardware to boost sales following first quarter results showing a net loss of $3.3m against a profit last time of $731,000 which included a $200,000 tax credit, on turnover down 25.7% to $7.7m. Masscomp's US headquarters is in Westford, Massachusetts and it has a sales and UK support office in Reading, founded July 1984, which is quoting delivery dates one to two months after the US dates and a price range of £13,000 to £200,000 depending on the machine required. Masscomp was formed in August 1981 and achieved revenue of $2.5m by the end of its fiscal year, June 30th 1983 - the end of the 1985 fiscal year saw revenue at $45.2m. Masscomp has installed $1m worth of equipment in the UK including places such as Rolls Royce and GEC. Discussions are also continuing concerning where to establish a European manufacturing plant - the countries in the running include Scotland, Holland, France and Germany.

COMPUTERVISION FIRES 250 MORE STAFF

Computervision Corp, of Bedford Massachusetts, is firing a further 250 staff in its fourth staff cut of the year, reports **Computer Systems News.** The company says that the market for its CAD/CAM systems is still "depressed"; analysts suggested that Computervision's problems with the general state of the market were componded by the incompatibility of its product line, with users awaiting the completion of the Unix port of its central CADDS software. Employment has been reduced from 6800 to 5600 so far this year; 180 of the latest layoffs come from the Sanford, Maine factory, responsible for terminals, plotters and digitisers. The 100,000 sq ft plant will now be put up for sale.

SANYO BACKS ICON PLANS FOR MULTI-68000 ARCHITECTURE TO RUN UNIX, SYSTEM/370 CODE

If the claims coming from Orem, Utah company Icon Systems and Software were not backed up by a partnership with Japanese manufacturer Sanyo, one might be inclined to dismiss them outright. As described in UX no 43, Icon is planning to run Unix System V, Berkeley 4.2, MS-DOS and a full IBM System/370 emulation on machines built from a handful of 68020 and 68010 processors, a novel architecture and a lot of bright ideas. Furthermore the products will go out at extremely reasonable prices - the basic MPS 020-2, with two 68020 processors, is under $20,000 with 55Mb disk, streamer and floppy. Icon president Dennis Fairclough, whose previous experience included nine years in development with IBM before taking a post at Brigham Young University in Provo, Utah, started talking with associates on ways of devising an architecture using multiple microprocessors to alleviate the usual system bottleneck problems as long ago as 1977. By the time Fairclough met Sanyo researchers 18 months ago, the architecture of Icon's initial offerings was already in place, and after Icon had spent some time hunting venture capital, and was on target to develop its first machines with just $1m invested from the founders, Sanyo stepped up its interest by taking a 40% stake. Sanyo will be responsible for manufacturing and sales in Japan; Icon will handle development and marketing elsewhere, but Sanyo also gets involved in the physical design of system components. Icon says that Sanyo has 60 engineers involved in everything from designing packaging and documentation to turning out boards and cables; it claims that the efficiency of the Japanese company is dramatically cutting the time it takes to get the systems out by relieving Icon of the low-level design and production problems.

Icon has built 16 pre-production models of its initial offering, the MPS 020-2, which is a simplified form of the MPS 020-3 described below and is claimed to support 32 users; Sanyo plans to go into initial production with 100 of the machines in November, most of which will return to the US for evaluation by OEMs and users. The MPS 020-3, for up to 256 terminals and costing from $40,000 to $100,000, is due early next year, and Icon is also planning a much bigger system with up to 32 CPUs for mid-1986. The design of the MPS 020-3 is aimed to tackle the three main areas of throughput problems; disk, terminal and bus input-output. Accordingly the system alleviate the load placed on a central bus by using a series of 22.5MByte buses; there is also heavy use of peripheral processors and intelligent multiplexers for offloading terminal processing from the CPU. But the most innovative part of the system is to replace a central shared memory with a series of "caches", relying on extremely efficient caching algorithms to page in the relevant code and data, and multiple instruction sets held in various high-speed static RAMs to cope not only with running various operating systems but also to translate disk formats and terminal output to and from the format in which they are held internally. The whole system appears as a very decentralised arrangement, linked internally by a series of 22.5MByte per second buses; the 68020 CPU is linked only with 68020 peripheral processors and with a 68020 disk cache processor, the links with the disk cache processor being both via a "virtual memory" cache and, independently, through a control message buffer. Up to four of the 68020 peripheral processors each handle four 68010 based intelligent multiplexors, which in turn attach to 16 serial lines. The disk cache processor forms a vital part of the system and is responsible for feeding data between disk and 2-4Mb disk "cache", and from disk cache to virtual memory cache. It also supports an 80286 co-processor for running MS-DOS applications, allowing the 80286 to be front ended by the cache. "It really works", the company tells us, although some features seem to be nearer completion than others. The machines depend very heavily on the company's skills in microcoding and also, with the complete reliance on the effectiveness of selecting data for the two cache memories, on the efficiency of the caching algorithms. All data is stored in Berkeley 4.2 file format; there is 32Kb of high speed static RAM accessible to the disk cache processor and used to store the instructions necessary to do data conversions from BSD 4.2 to System V, MS-DOS and even IBM 370. That sounds hair raising enough, but a similar conversion also has to be done at the terminal end, and while there is no direct equivalent to an IBM I/O channel, the company has to provide an emulation. Icon emphasises that it plans to supply a complete IBM emulation adequate to run IBM operating systems; it says that the intent eventually is to provide both hardware and software support for the System/370 architecture, and here the partnership with Sanyo may come into play in putting into hardware the logic involved in translating System/370 code into 68020 instructions. IBM has of course had a stab itself at providing the System/370 instruction set on 68000 family processors with the XT/370 and AT/370; these run only a subset of the VM operating system and are noted mainly for their lack of speed. Icon points out that it is using the 68020 as opposed to the 16-bit procesors in the XT/370, that it has the support of the rest of the Icon architecture and that it thinks it will be acceptable if the resulting emulation is "no slower than a 4341 Group 2". The all-important caching algorithms are claimed to give a hit rate of 97% for the disk cache, 99% for the virtual memory cache. Further into the future, Icon's MPS 2000 will use a central "telephone exchange" Virtual Resources Interconnect System to switch up to 32 CPUs between the disk and memory caches and local processors seen in the smaller Icon machines. And the company is capping its development efforts with a graphics terminal planned to go out at a mere $2,500 and include 68020 processor, TMS 32010 graphics processor giving 1024 by 1024 pixel resolution.

AT&T, WANG, BACK 80386; DEMAND PAGED SYSTEM V FROM INTERACTIVE

Intel wheeled out representatives of AT&T, Wang and Burroughs to say they would be supporting the thing at the formal launch of the 32-bit 80386 last week, which integrates 300,000 transistors in CHMOS III technology. And as expected, we understand that Snta Monica based **Interactive Systems** will be responsible for porting and marketing a demand paged System V for the chip; Interactive has already been signed up to market and support System V for the 80286, which is out on Beta test at customers including **ICL** and **Nixdorf** in Europe. The 80386 is rated at a sustained 3 to 4 MIPS and designed for Unix V and RMX, Intel has iSBC-386/20 Multibus I and an early manifestation of the late, late Multibus II in the 386/100 Multibus II boards as well as the chip for early 1986.

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MAJORS BAR DEC BACK IBM's TOKEN-RING NETWORK

Major US computer companies have been quick to announce that they will add interefaces to their mach-ines to enable them to be supported on IBM's Token-Ring Network, which was launched last week. Throwing their hats in the Ring are **AT&T**, Ethernet originator **Xerox**, **Wang**, **Data General**, **Hewlett-Packard**, **NCR** and **Sperry**. DEC how-ever is holding out, saying that it supports industry standards, and that it does not regard the IBM network as a standard. DEC said the same thing about SNA before the announcement of VMS/SNA for the MicroVAX II (see inside story).

Minigrams

Altos Computer Systems has reported first quarter net profit down 39.5% at $2.3m on turnover down 5.1% at $31.7m. Net per share fell 36% to $0.16.

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Alpha Microsystems is to set up its own maintenance operation for its UK customers, creating 40 new jobs: it has hired Peter White from **Microdata** to head the new operation.

- o -

Vector Graphic, in process of merging with Dual Systems, has reported a net loss for the year to June 30 of $9.2m, struck after a $2.7m net restructuring charge, up from a loss last time of $7.6m, on turnover which fell 66.3% to $5.1m.

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Dr Gene Amdahl's **Trilogy Ltd** and low-end scientific super-computer maker **Elxsi Corp** completed their proposed merger.

- o -

Convergent Solutions Ltd of the City of London will launch the **Convergent Technologies** MightyFrame to the UK market at Compec next month: the latest member of Convergent's Frame family is based on the 32-bit 68020 with optional 68881 floating point processor, and runs under Unix System V version 2.2.

- o -

As well as an 80286-based machine due early next year, **DEC** is also preparing an XT-alike according to **Electronic News**: the company is also said to be planning a version of its All-In-One office software for the **IBM** Personal line.

- o -

Prime Computer has hotted up the commodity end of the 32-bit mini-computer market with a successor to the 2550 rated at 1.3 MIPS. Prime says that the new 2655, which will operate in an ordinary office environment, offers 50% greater performance than the 2550 but is comparably priced at between $90,500 and $133,100 according to configuration. The new computer is the subject of a "multi-million dollar" OEM contract with 3M, which will use it as the basis of a computer-assisted document retrieval system. Prime has also enhanced the top-end 9550 to create a 9655 which is 10% faster and typcally costs $146,200.

AT&T Co saw third quarter net up 19% at $378m after a $97m charge for write-down of obsolete phone equipment, on turnover up 12% at $8,930m; nine-month net rose 19% to $1,190m on turnover up 4.1% at $25,790m. Net per share rose 18% to $0.33 in the quarter, 15% to $1.05 in the nine months.

- o -

Mostek Corp managers are striving to put together a plan to keep the Carrollton, Texas chipmaker in business in face of the decision by its parent, United Technologies Corp, to shut the company down. Mostek, biggest victim so far of the vicious war in the dynamic memory chip business, does about 40% of its business in higher-value parts, notably the 68000 microprocessor family second sourced from Motorola, and also military chips, and it is this business which the managers hope to keep going, possibly by a leveraged buy-out. It has has contributed several original support chips to the 68000 family. And, embarrassingly for DEC, Mostek is the only second source for the MicroVAX II chip set.

- o -

AT&T chairman Charles Brown says that while the company has by no means turned its back on the idea of buying a computer company with a big user base, it doesn't reckon it **needs** one at present, and is not in negotiations: he says that AT&T has talked to both **Apple** and **DEC**, adding gnomically "just because we talk to **DEC** and **IBM**, it doesn't mean that we're talking about acquisition," which we interpret to mean that it has not made any formal approach to DEC, but that it **has** seriously considered making and offer for Apple; privileged information that Apple was definitely under consideration once Steve Jobs left the firing line was revealed in June.

- o -

Sounds as if the British Government should give **AT&T** a contract to solve the UK unemployment problem: AT&T Information systems, with justifiable smugness, says that after just a week of trying - by advertisements and direct mailings - it has found 11,000 job leads for the 24,000 people it wants to shed; 5,000 had left, either taking early retirement or to new jobs, before the job hunting campaign started.

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The newsletter for UNIX systems users

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ALTOS SET TO LAUNCH TWO 80286 SYSTEMS

Altos Computer Systems is set to announce two smaller 80286 systems to fill out the line begun with the 2086 launched early this year and to succeed the larger models in Altos' current 8086-based Xenix range. The new systems, which according to Computer Systems News were previewed at a US resellers roadshow, and are due for UK announcement November 7, are the floor standing 1086 and the first Altos 80286 desktop machine, the 886. The ten user 1086 comes in a similar tower configuration to the 2086 and has 8MHz processor; the base configuration comes in at $14,990. The 886 comes in four models which, at $7,990 upwards, look priced to replace at least the 986, which is top of the 8086 line. All have 8MHz CPU and 1Mb memory, expandable to 2Mb.

UK, GERMANY FIRST FOR TANDON's ROCK-BOTTOM PERSONALIKES

Tandon Corp has, like many others, been hurt by IBM's capricious OEM disk drive procurement policy, and after successfully building the Model 1200 XT-alike for Tandy has decided to diversify into the own-label IBM Personalike market - and is starting out in Europe rather than the US. Sales and marketing of the microcomputers will be dealt with by newly-established European headquarters in Frankfurt, Germany - called Tandon Computer GmbH. And it has brought in former Victor Technologies GmbH managing director Juergen Tepper and two other Victor people, as well as the "father of the microcomputer" himself, Chuck Peddle, as president of Tandon Computer Corp. The new machines are fully IBM-compatible and come in two basic series: the PCX XT-alikes and the PCA AT-alikes, the latter also offered with Xenix supported by Microsoft. The Tandon PC offers 256Kb RAM, two 360Kb floppy disk drives and costs £1,295, including 14" monochrome monitor. The Tandon PCX10 XT-alike houses a 10Mb Winchester drive, a 360Kb floppy and 256Kb of memory for £1,595, upgradeable to 20Mb for £200. The Tandon PCA goes into beta test next week, to be shipped in volume by the end of November. It incorporates a 1.2Mb floppy disk and 512Kb RAM for £2,495 and supports one user under MS-DOS and four under Xenix. This model can be upgraded to 20Mb for £300 and to be announced any day now is a 30Mb model costing £3,095. The company has been shipping the XT and XTPC in volume for about a year now to OEM customers like Tandy and will now be shipping all boxes in volume direct to dealers. It is looking to establish a dealer base in the UK of about 250. Although manufacturing of the boxes is presently done in California, it will be shifted to Singapore as soon as possible.

In this week's issue:
Page 2; Tandata challengenges ICL with its One-Per-Desk; **Canadians** come out of the Unix closet; **ICL** forms European software centre in Brussels; Sculptor from **MPD** spreads around the world; **Atari** takes Unix licence; **Laticorp** set for $2m **EDS** contract.
Page 3; Human Computing Resources are setting up a support UK office; **NCR** seeks new UK distributors;**Wicat Systems** upgrades its 68000 boxes; **Sord** offers rock-bottom Unix box in the UK.
Back page; AT&T Bell Labs plans prototype optical computer; **Torch** raises £500,000; news in brief.

HONEYWELL LAUNCHES X-SUPERTEAM UNIX MACHINE

Honeywell UK has, as expected, launched the X-Superteam Unix machine from Honeywell Italia, planning to push it out through its newly set up indirect sales channels with vertical applications to new users. The machine costs from around £11,000 end user price for a four user system; Honeywell explains the positioning by saying that the low end one to four user market is "fairly well covered" in the UK, while it sees a "wide gap" in the three to ten user range. And it discounts the possibility of going to one of the dozens of hopeful hardware startups for a follow-on larger machine by saying " there is no question that we have the capability to provide a system to meet that requirement". No comment on how many resellers have so far committed to take the Superteam - the whole Honeywell line was thrown open to resellers earlier this year - but Honeywell emphasises its attitude by saying that it has committed to resellers that every sale of the Superteam will be credited to that channel. The machine will go out with either Uniplus+, ported by Italian company Systems and Management, or Xenix/68K from Logica; Honeywell maintains that the machine will be sold by application rather than as a Unix box, but it does mean that users having bought a machine with a Uniplus+ application will be in the strange position of finding that some of the software for the machine is only available under Xenix. Honeywell says that 30+ packages have been ported so far.

TANDATA PA CHALLENGES ICL's ONE-PER-DESK
Laying down the gauntlet to ICL with the One-Per-Desk, Tandata Holdings Plc of Malvern, Gloucestershire has launched an all British speech+data communications workstation at a rock-bottom £1,000. The Tandata PA has both 16-bit 80C88 and 8-bit microprocessors, the latter for data communications, and runs under a proprietary multi-tasking Unix-like operating system. It comes with 64Kb CMOS RAM as standard, expandable to 764Kb, but effective storage capacity is increased by a data compression algorithm which is claimed to compress text by up to 50%. All functions on the PA are menu-driven and it has a built-in V21/V23 modem and optional IBM 3270 and DEC VT100 terminal emulations. In addition, the PA can be programmed to log on to most public and private databases changing baud-rate to match the machine it is downloading from. The keyboard has a 40 character by two line LCD display and a built-in battery so, in theory at least, can be used as a portable. Ingeniously, the entire workstation is a disguised loud-speaking telephone: a small grille at one end of the tilt-up LCD display conceals the microphone, while small speakers are hidden by a pair of grilles either side of the space-bar. Other features include diary and notebook facilities, automatic answer to incoming calls and a non-standard text editor and spreadsheet, all in ROM. The key to using the Tandata PA is claimed to be its simplicity; it was designed with the non computer-literate middle manager in mind. It costs from £999 and comes with a 12" colour monitor and free registration to Telecom Gold or Easylink. The company will be "very disappointed" if it does not sell tens of thousands of the machine in 1986 with the breakeven point coming at sales of 10,000. The machine will be manufactured in Wales by AB Electronics and goes on field evaluation in mid-November with volume production a fortnight later.

CANADIANS COME OUT OF THE UNIX CLOSET
An increasing amount of Unix activity is emerging from Canada, and the Canadians have always felt rather neglected; with a plethora of Unix companies including Human Computing Resources, UX Software, Emerald City, Tyme Systems, Spectrix Microsystems , they've decided it is about time they had a show of their own. The result, Unix86/etc, is set for the Sheraton Hotel, Toronto on March 3-4 1986; the show is expected to have 90-odd stands and there is an associated conference. Sponsors include usr/group/cdn, and the publications Canadian Datasystems and Software Canada; for details contact Fawn Lubman from GASRC, the organisers at 89 Fulton Avenue, Toronto, Ontario M4K 1X7 or ring Toronto 475-9592.

ICL FORMS EUROPEAN SOFTWARE CENTRE
ICL has opened a European Software Industry Development Centre in Brussels, Belgium to provide technical and marketing support to third party software developers prepared to implement applications on ICL machines. The company will lay particular stress on portable applications written to the European X/Open Unix standard. The new Centre is equipped with a wide range of ICL hardware including the Clan 68000 Unix machine which is still not formally launched in the UK. It is a twin to the UK Software Industry Development Centre in Slough and will assist marketing of the resulting products through Traderpoint agreements.

SCULPTOR STARTS TO SPREAD AROUND THE WORLD
Microprocessor Development Ltd (MPD) of North West London solved their own software development problems in 1980 by developing an applications generator product once called Sage, now Sculptor. MPD have since concentrated on enhancing and selling Sculptor reducing their original purpose - providing computer systems for a wide range of business applications - to a side line. Sculptor is an applications generator product written in C and runs under Unix, Unix-like or MS-DOS operating systems. MPD have recently been approached by Cumana who will bundle Sculptor with the OS-9 operating system, a wordprocessing package and spreadsheet package on its update board for the BBC and Sinclair QL - MPD had recently ported Sculptor to the OS-9 operating system for Microware in the US. MPD are predictably very pleased with this development; it means extra revenue for very little extra work. Sculptor is based on traditional B Tree file structure and allows program development in a modular fashion using the Sculptor language. SCULPTOR compilers translate SCULPTOR language source files into compact intermediate code which are then interpreted into applications. MPD has over 1000 licences currently in circulation for SCULPTOR and has distributors in the US, Australia, South Africa, Germany, Holland, Sweden and Jamaica - people are also using SCULPTOR in Austria and New Zealand. Various hardware manufacturers endorse SCULPTOR - Plessey, Olivetti/AT&T, NCR, Perkin-Elmer and lesser known ones in the US - Gimix and Frank Hogg. NCR put SCULPTOR onto the Tower range and installed it into many of the Menzies larger shops. MPD started with just three men and an idea and although in terms of personnel the company has not grown dramatically, seven people now, the idea has obviously taken off - going by the list of countries where SCULPTOR may be found in some guise - the turnover figure for last year was a quarter of a million pounds. A run-time licence for a Unix system costs £215 and £1290 for a development licence, MS-DOS licences come cheaper - £95 for run-time and £495 for development. MPD estimate that the split between MS-DOS and Unix licences is fifty fifty.

ATARI TAKES UNIX LICENCE
Sibling rivalry between Jack Tramiel's Atari Corp and his previous creation, Commodore International Ltd is intense: Commodore has a Unix machine, the 9000 Z-Machine, so Atari has taken an AT&T licence to Unix System V for future models of the 68000-based 520ST and for the promised 32-bit machine. The 520 ST is not man enough to run Unix, but round the corner, reports **Computer Systems News**, is the 1040 ST, which will have 1Mb memory and a Winchester drive. It is pencilled in for first quarter 1986.

LATICORP SET FOR $2M EDS CONTRACT
Laticorp of San Francisco, a Unix development house, is currently the sole contender to supply software to Electronic Data Systems Corp (EDS) as part of EDS' $233m systems contract with the USDA Soil Conservation Service. Laticorp's flagship product Latitude is the only product on the discounted/approved list so it seems odds-on to get the $2m contract to supply between 3,000 and 6,000 copies of its integrated word processing and spreadsheet package to put on 3B2s that EDS will be supplying.

HUMAN COMPUTING RESOURCES RIDES ITS CHARIOT INTO EUROPE

Unix software specialist Human Computing Resources of Toronto is in the process of setting up a UK office to support its three major European distributors, and to sign resellers for a new product line. The effort is all part of a renewed attempt by the Canadian to get into the business applications market. John Wrobel, whose past experience includes heading ICL's Canadian marketing operations, has been taken on as director for international sales, and is currently looking at offices in the Newbury area with a view to signing a lease and getting the European base established by early next year. Human Computing Resources is best known for its Unity Unix ports for DEC machines, but it also assisted Control Data with its Unix implementation for the Cyber 800 mainframes. It is now trying to expand via vertical market resellers into commercial software with Chariot, a combination of basic accounting software and development tools. Chariot succeeds Human Computing's earlier effort at an accounting system, Chronicle: Chronicle has now been dropped; the company says that it realised the competition for straight accounting software was so great that it was unrealistic to pursue it, although our understanding was that associated development tools had been part of the plan for some time.

Data dictionary

Chariot is due for formal launch at Comdex in Las Vegas at the end of next month, and Human Computing hopes to have it out to beta test sites by then; it has not yet put any firm prices on the product. Chariot incorporates screen definition tools, and logic is defined by filling in the relationships between fields in a spreadsheet format. The lesson is now sinking in that the data dictionary is the correct starting point for any database-related product, and Human Computing claims that Chariot is independent of underlying databases because the system is built around a data dictionary. The dictionary relieves applications from having to interface directly to any database. Versions for the Unify, Mistress and Informix database management systems have so far been developed, and the company is pushing Unify as the preferred database. There are also hooks to enable modules written in conventional programming languages to be added to the Chariot system. Initial versions will be for the NCR Tower family, and versions for AT&T's 3B2 line and the IBM Personal AT are also under development. Human Computing Resources is also aiming to expand its system product line: a general-purpose menu interface, Hi, is close to release and the company is planning to follow the success of HCR/Pascal with a whole family of optimising compilers. European distributors for the Canadian's Unity Unixalike include Logica here in London, SCS Systemhaus in Munich, and Axis Digital in Paris; due soon over here is a runtime Unity system for the DEC VAX family, which runs under VMS and will be offered at a mere $500.

NCR SEEKS NEW UK DISTRIBUTORS FOR ITS TOWER SUPERMICROS

Although NCR's Tower family of 68000 series Unix supermicros is one of the most successful in the market, and has racked up some enviable major account sales running into thousands at a time, Unix systems are still difficult to sell in onesies and twosies - as Rapid Recall has found out. NCR UK is now seeking distributors and trying to build an effective network of resellers after its distribution agreement for the Tower line with Rapid Recall, which was originally trumpeted as worth up to £10m over three years, lapsed last month after its first year. NCR has a small number of OEM customers selling the machines into vertical markets but as yet has no distributors to supply small resellers. NCR and Rapid Recall both emphasise that their parting was amicable; selling Unix systems was a new area for Rapid Recall, best known and well respected for its DEC systems, and the company admits that "we didn't do a lot of business for them"; neither it nor NCR would put any figures on the disappointing business.

WINNING WICAT UPGRADES ITS 68000 BOXES

Wicat Systems, the Salt Lake City, Utah micromaker which has its UK base in Camberley, Surrey, has upgraded its 68000 machines with a 12.5MHz chip against the previous 8MHz. The company is claiming performance improvements of 100%+ for the machines, which go out under a variety of operating systems, with the new chips and firmware and disk handling enhancements. Also in the works is Ethernet support, due here in November, and long term plans include a 68020 machine. The machines go out with Uniplus+, Pick or the proprietary WMCS operating systems. Prices start at £9,500 for the desktop 1250, replacing the existing 150, which takes from 1Mb to 5Mb RAM, from single 15Mb to four 120Mb disks, and 80Mb streamer. There are also three floor-standing models, the top end being the 2220 replacement for the 220 which takes from 1Mb to 16Mb RAM, 80Mb to 2Gb disk storage, and nine track tape backup and starts at £27,000. Wicat looked like a candidate for the bankruptcy courts 18 months ago, but has enjoyed an impressive renaissance since deciding to major on the educational computing market in the US, and where many of its US siblings have been reporting very storm-damaged figures, Wicat has just seen a welcome return to profits on soaring sales.

SORD OFFERS ROCK-BOTTOM UNIX BOX HERE

Japanese manufacturer Sord, now controlled by Toshiba, is the latest to join the already overcrowded low-end Unix systems market, with what appears at first sight to be a very competitively machine. The Unibox runs System V and now announced in the UK following US launch two months ago, is £5,400 for a basic configuration including 10MHz 68010 CPU with 1Mb memory - expandable to 5Mb - 20Mb Winchester and 1.2Kb floppy. Sord sells Charles River Data Systems' Universe machine as the M685, but says that it developed the Unibox itself - including System V; it is a VMEbus system whereas the Charles River machines go out as both VMEbus and Versabus models. Sord wants OEM customers and resellers.

AT&T BELL LABS PLANS PROTOTYPE OPTICAL COMPUTER

The age of the optical computer, where electrons are supplanted by photons and machines run 1,000 times faster than today's electronic computers is just around the corner. The **New York Times** reports that AT&T's Bell Laboratories in Murray Hill, New Jersey has formed a new Optical Computing Department which intends to produce a prototype optical computer within a year, and to develop it to a full working model within five years. AT&T is particularly interested in the technology because it conceives of computers which will be able to attach directly to the fibre optic cables it is busily laying. As well as the obvious external advantage that optical computing is free from radiation emission and immune from such contamination, is the less obvious one that optical switches can handle multiple light beams simultaneously without their interfering with each other, leading to the possibility of much simpler parallel processors. A further possibility is to make use of varying light intensities to use an arithmetic much more powerful than binary - perhaps up to everyday decimal. One of the simplest optical elements, the Transphasor, has been developed at Heriot Watt University in Edinburgh using Indium Antimonide crystals through which a high-power beam of light will pass only when critically energised by a carefully chosen low-intensity beam, creating a switching effect - but Bell Labs is working on a more advanced switch using Gallium Arsenide. The first optical computers will be built of discrete components - optical transistors - but later progress up a curve of low, medium and large-scale integration.

TORCH RAISES £500,000

Torch Computers Ltd of Cambridge, for so long in the shadow of its part progenitor, Acorn Computers, is coming out of the shadows following the latter's devastating fall from grace and collapse into the arms of Olivetti. Torch backers, led by Newmarket Venture Capital Ltd of London, have sufficient confidence in the company to have subscribed in full to a one-for-two rights issue raising over £500,000 and values the low-end Unix systems specialist at between £1.5m and £2m.

Minigrams

IBM now offers so many flavours of Unix that naïve observers might be persuaded to believe that the company had **AT&T**'s very best interests at heart in pulling out all the stops to turn the operating system into a vendor- and machine-independent industry standard - but have no fear, cynics will be reassured that the company is simply engaged in its time-honoured activity of spreading fear, uncertainty and doubt: **InformationWeek** reports that a "major New York bank", using **Inspiration Systems Inc**'s Prevail office software on **AT&T** 3B machines, wanted to transfer it to its IBM mainframes, and innocently inquired about IBM's shiny new VM/IX implementation of Unix for 370-type machines; the poor bank came under such pressure from its IBM salesmen to forget it ever heard of VM/IX and instead to convert Prevail to run directly under VM that it did the only thing possible - it rang up the local **Amdahl** sales office, which was delighted to supply a copy of its UTS version of Unix.

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By seeking what Japanese observers describe as enormous damages from **Fujitsu** for alleged violation of the still-secret settlement between the two companies over the fact that Fujitsu "copied" - rewrote - MVS to create its OSIV/F4 operating system, **IBM** is playing right into the hands of the still-amorphous Unix-on-all-mainframes lobby: Japanese manufacturers are seriously considering a major push behind Unix so that they can sell their hardware around the world with an industry standard operating system which is not IBM-owned, and through its 47% plus ownership of **Amdahl Corp**, Fujitsu has direct access to what is widely regarded as the best Unix implementation for a general purpose mainframe - Amdahl's UTS.

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Sunbury-on-Thames distributor **Hawke Electronics** is now offering the **Inmos Transputer** and has made its first sale, to **Oxford University.**

- o -

EMAP, organiser of next year's Unix exhibition at Olympia, is seeking papers for the associated Comunix conference at the Tara Hotel in Kensington, 3-5 June; 200 word abstracts to EMAP International Exhibitions Ltd, Abbot's Court, 34 Farringdon Lane, London EC1R 3AU by December 16.

Rockwell International has decided to phase out the 68000 family, which it has been second-sourcing from **Motorola.**

- o -

Bridge Communications saw third quarter net up 4,560% at $1.5m after tax credits of $533,000 this time and $15,000 last, on turnover up 131% at $8.1m; net profit for the year so far was up 2,232% at $3.2m after tax credits of $1.3m this time and $63,000 last, on turnover which rose 139% to $20.8m. Net per share were $0.17 in the quarter, and rose 2,000% to $0.42 in the nine months.

- o -

Mostek, under notice of closure by its parent **United Technologies** was **DEC**'s second source for the MicroVAX II chip set: now **Computer Systems News** hears that DEC is considering **VLSI Technology** and **Seeq Technologies** as possible alternatives.

- o -

Despite **AT&T**'s sterling efforts to find alternative employment for the 24,000 people it wants to shed from its **Information Systems** unit (UX No 50), the **Communications Union of America** is to ballot its 70,000 members within the division on whether they want to strike over the lay-offs, which it says are in breach of a 1980 agreement.

- o -

Struggling **Control Data** may not even get all of its monster $540m contract to supply peripherals to **AT&T** for the 3B line: word is that AT&T has qualified **Fujitsu** as a possible alternative supplier of 86Mb 5.25" Winchesters for the 3Bs.

- o -

Ferranti Computer Systems has followed suit with a 20Mb disk for its 8086-based PC 860 - derived from the old Advance 86 - for a rock-bottom £2,795 for the PC 860 XT 20Mb system; the XT 10Mb is £2,150, the floppy disk version is £1,250, all including the Perfect II suite of word processor, database and spreadsheet, and Ferranti **is promising an AT-alike in early 1986** as well as Ethernet for the line.

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Correction: the mechanical engineering workstation announced in the US by **Xerox** this week (UX No 50) is not based on the company's own Star, but is one of the fruits of the company's $23m OEM contract with **Cadlinc** of Elk Grove Village, Illinois and the Multibus stations are 68000-based and run under Berkeley Unix 4.2.

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PYRAMID GETS SHARP OEM DEAL; TO GO PUBLIC IN DECEMBER

In the most interesting US computer-related public offering since Symbolics went public a year ago, Pyramid Technology is planning a December offering of 1,100,000 shares, 15% of the enlarged equity, aimed to raise a total of around $17m at $15-$17 per share. If successful, the offering will value the four year old company at around $115m. The prospectus also reveals an OEM agreement with Sharp Corporation, which is expected to sell Pyramid's Reduced Instruction Set architecture Unix machines in Japan for office automation, CAD and networked PBX systems. The cash will provide needed working capital for the Mountain View minimaker, which has accumulated a $10m deficit due to development and marketing costs but has $9m cash and a $5m line of credit. Pyramid had net sales of $33.9m in the year ended September 30 1985 and acheived profitability for the first time, totalling $2.9m and showing an increasing profit in each quarter. Concurrently with the public offering, being handled by Montgomery Securities and Kidder Peabody, Nixdorf, already a major investor, takes another 81,000 shares with an option on a further 12,150; it owns 7.5% of Pyramid. Nixdorf has a $35m OEM agreement and like Sharp gets manufacturing rights for parts of the system. Developments underway at Pyramid include efforts to improve performance through the use of CMOS technology; the CPUs in the current line are built in Schottky TTL. Pyramid had shipped 260 of its 90x and 98x minis by September 30.

MICHELS, WEGBREIT QUIT CONVERGENT TO FORM NEW FIRM

Now that Convergent Technologies is firmly in the hands of a veteran industry professional in the shape of Paul Ely from Hewlett-Packard, chairman Allen Michels clearly feels he has no major continuing role at the company he founded. He went on a six-month sabbatical after Ely came on board in January, and has now resigned from the company altogether. He has tempted his right hand man, executive vice-president and a co-founder, Eliot Wegbreit, and three others, to start a new company which he promises will not compete with his original creation. Wegbreit wrote the original CTOS operating system for the AWS and IWS workstations, and the other three teaming up with Michels are vice-president for business development Matthew Sanders, vice-president of US sales, Robert Van Naarden, and engineering manager Richard Lowenthal. Van Naarden was responsible for the enormous early OEM contracts with NCR and Burroughs which won the company its meteoric start. Lowenthal was responsible for workstation hardware design. All have been much less involved in running the company since Ely arrived, and several have taken sabbaticals. Michels says the new company has no name and no business plan - and that it will initially be financed by the co-founders, all of whom became millionaires when Convergent went public in 1982. Michels hints that the new company may produce applications-specific systems - and may end up marketing Convergent products. With Michels gone, Ely is expected to become Convergent's chairman.

WHITECHAPEL LANDS SWEDISH DISTRIBUTOR

The first continental distributor for Whitechapel Computer Works MG-1 workstation is Carl Lamm Systems of Solna, Sweden. The company, owned by Scanvest Ring, has been majoring on the Zilog System 8000, and has also taken on Pyramid Technology's RISC minis to provide a top-end system. The announcement was made at the Scandinavian Unix exhibition in Stockholm last week; see inside story for more details.

In this week's issue:

VMARK, AT&T TIE UP FOR PICK ON 3B LINE

In an agreement which AT&T claims increases five fold the applications available to 3B users, VMark Computer has signed with AT&T for what promises to be its biggest deal yet for its UniVerse implementation of Pick under Unix. Natick, Massachusetts-based VMark will be selling UniVerse with all AT&T's Unix range through its distributor network; it expects the agreement, which is initially for 18 months and then renewable annually - to generate around $50m hardware sales over three years. AT&T claims that the agreement will make the 2,500 applications written for Pick available to Unix users - which when compared with AT&T's catalogue of 500 System V applications is an ironic argument for using Unix; but AT&T's size and support should make the hardware attractive to large users.

OLIVETTI ADDS UNIX PC AS MULTI USER 3B1

Olivetti/AT&T last week announced the expected new models in the AT&T 3B line, which include the Unix PC configured as a multi user low end system. The additions include the Unix PC 3B1 available in two models - the Unix PC 3B1/100 and the Unix PC 3B1/200 - both based on the Motorola MC68010 processor and both come with a bit mapped screen, mouse and 1 Mbyte of main memory - the 100 version comes with 20Mbyte disk capacity and can support up to three users, the 200 has either 40 Mbyte or 67 Mbyte hard disk and can support up to five users. The enhanced version of the 3B2/300 is now also available called the 3B2/310 which uses the WE32100 processor as opposed to the WE32000 resident in the 300. The 3B2/310 can be configured with up two Mbytes of main memory, 72 Mbytes integral hard disk, 18 serial ports and 4 parallel ports. Optional math accelerator units and tape backup units are also available for the 310s. The 3B range has been becoming increasingly competitive with price cuts on older models and the introduction of the faster WE32100, and Olivetti is confident enough to give competitive pricing against the NCR Tower and Altos machines;

Machine	RAM	Disk	S	P	Price
Unix PC 3B1/200	1.0Mb	40Mb	6	1	£ 8,971
Altos 586/40	0.5Mb	40Mb	6	-	£10,950
NCR Minitower	1.0Mb	46Mb	8	1	£10,800
3B2/400D	2.0Mb	144Mb	10	2	£27,000
Altos 2086	2.0Mb	160Mb	20	-	£30,300
NCR Tower 32	2.0Mb	170Mb	18	2	£34,510

Note: S=Serial Ports, P=Parallel Ports

AT&T DEVELOPS LOW COST VOICE/MAIL FACILITY FOR 3BS

AT&T is developing a hardware and software extension for the 3B2 systems to enable them to store and forward mail, with the possibility of voice input and speech synthesis. Details of the new device, the CM195G Integrated Telephone Module, was filed with the Federal Communications Commission - the same route that led to the details of the Unix PC becoming public before launch - but no confirmation of reports that it is due for imminent launch, according to **Computer Systems News**. AT&T already uses the 3B5 as an applications processor for its System 75 and 85 PABXs and the CM195G could enable the 3B2 to act in a similar way for smaller, lower cost office automation networks.

MOTOROLA GETS UNIPLEX

Motorola Information Systems Limited ,the UK Motorola subsidiary in Maidenhead, Berks, has signed with Redwood International of St Albans to make Uniplex II available on its 2000 and 6000 Series machines as a result of demand from its Value Added Resellers. The price of Uniplex II for all systems up to 16 users is £1,855 including media and documentation - Motorola will provide back-up and first-line support.

DATA GENERAL "OPTS FOR SUN 3 STATION FOR CAD/CAM"

Data General Corp has reportedly come to the conclusion that its MicroEagle microprocessor implementation of the Eclipse MV processor will not be powerful enough to meet the demands of Computer-Aided Design and Engineering users, and **Computer Systems News** hears that the minimaker is to sign a major OEM agreement with Sun Microsystems for its new 68020-based Sun 3 workstation. The paper suggests that it will announce the Sun 3 as the top end of its forthcoming DS7000 engineering workstation line. The lower end of the line will be filled by the a processor using the MicroEagle chip set, which is rated at between 0.6 and 0.8 MIPS. Data General has not done big business with its DS4000 engineering workstation which uses the Eclipse MV/ 4000 processor, and the consensus is that most users need a minimum of about 1.2 MIPS. The company is under further pressure because first reports suggest that the DEC MicroVAX II is performing better than the 0.75 to 0.9 MIPS promised for it by DEC. The DS7000 line is expected to be launched next month.

MATRA "TO DUMP MICROS IN FAVOUR OF NORSK LINK, SUN DEAL"

Matra Data Systems is preparing to put its Alice home computer and Max·IBM Personalike businesses onto a care and maintenance basis and will concentrate all its resouces on scientific and technical computer systems, according to the French weekly **Le Monde Informatique**. The paper says that the company, part of the 51%-state-owned Matra SA electronics and defence group is in the final stages of negotiating a series of ag-reements with Sun Microsystems of Mountain View, Calfornia, which would initially involve Matra marketing the 68010-based Sun 2 and 68020-based Sun 3 workstations, but is likely to lead to an agreement for Matra to build the machines under licence. The negotiations have been protracted, says the paper, because Matra's minicomputer partner Norsk Data of Oslo, Norway, is unenthusiastic about the idea of the French company marketing the Sun stations, fearing that they will impact sales of lower end Norsk minis. The paper suggests that Norsk Data has gone so far as to threaten to terminate its agreements with Matra if the Sun deal goes ahead - but all three are due to go into a huddle in Paris to thrash out a mutually acceptable agreement over the next few days. There is also the possibility that Sun may take on a top-end high-performance graphics display built of gate arrays which Matra has developed but not announced. Norsk Data's opposition to the proposed Sun deal has also apparently been mollified first by Matra's agreement to enter joint development of a "desk-top supercomputer" with a 25 to 100 Mflops performance range, for which the partners are looking for Eureka funding; and by Matra's agreement to market the ND500-based Knowledge Processing System, developed in the UK by Racal-Norsk.

NATIONAL SEMICONDUCTOR UNVEILS SECOND GENERATION NS32332

National Semiconductor has unveiled the NS32332 32-bit microprocessor which is intended to become the workhorse of the Series 32000 line. The company cliams that the new part outperforms the 32032 threefold, and at least matches the performance of the Intel 80386, which it says puts it in the 2.5 to 3 MIPS range; it looks a much more viable next step than the 32032 for many of the companies currently offering 32016-based systems. Key upgrade over the 32032 is that the number of address lines in increased to 32 from 24, raising the memory directly addressable to 4Gb from 16Mb. It also has dynamic bus sizing so that it can be used with 8- and 16- as well as 32-bit data buses - and support peripherals. A burst mode memory addressing facility allows the processing of multiple addresses from a single instruction and speeds data execution by 60%. The chip, which maintains full compatibility with the lower performance members of the family, also supports external cache memories, and will be offered with upgraded versions of the NS32382 memory management and NS32381 floating point units. NatSemi also has an agreement with Weitek Corp under which NatSemi will produce an interface, the NS32310, to the sexy new Weitek 1164 and 1165 64-bit floating point chip set which delivers 4Mflops. Fabricated in 2.8 micron geometry in NatSemi's XMOS version of NMOS, the 32332 has a 15MHz clock, integrates a mere 90,000 transistors and comes in an 84-lead pin-grid array. It runs from a single +5V power supply. Samples are available now at $195 apiece, with volume production set for the first quarter of 1986. The company said that it decided against including on-chip memory management because it was not needed in embedded process control applications. The next major part in the line, the CMOS 32C532, is not due until 1987, but is being designed to outperform the 32032 sevenfold.

CANADA'S CONSENSYS UPGRADES IBM PC-AT

Consensys Corp, a Unix system software house based in Toronto, Canada is a Unix system software house has an upgrade kit designed to bring the IBM Personal AT up to a viable eight user system with more memory, disk and tape backup. The ATmini upgrade is comprised of 86 Megabyte Control Data disks, a 60 Megabyte cartridge tape drive, eight serial ports, two megabytes of RAM, Xenix drivers and Consensys system administration software and support - all for a price of $7900. The ATmini is directed at the broad markets of small and medium sized businesses who cannot afford networked PCs, and to give users who have invested in an AT an upgrade path without buying a complete new system. The company has been in business for a year and a half and has five members of staff all concentrating on development work - the ATmini is currently being distributed by mainly Canadian resellers - and Amdahl in Canada has also taken a liking to the box and is selling it over there.

TORCH UNVEILS 68010 UNIX BOX AT ROCK-BOTTOM £4,000

Torch Computers' promised Triple X low cost Unix box with bit-map screen and windows emerged last week at £3,995 for a base system. The new Uniplus+ System V based supermicro has a proprietary icon-driven user interface called Open-Top driven from the keyboard or by mouse. The user interface is not a shell, but is embedded in the Unix kernel for speed. Icons can be redesigned by the user at will, which is a good thing, because following its succ-ess in forcing Digital Research to redesign GEM, Apple Computer is taking an unhealthy legal interest in Open-Top. Triple X is initially available with a 68010 microprocessor but a 68020 version with floating point co-processor will be on sale before Christmas. It comes with 1Mb to 7Mb memory and Ethernet and X25 networking are standard. For storage, there is a 20Mb Winchester disk and a 720Kb floppy drive which can read IBM Personal disks. The floppy acts as a padlock; without the right configuration the user cannot use the system. A 10" colour screen backed with 64Kb screen memory is standard with a 13" screen optional and base price for the single-user machine is £3,995. With the product, Torch has also launched the Gold Card support team which will provide on-site maintenance, software updates and advice on system and expansion queries.

MICROPORT COMES THROUGH WITH XENIX-COMPATIBLE SYSTEM V FOR IBM AT

Monterey, California based Microport Systems Inc, the company spun off from the ill-fated Digital Research 80286 System V project, is due to join the fray with a low cost version of System V for the IBM Personal AT; a run time system will be just $139, and the full system with development tools and text processing will be under $400. Microport' System V/AT is due in January, and as we suggested in UX No 32, the company is also planning a Xenix compatibility feature; the aim is to be able to offer a systemn costing less than Xenix that still allows you to load programs from IBM AT floppies.

CONVERGENT SOLUTIONS UNLEASHES MIGHTYFRAME IN THE UK

Convergent Solutions Ltd, the City of London subsidiary of Star Computer Group Plc last week officially launched Convergent Technologies' MightyFrame onto the UK market. Although no official pricings were given Jack Schumann, managing director of Convergent Solutions, reckons that £40,000 would be the figure for a sensible configuration supporting 10 to 12 users. MightyFrame is based on Motorola's 68020 microprocessor with the optional 68881 floating point co-processor, combined with AT&T's Unix System V, Release 2.2, with 32 Mb demand paged virtual memory, up to 16Mb real memory, integral disc storage of up to 420Mb and quarter inch tape cartridge drive for back-up. The MightyFrame will be available from Convergent Solutions from the beginning of next year. Meanwhile Star Computer Group Plc has reported a loss of £373,000 for the 14 months to June, up from a loss of £7,000 loss for the 12 months to April last year; it attributes the loss to a write down of inventory following the launch of its new range of accountant systems based on Convergent hardware. Turnover for the 14 months was £9.2m compared with £7.5m last time.

BENCHMARK TECHNOLOGIES HAS AMBITIONS TO GET INTO THE MOVIES - VIA JOINT VENTURE

BenchMark Technologies Ltd, a Kingston-upon-Thames, Surrey company which last week announced a challenging string of board-level products headed by a mix-and-match 32-bit Unix processor and an 80 MIPS cascaded graphics and image processor, is getting into the film business by way of a joint venture. The company, 20%-owned by Phicom Plc, won't say anything about the venture at this stage beyond the fact that it involves computer-generated graphics for films and that it will come to fruition in March or April next year. The venture is one of two in negotiation at the company: the other is for joint development of a screen paintbox-type product - and one of the two ventures will take it into the US with a marketing and technology support centre next year. Ambitious for a new company looking for sales of just £1m in the current financial year to April 1986. The com-pany is concentrating on OEM boards and software for niche markets in the image and graphics processing field. On the products front, the single-board VME-bus 32-bit Unix CPU will come with Unix System V.2 with real-time extensions on any of the four 32-bit processor options - Intel 80386, NS32032 or 32332, or MC68020 - each with memory management unit and floating point processor, plus MS-DOS 3.1 running concurrently on an associated 80186 input-output processor, which was announced as a separate board-level CPU earlier this year.

Graphics & Image Processor

The new board supports the company's sexy new Graphics & Image Processor or GIP, clearly the product which is exciting its joint venture partners. Up to eight of the GIPs can be linked , and each is based on a 10 bit-slice CPU rated at 10 MIPS with a 160 bit wide microcode memory, capable of doing block fills at 20 Gigapixels per second in a frame store of 1,280 x 1,024 bytes of 60 Hz non-interlaced resolution with eight display planes. Video RAMS are exploited to provide frame grabbing at 125Mb per second at full video rate. Implemented within the hardware is a sub-integrated zoom as well as a true hardware window. The control store has been made writeable for user microprogrammability and the company supplies its own second generation microcode assembler called bMasm which understands timing constraints in hardware as well as a bMd Microcode debugger. Plans are in the offing to shrink the physical size of the thing by a third and more versions will come as more CPUs are introduced. The company is also planning to build a floating point array processor with 40 Mflops performance for three-dimensional modelling and shading. Other processors will also be attached; included in the plans are Inmos Transputers - which are starting to turn up in all manner of interesting applications - and a proprietary Lisp/Prologue engine. Prices range from £3,000 to £6,000.

CASE PREPARES UNIX NET MANAGER, MODEMS, DATA SWITCH FOR COMPEC

Case Group Plc, getting in ahead of the Compec rush, has been describing the products which will have their UK launch at the exhibition next week. The most important of the products, as far as the future of the company is concerned, is the Series 5000 Network Management System which we reviewed on its US debut in March. Since then, Case has added the 5100 version to the range and sorted out BABT approval for the Series 4000 high-speed modems which will form an integral part of the 5000 network. The 5100 has capacity for 5 DCX nodes or 120 modem lines or a mixture of both. It has 1Mb to 2Mb of memory and a storage capability of a 50Mb fixed drive and a 640Kb floppy. The whole family uses intelligent probes around the network spontaneously to report exceptions and alarms to a Convergent Technologies central controller running under Unix V. The Series 4000 modems are designed for synchronous transmission at speeds of up to 14.4Kbps and will replace the high-speed modems currently sold under an OEM agreement with Paradyne.

TECHNIRENT HEADS LIST OF LIKELY SACRIFICES AS MBS SEEKS TO RAISE CASH

Micro Business Systems Plc, the heavily over-geared microcomputer distributor and service company which is one of Altos Computer Systems two UK distributors, needs to sell some assets to raise cash to reduce its debt, and word is that the chosen sacrifice will be the TechniRent subsidiary. The unit rents technical equipment, specialising in microprocessor development systems and sources close to the company say that it is keen to sell the division off to reduce its borrowings, which currently stand at around £14.5m against net shareholders' funds of just £1.9m. The company has seen a big decrease in profit margins following pricing pressure in the business microcomputer market. Some City sources believe that the company may also face serious cash flow problems. MBS pulled out of a planned acquisition of Logitek, Altos' other UK distibutor, earlier this year.

EPSON PLANS $3,495 AT-LIKE, PICKS NEC V30 FOR PERSONAL

Three IBM Personalikes, one based not on an 8086 chip but on the new NEC V30, were previewed by Epson Corp in New York last week - and all will be offered at fire sale prices. First up will be the Equity I, an 8088-based Personalike for launch at Comdex/Fall at the end of the month, which is just $995 for 256Kb CPU and two floppies but no monitor. Early next year, Epson will add an XT-alike called the Equity II, which uses the NEC V30 microprocessor. The V30 is a 16-bit bus microprocessor which is code-compatible with the 8086 - and is the subject of a lawsuit from Intel over microcode copyright. Base price will be $1,695 with a 10Mb hard disk. The Equity III will be an IBM AT-alike using a 6MHz 80286 and coming in at $3,495.

GOVERNMENT ENDORSEMENT OF UNIX SETS THE SCENE FOR STOCKHOLM EXHIBITION

Last week's Scandinavian Unix exhibition in Stockholm opened to the backdrop of the most encouraging situation in Europe for Unix vendors, with both the Swedish Government and the Department of Defence committed to Unix for administrative systems (UX No 8). Not surprisingly, a large proportion of the companies there were looking to the government for most of their sales and despite the relatively small market there was plenty to see from the 40-odd exhibitors. The Statskonstoret Government consultancy and purchasing agency was responsible for evaluation of Unix machines and several of the local government bodies have already started to follow suit. The systems selected for the Government are the Zilog System 8000, the Cromemco CS300 and CS400, the Luxor ABC9000 - developed by Data Industrier AB, and the Sun Microsystems workstations sold in Sweden by Ericsson. Also specified were a wide range of communications facilities including Ethernet, IBM batch and interactive, asynchronous and Sperry UTS4000. And a variety of software packages were approved including the Informix, Unify, MicroIngres and Mimer databases, and Uniplex, Lex and Q-Office for office automation. For the Department of Defence, Philips Elektronikindustrier got the contract as prime contractor for Struktur-90, a long term project for the Swedish Defence Materials Administration to provide an information systems architecture to last into the next decade. Included in the plans are an intitial 175 Unix systems for functions including administrative systems for the forces. Initial orders have favoured the NCR Tower and the DEC VAX, but the main evaluation was for fourth generation languages where Data Language Corporation's Progress came out on top. ICS Forum, the show organisers, reckon the exhibition and conference attracted around 4,500 visitors over the three days; next years show is set for October 6-8. **More on the show next week**

CARL LAMM TAKES ON WHITECHAPEL, PYRAMID

As mentioned on page 1, the show saw the announcement of the first European distributor for Whitechapel Computer Works' MG-1 workstations as Carl Lamm Systems of Solna, Sweden. The company has been majoring on the Zilog System 8000 Unix boxes, and has also now added the Pyramid Technology minis as a top end system; it was showing a Pyramid 98XE on the stand. Carl Lamm is owned by Scanvest Ring, which acquired the company from electronics distributor Scandiametric after it was set up as a separate subsidiary, Metric Office Systems, to sell the Zilog machines. From 35 employees at the start of the year, the company has grown rapidly to 95 and claims to have been profitable all the way; on the way it has acquired small software companies with the hope of penetrating specific markets. Following the Swedish Government's standardisation and inclusion of the Zilog System 8000 as one of its "base computers", Carl Lamm reckons about 80% of its business is currently with the Government. Carl Lamm is the Swedish distributor for Uniplex, which was selected for the Government purchases.

ENEA DATA PUSHES UNIX INVOLVEMENT WITH PRODUCTS, SERVICES

Enea Data, a large consultancy specialising largely in real time systems with offices in Taby, north of Stockholm, and Malmo, is renowned as one of the first Swedish companies to become involved with Unix. Although Unix still accounts for only a small part of the SKr 45m business, the company has been involved with the operating system as a development system since 1981, when it bought a VAX to run Berkeley 4.2, and it has recently moved into offering Unix products. Its Unix activities now encompass several areas; it uses the VAXen for research work and has completed the first phase of a research project, with developers working at the University of Stockholm, to link Unix development tools like SCCS with a relational database - Ingres has been used so far - to form an integrated environment. As Karl-Erik Ericsson, Enea marketing manager, pointed out, the tools exist, so rather than embark on the ambitious task of developing programming environments from scratch, why not start by tying together what you've got? Enea is also involved in education in Unix, Pascal and C, and plans to move into Ada next year. Consultancy work has included Unix porting. The company is also building up a portfolio of products, which include Enix, the BSD 4.2 with System V utilities that Enea developed for its own VAX work, as well as VAX BSD 4.2 installation. The comnpany is the distributor for Unify and has now started work on a Swedish version of the product, which needs a clear 8-bit data path to handle the expanded Swedish character set; an example of the problems facing foreign language developers is that characters like the brackets widely used in in the SQL query language are generally used as other significant characters in Swedish systems. Other products include the Bess specification language for real-time systems and the company has been focussing on using Unix supermicros as a front end for developing code for embedded systems which is then downloaded for testing to an emulator or microprocessor development system, giving multi-user access to expensive host-target development facilities.

MYAB PLANS MULTI-CPU MY32

Demonstrating that exotic architectures are not entirely the province of US startups with $millions venture capital backing, Swedish company Myab Mikroconsult was showing its MY32, a system initially going out as a single CPU machine but designed to grow into a multiprocessor system. Myab, a development and consulting company, as yet seemed to have few plans for the marketing of the MY32, which is designed to ship in single CPU form early next year. The MY32 is built round a 25Mbyte per second system bus, from which hang NatSemi 32000-based CPUs and peripheral processors. The system differs from most of the similar boxes under development in that there is no central shared memory; each CPU, which is a cluster of 32016 CPU - 32032 based versions are planned - with NatSemi's floating point and memory management chips, has from 1-15Mb local memory. CPU's can, however, get access to the memory of other processors via the system bus; the initial multiprocessor version will be very much a master-slave arrangement, but will progressively move towards more autonomy for each CPU; a master CPU will run kernel of the System V demand paged operating system, but page faults will be handled locally by each processor. VMEbus and Multibus adaptors are also in the works. Unusually, Texas Instruments 995 processors are used to handle peripherals. Initial multiprocessor configurations will support up to eight CPUs and Myab hopes to get first versions out by summer 1986.

UNIGRAM/X

Look for **Amdahl Corp** to announce its long-promised native Unix for its own and anyone else's 370-type mainframes around Thanksgiving time (that's the Thursday before the last Sunday in November for anyone who had forgotten): **InformationWeek** points out that the new operating system will run side by side with MVS at sites putting up Amdahl's ingenious Multiple Domain Feature hardware partitioning system - and as there can't be too many 308X or 3090-class Unix workloads anywhere, the idea must be to provide a simple route for converting from MVS to Unix; our US associate **Technology News of America** notes that there are one or two big **IBM** sites which are so fed up with what they regard as outrageous IBM software pricing that they are prepared to give Big Mother a bloody nose by doing just that.

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A single processor **Encore Computer Corp** Multimax NS323032 machine without floating point processor has been benchmarked on a set of linear equations using the Lin Pack software and Fortran at the **Argonne National Laboratory**, and results suggest that it matches the **DEC** VAX-11/750, the **AT&T** 3B20 with floating point unit, and the **Hewlett-Packard** HP9000/500.

- o -

Following the shutdown of **Callan Data Systems** earlier this year, founder Dave Callan has reappeared as vice president at **CIE Systems**, the C Itoh systems company whose products include 68000-based Pick and Unix computers. Callan will head a new Image group whose initial developments are a juke box type filing system for optical disks and a high resolution electrostatic plotter.

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AT&T Information Systems has reached a settlement with the **Communications Workers of America** union to avert a threatened strike, but it is denying a claim by the union that it has agreed to scale down its planned 24,000 job reductions.

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Ricoh Co begins marketing in Japan of the **AT&T** 3B2/400 microcomputer from the beginning of next month: it is looking for $50m of business over three years from the pact.

Minigrams

The Spectrum 32-bit Reduced Instruction Set Computer on which **Hewlett-Packard** is pinning its hopes for the future is still giving cause for concern, and the company is expected to have to go first with a board level 2 MIPS processor in Schottky TTL while it gets its 4 MIPS NMOS III microprocessor implementation of the CPU right: **Electronic News** reports that the company has pulled the chip development at Fort Collins, Colorado out of its Integrated Circuit Group in order to focus more attention on the development; the HP9000 microprocessor chip set, also made at Fort Collins, is expected to be phased out once the Spectrum RISC microprocessor is ready to go.

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Office Workstations Ltd of Edinburgh is so frustrated at delays in getting its **Alvey** Fortune project for development of a documentation system for software engineers off the ground that it has decided to withdraw from the project, in which the other partners are **CAP**, the **University of Kent**, **Baddeley Associates** of Cambridge, and the **Microelectronics Applications Research Institute** in Newcastle: £1.6m funding for the project was agreed in principle in May, but the partners are still awaiting the go-ahead, and OWL says that it has now fully committed its skills and resources on other developments and has none spare to devote to the Alvey project.

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Corvus Systems Inc has reported a first quarter net profit of $209,000 against a loss last time of 4.3m which included a loss from discontinued operations of $4.1m, on turnover down 32.9% to $15.0m. Net per share was $0.01. Comparisons are with figures restated to reflect acquisition of Onyx+IMI Inc.

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Philips, which gets some of its **IBM** Personalikes from **Corona Data Systems**, has decided to buy its P3200 AT-alike OEM from **MAD Intelligent Systems** of San Jose, California under a multi-year contract worth $15m to $20m in the first year: MAD will supply 512Kb 6HHz 80286-based processors with 20Mb Winchester and 1.2Mb floppy, disk controller and one serial and one parallel port.

The MicroVAX II is such a critical product in the company's armoury that **DEC** is wasting no time in reconfiguring it and fine-tuning it in response to user criticism: the company has fitted a new faster disk controller, the RQDX3 to support its 71Mb 5.25" Winchester and eliminate a bottleneck on all configurations, a new KDA50 controller for 456Mb and 205Mb drives, and a new 40" cabinet which houses up to 1Gb in a single system cabinet.

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DEC UK has also cut prices on all MicroVAX II systems by 13.5%, making the entry price £16,950; VAX-11/785s are cut between 14% and 19%, so that a VAX-11/785, which previously cost £192,400, now costs only £162,400 with 8Mb; the VAX-11/750 is off up to 10% in some configurations, and the VT220 terminal is cut 9.1% to £995.

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DEC UK also has the Compact VAX II for users who want access to an industry-standard half inch tape facility: the new MicroVAX configuration includes TSV05 tape drive, and comes in two variants, the Q7 at $32,000 and the Q6 at $36,000; both consist of a 2Mb MicroVAX II CPU with RD53 Winchester disk drive plus the autoload tape drive which is designed to make tape as easy to load and unload as a floppy disk; the more expensive Q6 has a TK 50 load drive while the Q7 has an RX 50 load drive; the machines were designed by DEC in Reading and are manufactured in Galway, Ireland, succeeding the Compact VAX I.

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Logica Software Products has signed with **Honeywell** to provide software support to resellers of Honeywell Italia's new X-Superteam 68010+ 68000 Unix micro which was launched in the UK last month (UX No 51). Logica, which did the Xenix port for the machine, will offer consultancy to software houses wanting to convert packages to Xenix on the machines, support and train value-added resellers wanting to create packages on top of standard applications like databases, and offer dealers a troubleshooting and advisory service

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The three day Unix Expo in September in New York attracted 10,460 visitors, the organisers National Expositions tell us; next year's show, with almost double the space of the 120-exhibitor 1985 New York expo is set for October 20-22.

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UNIGRAM/X

The newsletter for UNIX systems users

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GEC REVAMPS UNIX LINE WITH SUN HARDWARE, NEW SERIES 63

GEC Computers at Compec this week filled out its Unix range, unveiling the fruits of its OEM deal with Sun Microsystems as both a single user workstation and multi user system, and expanding its Series 63 mini range with four new models. The Series 21 workstation and Series 42 multi user system are based on the 68020 Sun-3 hardware; they run a version of Sun's Berkeley 4.2 with System V system calls and libraries added by GEC to provide a dual System V/BSD 4.2 environment. The Series 21 comes in three configurations; the 21/15 desktop mono station, and the 21/30 and 21/60 floor standing models with mono and colour screen respectively. All models have 4Mb CPU as standard, expandable to 16Mb; a 21/15 with 85Mb disk, cartridge backup, high-resolution screen is around £23,000. The Series 42/40, for up to 16 terminals or as a server for diskless Series 21s, also has from 4Mb to 16Mb memory; pricing with 85Mb disk, cartridge backup and two terminals is £33,000. GEC is planning a renewed effort for the Series 63 System V minis, claiming that the problems which dogged the machine and resulted in sales of no more than forty since its launch two and a half years ago have now been solved. The range has now been expanded to six machines ranging in power from 1.5 MIPS to 3 MIPs; supplementing the existing 63/30 and /40 are the /15, /20, /50 and /60. Examples of prices for the entry level 63/15 with 4Mb CPU is £82,000; the 63/60 with 32Mb and X.25 support is £320,000. GEC offers Ethernet for all the Unix range and Sun's Network File System is available for the 68020 machines.

ALTOS GOES AFTER COMPETITORS WITH 80286 SYSTEMS

Altos Computer Systems is picking out two UK competitors for a a concerted attack following the refurbishment of its Xenix systems armoury with the expected 80286-based 1086 and 886. Altos is aiming to expand its distribution network by aggressively going after two competitors' resellers; the short list of candidates comprises Fortune, Televideo, NCR and Alpha Micro. The new machines are the Altos 886, which has 1MB of RAM, eight RS-232 ports, one TeamNet local area network port, hard disk, floppy disk drive and terminal and costs £8,695. The 1086 with 1Mb CPU, serial communication subsystem, file processor, 1.2Mb floppy, a 50Mb or 80Mb hard disk, 60Mb streaming tape and terminal starts at £16,295. Altos has also announced an Alliance Dealer programme targetted at recruiting new dealers formed by Altos, its UK distributors and their dealer base. In the US, the new machines have won Altos $20m of business over three years from Trans World Airlines; from the original 60 bidders DEC, Plexus Computer and Four Phase Systems the disappointed finalists. TWA will offer the machines to 3,000 travel agents.

ZILOG, PYRAMID CONTENDERS FOR NEW ABS CHORSE

Having dropped Perkin-Elmer as its supplier of CPUs for the top end CHorse minis, Brighton manufacturer has set the launch of replacement range for December. The Perkin-Elmer machines did not perform to spec according to ABS, which put the problem down to the Unix implementation for the machines. Pyramid Technology and Zilog are among three contenders for top end and mid range systems respectively. Perkin-Elmer recently announced that it had revamped its 3200 minis to run Unix more efficiently and relaunched them as the Xelos range. ABS' work in implementing the proprietary Simple language under Unix for the CHorse should stand it in good stead in switching to other Unix hardware.

In this week's issue:

AT&T "WORKING ON RPG II ENVIRONMENT UNDER UNIX"

Ever since IBM set the standard for small business computing with the System 3 and the Report Program Generator language - and then was tardy in evolving the machine to keep up with the trend away from batch and towards transaction processing, the enormous base of applications written in RPG II has been an irresistible lure to computer companies wanting to build a big new user base in short order. In the 1970s, ICL with 2903 and Sperry with the 90/30 were the most successful in exploiting IBM's weaknesses, and now, according to **Computer Systems News**, AT&T is hoping to pull the same trick with the 3B. The paper hears that its solution will be not only RPG II for the 3B line, but also most likely an emulation of the System 36 SSP operating environment to run under Unix on the 3Bs. Word is that the effort will come to fruition in the third quarter of 1986.

SPERRY'S UNIX RANGE REPLACES PLANNED DESKTOP 1100

Journalists and analysts love it when major computer companies reveal their product development plans for the next several years, but the open door policy can cause undeserved problems for companies which practice it. Development projects can go awry, markets change, and subsequent developments can make inappropriate things that were planned. Last year, Sperry Corp went into remarkable detail on all its plans for the 1100 mainframe line and, not surprisingly, some of those plans have had to be adjusted in the light of experience. In particular, the company has decided to abandon its planned Orion desk-top 1100 after building 20 prototypes on the grounds that its Series 5000 family of Unix machines fill the bill more effectively. However the same six chip set which would have been used in the Orion is going into several other models in the 0.8 to 3 MIPS performance range, and an IBM 4300-class multiprocessor code-named Swift at under $100,000 is due for launch next summer with volume ships later in the year. A four-processor Swift will deliver 3.7 MIPS, so the 3.6 MIPS Coyote is killed. More dramatically, the company has discovered that it can build tightly-coupled multiprocessors with many more CPUs than its present usual maximum of four, and is now thinking in terms of eight to 12 CPUs on a single bus. As a result, it will not now need to build the Phoenix, which was to have been a loosely-coupled multiprocessor delivering 5 MIPS.

SYSTEMS & TELECOMS ADDS UNIX BACKUP, SECURITY SOFTWARE

Systems and Telecoms Ltd, specialising in software for Unix and the IBM VM mainframe operating system, has come up with two products designed to address the security and backup problems not covered by Unix. Ubackup supports orderly schedules of backups to tape or floppy and Burroughs looks set to be one of the first customers, for its XE550 version of Convergent Technologies' Megaframe; Systems and Telecoms was showing the product on the Burroughs stand at Compec.
The Reading, Berkshire developer has also announced Usecure describing it as a Unix system security manager. Ubackup operates as a standard Unix application and requires no modification to the operating system kernel and requires little operator intervention once the scope of a dump environment has been defined, full or incremental dumps and restores can be performed automatically on a scheduled basis or selectively under operator control. Usecure facilities are accessed via menu screens so the operator need not be proficient with the intricacies of Unix - users and their passwords, file access permissions and user group definitions can be examined and changed and a complete audit trail is produced of all changes made to the system. The company offers Ubackup and Usecure for a range of Unix machines including AT&T, IBM, Altos and DEC. Ubackup is from £1,760 for 1-8 users to £7,350 for 64+ users; Usecure is from £390 for 1-8 users to £1,620 for 64+ users.

CORVUS ACQUIRES APPLIED INTELLIGENCE

Corvus Systems has acquired Applied Intelligence, the Mountain View developer of the PC/NOS networking software, and describing PC/NOS as "the next generation" of LAN software plans to incorporate it into its current and future Omninet line. Corvus also announced an exclusive agreement to market Novell's Netware/0 software for Omninet, offering it as an alternative to the Corvus Constellation software, and an Omninet interface for Apple's Macintosh. The "message-based" PC/NOS network operating system is claimed to convert networks into a "multi-processor/shared resource system", but no details yet of when and on which products it will be implemented. The adoption of Netware/0 provides file and record locking using a shared server.

LRT PLANS DECEMBER LAUNCH FOR ETHERNET MONITOR

Logic Replacement Technology, the Sintrom subsidiary responsible for the EtherSeries of 68010 networked Unix workstations, is planning a December launch of an Ethernet monitor and network debugging tool, based on its Etheruser workstation and costing under £5,000. At the Compec exhibition at Olympia this week, the Reading based company announced bigger disks for the Etheruser; with 125Mb disk a workstation is around £9,000, with 300Mb SMD drive the price is £12,000-£15,000. LRT has also developed software to interface to British Telecom's Kilostream leased line service. The company said that the link can be used to connect remote Ethernetworks using Kilostream; it requires a dedicated 68010 station on each network, costing about £4,600 each. Companies already offering Ethernet monitors include Excelan and Edinburgh company Spider Systems, which borrowed an Etheruser at Compec to show off its Spiderport terminal concentrator.

SWEDISH UNISOFT DOES IBM C COMPILERS WITH "UNIX-LIKE" LIBRARIES

Unisoft AB, of Gothenburg in Sweden, no relation to the US developer of Uniplus+ but the distributor for Whitesmiths C compilers, has started taking on the job of porting the compiler to new architectures; following the earlier development of C/370 for IBM mainframes, the Swedish company has started work on a compiler for the IBM System/36. Unisoft tells us that the compiler will be based on Whitesmiths Release 3.0 and will conform closely to the emerging ANSI C standard. Early versions are due February 1986, with full release in June 1986; Unisoft says that Multimate, which Ashton Tate recntly agreed to acquire for $19m and which is committed to producing System/36 and /370 versions of its word processor, is planning to use the compiler. The System/370 C compiler runs under MVS, OS/VS1 or VM/CMS; it comes with libraries presenting a "Unix-like" interface to programs and providing optional access to IBM-specific functions, and thus is designed to ease the porting of existing programs to the IBM environment. There are also cross compilers for 8086, 8080, 68000 and 32016.

BLEASDALE REPLACES 680A WITH EXPANDABLE CENTURION

Bleasdale Computer Systems has replaced its low end 680A with the Centurion, a 68010-based six user system coming in desktop, rack-mountable or floorstanding unit. The machine, which costs £9950 end user price for a basic configuration with 10MHz 68010, 1Mb memory, 35Mb disk and 1Mb floppy, can be expanded using the six multibus slots to take input-out processors, another 2Mb memory or Ethernet controllers. Meanwhile marketing manager Mike King has left the company to join Sperry; no comment from Bleasdale.

AT&T MOVES INTO IBM 3270 MARKET WITH CONTROLLER TO ATTACH TO IBM, UNIX SYSTEMS

AT&T has announced the expected 3274-compatible cluster controller which can handle both synchronous communications - IBM - and asynchronous communications to Unix systems. The basis of the 6500 Multifunction Communications System, the 6544 cluster controller, provides 3270 emulation for 16 terminals to a single IBM host and is available now for $7,880; an upgrade to support SNA 3270 is due in February 1986 at no extra charge. The 6544 can be expanded to access up to four hosts and handle up to 32 devices; a "multi-host, multi-tasking" cluster with eight mono multi-tasking terminals, six colour terminals and two printers is $58,620. Also due next year is a 6500 microcomputer, designed to provide a desktop MS-DOS machine with 3270 emulation.

MS ADDS RM COBOL C-ISAM INTERFACE

Having produced several dialects of Basic to C translator, MS Associates of Bourne End, Bucks has come up with DB-CGEN which converts RM-Cobol programs to interface with the file manger C-ISAM. DB-CGEN was produced to fulfill a contract from an undisclosed customer using RM-Cobol on a Convergent Technologies Megaframe that needed record locking facilities, interface to database and improved speed times with RM-Cobol. MS is now looking for contracts to produce a full Cobol to C translator; it justifies the need for a Cobol to C translator by the portability of C and by C being the fastest language under Unix. MS is working on the documentation for DB-CGEN at the moment and estimate that it should be ready for release to end users and distributors within three to four weeks. DB-CGEN costs £2,500 for the conversion package, with an additional £2,000 if source code to the support functions is required.

XEROX SET WITH NEW LAN SUBSIDIARY

Xerox Corp has won more praise than business from its pioneering work on Ethernet, but the company is hoping to do rather better with a derivative of Ethernet - and it plans to form a new subsidiary to market it. The new network, called AstraNet, will consist of a star configuration of terminal computers around a concentrator, and concentrators will be linked together to create a single local area network - a concept very similar to what IBM has in mind for its Token-Ring Network. The connection medium will be fibre optic cable and copper twisted pairs, and the company formed to sell it will be called Astra Communications Inc.

BULL GROOMS UNIX SYSTEMS FOR INDUSTRIAL APPLICATIONS

Bull of France has announced a swathe of enhancements for its industrial and Unix-based technical systems and is promising the MAP protocols to back its aim of building the systems into industrial networks which will also link in Bull micros and programmable controllers. The new developments are for the SPS 9 - which are the Ridge Computers RISC Unix machines built under licence, the SPS 7 multi-68000 Unix system and the SPS 5 industrial mini inherited as the Solar from SEMS; besides the promise of MAP - but no release date - for all three, Bull is developing a version of Unix System V for the SPS 5, but again no release date. Bull says it is now manufacturing the SPS 9 itself and as a result has been able to cut prices 25-35%; it has also expanded the range from two to six models, introducing the enhanced CPU, claimed to improve floating point performance by up to 100%, announced by Ridge in July. The range now includes an entry level SPS 9/30 workstation with 1000 by 800 mono screen, 4Mb-8Mb memory, 28Mb disk, two serial lines and Ethernet for FF 380,000. Release 3.3 of the ROS System V operating system brings in optimising C and Pascal compilers and the Le-Lisp environment developed by INRIA and already offered on the SPS 7. New communications for the SPS 5 mini include the JBUS industrial local area network, the Kermit file transfer and terminal emulation software, a synchronous link with DPS 7 mainframes and a high speed DR11W link to SPS 7, SPS 9 or other machines. Bull has built up a catalogue of 60 Unix applications for the SPS 7 and SPS 9.

UPGRADES PLANNED FOR ICL DENMARK'S EDUCATIONAL COMET

ICL Denmark, came up with its own 32016-based Unix machine for the educational market and claims to have sold 130-140 in less than a year; with that initial success, the machine is being introduced into Norway and Sweden and a series of upgrades are planned including NatSemi's new 32332 processor. The machine, the Comet 32, is offered in response to demand from universities and educational establishments needing a more powerful system than ICL Denmark's Z80-based machines. The Comet 32 currently runs the Genix version of Berkeley 4.1, ported by Enea Data of Sweden; ICL has not yet decided wether to upgrade to Berkeley 4.2 or System V.

CONVERGENT WANTS 40% OF BARON

As its first step in a plan to make strategic alliances with companies in vertical applications markets, Convergent Technologies has agreement in principle to acquire 40% of Baron Data Systems for $14.6m. The company specialises in transcription systems for court reporters, and reported net profits of $1.5m on turnover of $17.9m in the year to March 1985. Convergent will pay $10.50 a share for 1.39m new shares and agree not to raise its stake above 40% for the next three years.

TORCH, PLANNING CAD/CAM STATION, WILL GO PUBLIC IF TRIPLE X TAKES OFF

Torch Computers Ltd of Cambridge, which last month launched its fierce little low-cost 68010-based Triple X Unix machine, is looking to diversify its marketing both by sector and internationally. At present, Torch sells mainly to technical and sub-technical users although it is expanding its commercial sales. Amongst its best reference customers are the RAF, the British Army, Cambridge University, the Medical Research Council, the Department of Agriculture, Food and Fisheries and The London Hospital. Torch is looking overseas, where current foreign sales are negligible, and believes it is close to signing joint marketing agreements with "several multinationals and PTTs". Managing Director Patrick Pakenshaw-Walsh describes relations with British Telecom as "very good" and is not particularly worried by Telecom's interest in manufacturing Bleasdale machines. He expects to make an announcement about a joint venture with Telecom in the not too distant future. Also to come is a CAD/CAM workstation early in 1986 and, if Triple X is even moderately successful, a public flotation In the year to June, Torch turned over just under £5m and is looking for a steady increase during the current fiscal year, with the full impact of Triple X to come in 1986-1987. Since December last year, Torch has had no connection with fellow Cambridge company Acorn, although it did turn down an acquisition approach from the faltering home computer maker in January this year.

ISOTRON TAPS SWEDISH DEVELOPMENT, BRITISH DESIGN FOR ELEGANT 68010 BOX

One of the classier looking exhibits at the recent Scandinavian Unix show was an elegant looking box from Isotron, a US company headquartered in Fairfield, Connecticut and backed by Swedish investors. Isotron went to its Swedish subsidiary, which is purely a development and consultancy company for the development of the system. The machine, going out under the Ohio Scientific name as the OSI 720, runs Uniplus+, ported by Unisoft, on a 68010 CPU but the company has also put considerable power into peripheral processors for terminals and disks. A 68000 with 256Kb RAM handles the disk input-output, a 68008 with 128k or 256Kb handles character input-output and supports 14 serial ports, two synchronous/async ports and Centronic compatible printer port. The VMEbus system has from 2Mb to 16Mb no wait state memory, from 50Mb disk upwards, 5.25" IBM-format floppy and optional tape cartridge. Standard software includes Uniplex II and Mimer, and Ethernet is available. The machine's good looks are due to British designer Richard Hamilton, best known for his prominence in the pop art of the 1960s. A 68020 upgrade is in the works. Isotron's other machines include the OSI 710, also based on 68000 family CPU; the main differences introduced with the 720 are the standard VMEbus and the intensive use of peripheral processors. A third machine, the 712, is due for launch at Comdex/Fall. Isotron also has eight-bit systems including multiprocessor CP/M hardware. Isotron is looking for UK and European distributors.

UNIXSYS ESTABLISHES US, SWEDISH SUBSIDIARIES

Unixsys, the French manufacturer of Unix systems based round technology from Onyx, Plexus and Computer Consoles, is spreading further afield with the establishment of sales subsidiaries in Wichita, Kansas and in Vallingby, Sweden. The Swedish company, formed by employees from Unixsys' previous distributor Microtech - from which it inherited five sites - and 52% owned by Unixsys in France, is offering the complete Unixsys NX range including the NX 32 VX, based on the Computer Consoles Power$_6$ CPU with the OfficePower software. The company hopes to produce a Swedish version of the OfficePower software.

INTERCON OFFERS £250 GRAPHICS PACK FOR STANDARD ASCII TERMINALS

Intercon Computer Services, London based developer of the B-Frame suite of business software, has developed a low cost business graphics package for ordinary colour or mono ASCII terminals; B-Graph accepts input either from the screen or from ASCII files, includes help, editing, and rescaling facilities. Intercon says that the fact that B-Graph can use ordinary terminals seems to have generated an unexpected level of interest; so far the package has been ported to the AT&T/Olivetti 3B2 and Plessey Mantra and versions for the IBM Personal AT under Xenix, Zilog System 8000 and Altos Xenix range are planned. End user price is a mere £250 including manual and 90 day warranty; a demo disk and manual is £50.

MOTOROLA UK OFFERS COMMS KIT TO ITS COMPUTER RESELLERS

Motorola Information Systems UK is throwing open its full range of Codex data communications products to its Value Added Resellers in what it believes is the first instance where resellers have been offered the opportunity to combine computer and communications equipment from one company. The plan is to enable system integrators to provide more complete solutions to small and medium sized installations. The company, based in Wallington, Surrey over here, will be offering the communications kit to remarketers offering the company's own 68000-based 2000 machines and its 6000 version of Convergent's Megaframe. Equipment offered will provide access to Motorola processors from single terminals on remote sites via the telephone system; access to Motorola processors from a group of terminals on a remote site over a single leased line; access to Motorola processors from remote terminals via an X25 network; communication between a Motorola processor and a remote IBM mainframe; and switching and contention for terminals accessing a Motorola processor. The equipment covered includes the EM 3/12 switchable modem at £300 end user price; the CX 2996 modem at £3,000 per pair; the CX 2222 modem at £930; the EPS 8 circuit at £800 per pair; the 625 Packet Assembler-Disassembler at £2,800 for an eight channel version; and the LSI96/V.29 data modem at £4,000 per pair. The first phase of the programme will be deliverable by the VARs from January 1986.

PYRAMID HINTS AT NEW LOW END MODEL, CMOS CPU

Pyramid Technology president David Crockett, in Europe to whip up enthusiasm from European investors for the company's proposed public offering (UX No 52) - he hopes 10-15% of the cash will come from outside the US - took time out for a brief update on Pyramid's progress last week. The company, in a strong position with its 90x and 98x VAXkillers, plans to introduce a low-end model in addition to a new top end machine next year; the low end system will come in at not much less than $75,000, he indicated. Further out, the company "has done a great deal of design work" with one of the leading US foundries and has found that "quite remarkable" improvements in performance of up to five times are possibile with an integrated CMOS implementation of the 90x CPU, currently implemented in TTL; Crockett points out that the simple RISC CPU with heavy emphasis on registers lends itself to integration. Currently around one third of the company's research and development is in software; over time Crockett expects that to rise to around two thirds, with one area of emphasis being office automation; the OEM and technology agreement under which Nixdorf sells the Pyramid minis as the Targon/35 is also likely to lead to Pyramid adopting the office automation suite currently being converted for Nixdorf's Unix line. Pyramid in the UK has announced a programme of discounts - - 30% on hardware and 75% on software - and incentives for educational users. Pyramid is also planning to fund a collaborative project with an educational establishment specialising in communications to develop communications products for the Pyramid machines; it says that it is committed to making the Coloured Book protocols, needed for sales to universities, available on top of X25 and Ethernet.

SHA HAS DIBOL TO C TRANSLATOR

Yet another Unix Dibol lookalike has emerged in the US; this one translates applications written in DEC's business programming language into C source code and comes from SHA Computers Inc of Saratoga Springs, New York. SHA notes that the objective is not to replace the Dibol code directly but to provide a C source which can then be tinkered with for efficiency. The product, Dibolix, has been implemented on NCR Towers and costs $2495 for the translator, $795 for a "run-time" licence with each application resold. SHA, formerly a DEC OEM, now specialises in some rather elegant tape and disk add-ons for the Tower.

MAP FORMS UNIX COMPANY

MAP Computer Systems have formed a new company - Evolution Software, based at MAP's head office in Greater Manchester, to promote its Evolution software - accountancy software written specifically for Unix. The packages available include nominal, sales and purchase ledger, sales invoicing, stock control, sales order processing and payroll. Evolution is priced at £850 per package for multi-user systems and £450 for single-user.

ZYMOS OFFERS VLSI CHIP SET FOR IBM AT-ALIKE BUILDERS

Zymos Corp of Sunnyvale, California will begin selling a three-chip set in the first quarter of 1986, which encompasses all the support chips for the IBM Personal, XT and AT motherboards in a single CMOS chip set. POACH technology - for PC On A Chip, was first demonstrated in Sunnyvale at the end of June to show the capability of the new Zymos two micron CHMOS 3 process - and its potential in terms of cost reduction and the possibility of giving AT compatibility to any other machine. Zymos together with its design centres in Frankfurt and Stockholm and its sole UK distributor Chiptech Ltd of Welwyn Garden City, have received a 'barrage' of enquiries and requests that the chips be made available, and Zymos has refined the designs into a product. POACH 1 and POACH 2 work together to provide all AT peripheral circuits which surround the 80286 processor in a space of four square inches. To do this, Zymos has eliminated the SSI and MSI circuitry from its original design, integrating only the 12 LSI components onto its POACH 1 and 2 two chip set, cutting the chip count to about 78, mainly "glue logic". The third chip - POACH 3 provides the major peripheral functions of the IBM Personal or XT motherboards. The chip set is implemented with cells from the Zymos two-micron CMOS Structured Block Silicon library. The parts integrated include the 8259 Programmable Interrupt Controller; 8237 Programmable DMA Controller; 8254 Programmable Interval Timer; and the 8255 Programmable Peripheral Interface. The market for the standard cell is seen as the fastest growing segment in the semiconductor industry, and Zymos and Chiptech anticipate it doubling in the next couple of years. The companies are currently talking to major OEMs and say that the only company which hasn't made enquiries is Sinclair Research! Zymos was hoping to be able to charge $50 a set but fears that in view of a fast-changing market, the price will have to be dropped. A competitor, Chips & Technology has implemented a five chip set, incorporating three bipolar gate arrays and two MOS gate arrays, which corresponds to the POACH 1 and 2. The next move for Zymos will be in 8"x 8" multiplier for digital signal processing in the design of control logic from a single chip. The company claims to have had the best bookings rate in its history over the last six months of about $15m, despite its third quarter loss of $2.8m. It sees 1986, when its new standard cells will be available, as a pivotal year. Having scheduled a shutdown of its manufacturing facility for Thanksgiving, it has now decided to work through the period and for the first time ever, will not close at Christmas and New Year.

SIGNETICS UNVEILS INTEGRATED 68000

In an unexpected addition to the 68000 family of central processor chips, Signetics and its Dutch parent, NV Philips this week unveiled the first highly integrated version of the 68000. The new part, called the SCC68070 and clocked at 10MHz, integrates memory management unit, direct memory access controller, serial communications bus with RS232C interface, and three counter-timers.

Honeywell has quietly been selling its UCOS implementation of Unix System III on its Level 6 minicomputers in the US since April, according to **Electronic News** - it has sold "under 100" copies and is now hard at work bringing it up to full System V level with Berkeley 4.2 extensions. UCOS ranges in price from $895 for two users to $7,500 for 32 users.

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The ubiquitous AMD 2901 4-bit bit-slice microprocessor is to be fabricated in Gallium Arsenide technology following an agreement between **Advanced Micro Devices**, Sunnyvale, and **Vitesse Electronics** of Camarillo, California. Vitesse is planning samples from 3" wafers by mid-1986 and volume later in the year. AMD will get evaluation devices and information on the high-speed GaAs, and sees the deal as a cheap way of comparing GaAs and silicon devices.

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ICL Holland has picked up an order for six Perqs from **Badger BV** of The Hague; the £150,000 order is the initial phase of a planned network of some 20 Perqs networked with each other and with IBM mainframes, and includes the Eagle drafting software from **Carbs Ltd**; Badger designs and builds refineries for the petro chemical industry.

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National Semiconductor has a new board for evaluation of the 32000 series microprocessors, which comes with the complete CPU cluster; the DB32000 includes 32032/32016/32008 CPU, 32081 floating point processor, 32082 MMU, 32202 interrupt and 32201 timing control units, 256Kb-1Mb RAM, up to 256Kb EPROM, two serial ports, and 24 programmable parallel lines. It can be used in either standalone mode or with IBM Personal, VAX/VMS or Unix hosts.

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Bradford software house **Abtex** has announced version 6 of the Pertmaster project management package for MS-DOS and Xenix; it includes enhancements to the user interface and a zoom feature allowing a graphic method of highlighting and editing parts of the project plan. Abtex claims 10,000 sales worldwide for Pertmaster, which costs from £650 to £850.

Minigrams

Convergent Technologies is reportedly well down the line in developing and building a file server for Macintosh under contract from **Apple Computer.**

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James Pompa, formerly senior vice-president for marketing at **Honeywell Information Systems** is to be president and chief operating officer of **Encore Computer Corp**, succeeding Ken Fisher, who remains chairman and chief executive.

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Two **Apollo Computer** co-founders, manufacturing vice-president Robert Antonuccio and sales and services general manager Barry Fidelman are expected to leave the company after resigning their posts: Robert Puffer, who left **Encore Computer** some months ago, gets the manufacturing job, while Apollo president and chief executive Thomas Vanderslice takes on the sales and services job as well.

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Wang (UK) Ltd has now announced the 8MHz 80286-based Advanced Professional Computer, which supports up to four users under Xenix System III or IN/ix System V, and users of the existing Wang Professional can field upgrade by exchanging processor boards at £1,565 for the processor board with 512Kb memory and MS-DOS; a machine with 512Kb CPU, 1.2Mb floppy, 20Mb Winchester, keyboard, monitor and eight slots is £5,080; memory goes to 2Mb and disk capacity to 67Mb, there is a 43Mb tape streamer, and X25, 3276 SNA/SDLC and 2780 comms are supported.

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Honeywell has picked up the first UK sale of its X-Superteam supermicro from instrument maker Tintometer of Salisbury, which is taking two systems from software house and VAR **TIBS Ltd** of Marlborough, for office automation, manufacturing and distribution applications. The Uniplus+ system displaces a **MAI Basic Four** mini.

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Fortune Systems Corp has reported a third quarter net loss of $4.4m, up from a loss last time of $3.7m, on turnover down 51.2% at $8.2m; the nine-month net loss was $7.9m, up from a loss last time of $7.0m, on turnover down 37.5% at $27.8m.

At Compec this week **Micro Focus** announced a new version of Sourcewriter, its Cobol source code generator which will be the first to be available under Unix and includes multi-user facilities for record locking and recovery.

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Sphinx Ltd in Maidenhead has announced a catalogue of software for the IBM Personal AT under Xenix 3; products include Informix-SQL, File-it!/SQL and C-Isam from Relational Database Systems, Lyrix, Tactician spreadsheet and Grafsman business graphics, Connectables communications software, and the cEnglish dBase II lookalike.

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Troubled **Alpha Micro**, building up a range of Unix systems to match the machines running the proprietary AMOS, says it has completed the series with the new AM-1100X, an expanded version of the previously announced AM-1100E. It has 68010 CPU with 1Mb memory running the Unimos version of System V; with 55Mb disk, three ports - expandable to 11 - and 40Mb streamer it costs from £13,721.

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Deverill Computer Service, a Dorset computer dealer, is the latest to sign up for the **AT&T/Olivetti** 3B line; it has already been selling the Olivetti M24.

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Preparing for its prospective OEMs to begin shipping systems, **Flexible Computer** of Dallas, Texas has come up with two compact versions of its multi-32032 Flex/32 machines in 19-inch card cages; the Series 600 takes up to four CPUs and costs under $50,000 for a two CPU system in OEM quantities, and can be upgraded to the Series 1200 with up to eight CPUs.

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The board of **Altos Computer Systems** has approved the company buying back up to 2m of the 14m shares it has outstanding.

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Tolerant Systems, developing machines to run Unix on National Semiconductor 32000 based CPUs in San Jose, California, is the latest to sign up up for a source licence to the **Verdix** Ada Language Development System.

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UNIGRAM/X

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AT&T STARTS TO SHIP COMMERCIAL C++ TRANSLATOR

AT&T is starting to ship a commercial release of C++, billed as "by far the biggest development of the C language", and expects it to take over from C in most Unix sites. Called the **C++ Translator,** it comes in two parts: the **cfront** preprocessor which takes C++ code and outputs standard C code, and the **C** shell script which feeds C++ programs first through cfront and then through a standard C compiler.The translator has been out on beta teat for the past year and the commercial release - which has "several hundred bugs fixed" according to AT&T - costs only $2,000 for a source licence plus another $2,000 for the right to sublicence any number of binary copies for "small royalty payments". So manufacturers and oems should be able to offer it with their machines for almost no extra cost, while universities can have the source on all their machines for a single $300 payment. Mark Rafter from the beta test site at Warwick University claims that C++ is "substantially different, not just C with a few bits added. You have to rethink the way you program in C to understand C++, but the payoffs are enormous. It is the same order of improvement over C as C is over Assembler." Its main features are type checking of function parameters, automatic type conversion, mechanisms to create new data structures and data types, and facilities for data abstraction. The language was developed at Bell Labs by Bjarne Stroustrup (Unigram Nos 18&19) who claimed the translator was already in great demand and that AT&T plannned to have 1,000 installed by the end of the year. He also noted that while a translator producing C as an intermediate code which is then compiled is slow, it produces fast, efficient C code and avoids the nasty portability problems that a separate code generator would have as it will not only run on any Unix system but but also on any system with a standard C compiler. Warwick University already uses the language to teach couses in data abstraction and The Instruction Set are offering commercial one and five-day courses for programmers.

APOLLO FOUNDER PODUSKA QUITS TO FORM RELATED FIRM

Following the resignation of their posts by two original members of the company's top management, Barry Fidelman and Robert Antonuccio (CI No 311) Apollo Computer chairman and founder William Poduska has re-signed to form a new company - but he is not moving far from his original creation. His new company will build faster, more expensive engineering workstations with better graphics than those made by Apollo, for use in Apollo Domain networks - and they may be manufactured on behalf of the new company by Apollo. The stations, due in 15 months, are said to be based on a discontinued Apollo development. At a joint conference, William Poduska, who helped found Prime in the early 1970s, said he needed the challenge of a new start-up. Apollo said it might also invest in the unnamed company and take an option to acquire it when it decided to go public; it does not yet have a business plan. Thomas Vanderslice, president and chief executive of Apollo, is now also chairman of the Chelmsford, Massachusetts company.

In this week's issue:
Page 2; Systems Reliability using Unix to escape from BT
Page 3; An exciting new chip from **Thomson**of France; $35 million to **Alliant**; and a new micro pdp-11
Page 4;Fujitsuanswers IBM's Sierra, adds Unix thrust; **Rexon** takes System V from Santa Cruz
Page 5;AT&T has yet another release of System V; **Ferranti** uncovers Unimax and readies for January delivery

CONTROL DATA SEEKS TO SELL SYSTIME's DEC VAX BUSINESS

Negotiations are underway for Control Data's Systime Computers to sell its DEC-related assets, which involve the integration of large-scale business systems around DEC VAX processor boards. The news comes with the appointment of Peter Barron as managing director, who moves up from the post of head of manufacturing, and succeeds Rod Attwooll, who is leaving 'to pursue his own business interests'. Systime also plans to sell its ritzy Millshaw Park headquarters to cut costs, and will move to new premises in Leeds. It will now concentrate its efforts on its S-series microcomputers and software, which are designed and manufactured in the UK, and intends to put more emphasis on developing "tailored" software solutions, and marketing fault-tolerant Unix machines from Parallel Computers. Systime has restated its commitment to Unix, with products like its fourth generation Utopia package. No-one was immedi-ately able to say what proportion of Systime's business is represented by its VAX machines, but it must be at least half the annual £40m or so.

UNIX THE KEY TO RELEASING SYSTEMS RELIABILITY FROM THE TELECOM TRAP

We have looked before at the way in which Systems Reliability Plc has built itself a successful business out of telephone call monitoring equipment, but highlighted the threat to the Luton, Bedfordshire company from the giant with which it must co-exist. Systems Reliability's good profit margins and the fact that Telecom recognises that call management is a business with a bright future will surely entice the now thrusting telephone megalith to become an even more aggressive player?
One way for British Telecom to increase its presence and level of profits is to develop and sell its own call management system. There is every reason to believe that this will happen in the not too distant future.
Since September, British Telecom has been manufacturing a powerful 68010-based supermicro computer called the Sentinel, under licence from Over The Counter-traded Bleasdale Computer Systems. Initially this computer, which runs under the control of the Unix operating system, will be for Telecom's internal use. But British Telecom has every intention, it seems, eventually to sell this computer on the open market. One of the applications which will be run on the Sentinel is likely to be a call management system. To this end, development work is being carried out at Telecom's Old Street offices. Telecom will either develop its own software, or could buy the license to existing software.

Orbi-Tel

Telecom could acquire the exclusive rights for call management software from CCL, a subsidiary of Norton Telecommunications, which already supplies software this software to Telecom. It is therefore not surprising that in Systems Reliability's half year results the company emphasised that the importance of British Telecom to business is being reduced.
If British Telecom decides to enter the market on the back of its Sentinel supermicro it will probably compete with Systems Reliability's new top of the range system called Orbi-Tel. Systems Reliability's Anthony Evans can not hide his enthusiasm for this Orbi-Tel system, as he sees it eventually opening up new markets. Orbi-Tel also runs under Unix and will be aimed at large corporations who need to control a network of PABXs. The system comes with a database, which means in that in theory Orbi-Tel could be used for producing reports on more than telephone calls, it could be used for data management also. With PABXs now having the ability to act as switches for computer data as well as speech, this is an important possibility. And one of which Telecom is doubtlessly also aware. The database also gives Orbi-Tel greater flexibility, which can allow it to tailored for a users specific requirements, a major consideration when selling to big accounts.

Case

Another company which could be attracted to this kind of system would be Case, which has recently launched a network management system, for data only. Called the Series 5000 it has so far only been launched in the US. Like Orbi-Tel, it runs under the Unix operating system. A key benefit of Unix is the comparative portability of applications written under it, and Evans acknowledges that use of Unix opens up the possibility of selling its call management software on other manufacturers' hardware. This could be attractive to companies like Case and ICL which could then incorporate Orbi-Tel into their own systems. The other possibility opened up by this software portability of the Orbi-Tel system is the opportunity it offers for breaking into the US market. Over the last year the company has had a consultant looking at the US tariff structure and Systems Reliability is seriously considering a move. This though, will not be under its own steam. Evans would prefer to do this through another party which would sell Orbi-Tel. Orbi-Tel's software portability makes this easier to achieve, the software could be licensed to European or US manufucturers for incorporation in with their own hardware.
In the near term the biggest impact on Systems Reliability's profit performance will be its plans for Continental Europe. The company has been firmly established in Belgium for some years but is now moving into other countries. Wholly-owned subsidiaries have been established in France and Portugal. Earlier this year Systems Reliability also signed a distribution agreement with Firndat in Germany which will give it nationwide distribution. The German market is extremely under developed as far as call management goes so Systems Reliability has big hopes from this arrangement. Systems Reliability has also notched up a number of successes in Holland, where the Dutch PTT has ordered a couple of hundred systems. Penetration in Scandinavia has also been achieved, and Ericsson is an important customer here.

European sales

For the current year Europe is likely to account for around 10% of turnover compared to 6.5% last year. With the decline in the South African Rand and the increasing competitive pressure from British Telecom, European sales will become increasingly important.
On the management side, Systems Reliability has recently created a two-tier management structure. A management board has been created below the main board and reports every week. This should give the directors more time to consider strategic issues. Also a new marketing manager, who has just joined from British Telecom Merlin. Systems Reliability appears to be one of the better run publicly quoted high technology companies, and one which should be able to cope with changes in its market. Europe and the new Orbi-Tel system open up excellent chances for future growth and profitability. The company's maintenance operation is also a good cash generator. For the next financial year the company should be capable of achieving pre-tax profits of £3.5m on a turnover of £15m. It looks like a good hold.

● Reprinted from Investment Computergram.

THOMSON LIFTS THE VEIL ON ITS 32-BIT MICROPROCESSOR

One of the most intriguing little items we've seen this month was that Thomson SA of France had invested $15m in the design of a new generation microprocessor and was seeking help from GEC, Philips and Siemens to complete design to production - what was it that the company had under wraps? Needless to say, **Electronics** magazine has tracked the project down, and it turns out to be an object-oriented 32-bit chip set with 64-bit bus and a monster 70-bit virtual address, which starts out where the ill-fated Intel iAPX-432 left off. Called the SCQM - and what those initials stand for is Thomson's little secret - the set is being designed for what Thomson sees as a host of future applications for which present architectures will be inadequate. Thomson talks of applications which will demand enormous memory to carry highly structured information such as complete models stored in memory. Obvious applications are speech recognition and machine translation, and Thomson also points to air traffic control, complex computer-aided design, distributed industrial control systems and the whole world of artificial intelligence. Predictably, the basic processing element is a Reduced Instruction Set Computer, and equally predictably, the operating system will combine Unix and Ada run-time support - Ada was written for object-oriented architectures, and, like the SCQM, conceived in France. The seven chip set consists of the 32-bit RISC CPU with 64-bit bus, be-ing designed to execute the equivalent of 30m complex 370-type instructions per second; mass memory controller; 8Kbyte cache memory module; cache memory directory; bus controller; bus arbiter; main memory controller and interface circuit to link the SCQM to a peripheral bus - initially the VMEbus will be used. These basic processing elements will be clustered into nodes of from one to 16 SCQMs, each cluster capable of addressing 4Gb of system memory. Clusters will be Ethernetworked to-gether. Ethernet would limit the number of interconnected nodes to betwen 30 and 100, but fibre optic networking would allow up to 1,000. The most striking feature of the SCQM is the enormous virtual memory address space: 70 bits gives a theoretical 10 million terabytes - the IBM System 38 has an address range of 256 terabytes, the 3090 of just 2 gigabytes. Associative registers in the CPU translate the 70-bit virtual address into 32-bit physical addresses, hence the maximum real memory of 4Gb. Within the virtual address space, data is stored in the form of objects accessible only by a key or token held by the creator of the object, who can make it available to others by putting it into a library. Thomson is presently working in 1.2 micron CMOS for the SCQM, and plans to move to 0.8 microns for production versions, which are not likely to appear much before 1990. A little disappointingly, the first member of the set will be the cache memory, prototypes of which are set for next year - but the 64K-bit static will require 650,000 transistors.

ALLIANT LANDS $35M APOLLO CONTRACT

Minisupercomputer start-up Alliant Computer Systems Corp has got its FX-1 and expandable FX-8 64-bit machines off to a fabulous start with an OEM contract from Apollo Computer of Chelmsford, Massachusetts which it estimates will be worth $35m over three years. Apollo has been looking for a top-end compute-intensive server for its Domain networked workstation family, and had been considering Elxsi's 64-bit machine among others, but the last word was that the company had abandoned the quest in favour of doing its own machine. Since then, Apollo has been hit by a sharp set-back in its trading conditions, and buying in is a cheaper and quicker option than developing. The Alliant machines consist of 64-bit computational engines and Motorola 68012 interactive processors, and comes with a Fortran compiler which takes unchanged DEC VAX source code and is able to distribute it over an FX-8 complex of processors for execution. The FXs run under Unix and are rated at up to 94Mflops. The privately-held Acton, Massachusetts company was formed by DEC, Data General and Computer-Vision alumni.

DEC REAFFIRMS COMMITMENT TO PDP-11

Digital Equipment Corp called a press conference yesterday to stress that the PDP-11 is not dead - and proved it with introduction of the MicroPDP-11/83. Aimed at commercial and technical, the 11/83 is claimed to support up to 33 users; it has an entry level price of £23,000. At first sight this 16-bit machine may be seen as a direct competitor to the 32-bit MicroVAX II but DEC justifies its existence by saying that the MicroVAX II is for performance-sensitive customers whereas the PDP-11/83 is for price-sensitive customers. The 11/83 is based on the J-11 chip set and a floating point accelerator chip with a new private memory interconnect, allowing dedicated data transfer between CPU and memory; it uses the Q-Bus. A boxed up business system with 2Mb of main memory, two 71Mb Winchesters, a 95Mb tape streamer, RQDX3 controller for four disk drives, 16 serial lines and costs £36,050. The current models in the PDP-11 line are all MicroPDPs and include the 11/23+, the 11/73, the 11/84 and now the 11/83: all the 11/X3 versions use the Q-Bus but the 11/84 uses the higher-per-formance Unibus. The 11/23+ uses the F-11 microprocessor, supports up to six users and is intended as an entry level machine. The 11/73 uses the J-11 chip set, runs at 15MHz, supports up to 12 users and is intended for small departmental usage. The 11/83 has exactly the same architecture as the 11/73 but has been tuned to run at 18MHz. The 11/84 has the same performance level as the 11/83 but uses the Unibus to emphasise DEC's commitment to Unibus products. DEC expects to announce a new cabling system within the next two to three months that will allow a greater number of serial lines to be connected for the full line of PDP-11s. DEC also hinted that the VAX-11/750 will be replaced shortly and that more PDP-11s are on the way.

FUJITSU UNVEILS ANSWER TO SIERRA, STRESSES UNIX

Fujitsu went out of its way to stress support for the Unix operating system - presumably Amdahl Corp's UTS implementation - when it launched its M780 answer to the IBM 3090 Sierra machines at the end of last week. Few details have reached us yet, but the new line comes in six models, with from one to four processors, and Fujitsu claims that the top-end four-CPU M780/40 will offer twice the performance of the IBM 3090/400. First deliveries of the new machines are set for second and third quarter 1987. The machines will use the same underlying technology and architecture as the 5890 models announced by Amdahl last month - but Amdahl is planning to ship its mid-range 5890/300 model in the second quarter of 1986 and the four-processor 5890/400 "early in 1987".

CDC MOVES EUROPEAN HEADQUARTERS TO LONDON FROM MINNEAPOLIS

Despite the decision to sell its Business Products Group to Xidex Corp and thereby drastically reducing the size of its UK operations Control Data is giving its London base a new importance by moving its European headquarters here from Minneapolis. Gil Williams, hired from Schlumberger's Fairchild Camera & Instrument chip shop, takes the new post of European vice-president, reporting to the president of the international division, Tom Roberts. Gil Williams takes responsibility for CDC operations in 16 European countries with annual business over $700m.

REXON TAKES XENIX V FROM SANTA CRUZ FOR 80286 BOX

Rexon Business Machines was so early off the blocks with an 8086 box in the late 1970s that there were no standard operating systems available for the Intel chip, so it had to write its own Recap multi-user operating system. But pioneers too often get left behind by lower performance but more heavily promoted industry standards, and Rexon - whose machines are sold here by Business Computer Systems Plc - is having to fall into line. Its Mod-el 405 machine, based on the 80286, now supports Xenix System V from Santa Cruz Operation, and will run Xenix applications from the IBM Personal AT. Xenix System III was offered on the 405 last year. The Culver City, California company has also come out with a new release of its own Recap operating system, 5.1, which supports file transfers between between the Rexon machine and IBM Personals. The 5.1 release also doubles the number of users supported on the Model 405 to 32. Recap is based on an interpreted Basic compatible with Basic Four Business Basic, but to prevent its customers' applications being ripped off like those of Basic Four have been, the company has built an encryption algorithm into Recap 5.1 which makes it impossible for unauthorised people to list the Basic code, and if the reseller wishes, he can also tie the application to a Rexon machine with a particular serial number so that it will not execute on any other Rexon box.

TETRA WAITS FOR MICROSOFT TO DELIVER NETWORKED TETRAPLAN

Tetra Business Systems has come up with four networked versions of its Tetraplan suite of business software. Tetra, based in High Wycombe, says that it has waited until Microsoft's DOS 3.1 was available before committing to networked versions, because the new release makes applications written for any of the networks supporting DOS 3.1 compatible with the others. The networks supported are Novell's Net/Ware, Torus, MS-Net and Apricot's Point 32.

C.ITOH SHOWS CIT-224 FOR FIRST TIME

Following the dismissal of a DEC lawsuit for patent infringment, C. Itoh was showing the CIT-224 DEC compatible terminal for the first time at Compec: it has 45 programmable function keys, resolution of 800 by 384, supports all European national character sets and has bidirectional printer port. C.Itoh also had the MB500 Meeting Board which allows bar charts, sales forecasts to be drawn with felt pen and produces a hard copy from the image using a thermal printer.

TELI LAUNCHED BY AT&T

AT&T's Bell Labs has unveiled a natural language interface for database information retrieval applications; the Transportable English Language Interface, TELI, was developed on a Symbolics Lisp machine and is designed for portability. It comes from Bell Labs Interactive Systems Research Department, also responsible for such internally used AT&T tools as the Automated Cable Expertise, ACE, expert system, for fault diagnosis in telephone cable systems, and also for speech synthesis research.

DECLINING OEM SALES SPELL LONG HAUL TO RECOVERY FOR MICRO FOCUS

Not much to cheer about for the company that provides the most widely used Cobol compiler under the Unix and many other operating systems, Micro Focus. In the half-time figures from Micro Focus Plc even though losses at £2.8m were a little better than the £3.5m we forecast a couple of weeks back. Although the company is striving to build its direct sales business to large corporate customers, it is still very dependent on its US OEM business, and the fact that this declined by 64% to $1.9m means that the road to recovery will be tougher and longer than the company had hoped earlier in the year. Costs have been cut very substantially in the US, and are down to $900,000 a month against $1.3m this time last year; UK costs are down to £450,000 a month from £550,000 this time last year. Assets with a book value of £1.5m were sold to raise £1.7m, the biggest factor being a sale and leaseback of the computer system at Newbury, Berkshire. However one thing a company selling software products cannot afford to do is allow them to atrophy, and to this end the company has had to spend substantially more on development - £1.8m in the six months to July 30 against £617,000 in the 30 weeks to July 1984. Provisions for doubtful debts amount to £1.0m, mainly reflecting money owed by two US companies in Chapter XI bankruptcy, which are unlikely to be able to pay much of the cash they owe Micro Focus.

AT&TPLAYS THE SYSTEM V NUMBERS GAME

AT&T is about to get tangled up in numbers again with its "transitional" release of System V at the end of the month, designed to ease the move to Release 3.0 when it finally appears in mid-86. Called Release 2.1 Version 1 and based on the AT&T 3B2 Model 400 for the first time, it replaces the Vax-based Release 2.0 Version 2. It has an improved C compiler, mandatory record and file locking, help files, simplified system adminstration, bad block handling,, the file system hardened against system crashes, and the layout of the source files is changed. And for the first time it will be officially supported over here, by Unix Europe. UEL are taking on technical staff and will shortly be offering support contracts in Europe. The source will still be available for the Vax, but the definifive version will be that running on the 3B2s. The improvements to the C compiler on the 3B2 include a 70-fold increase in speed for floating point operations; **slists** which maintains an object file of different versions of the source code, to help the user keep track of changes; **asms** which allows control to escape to Assembly from inside a C program; a symbolic disassembler; and a new link editor that is claimed to be easier to use. AT&T claim that moving to release 2.1 will make it easier to move to V.3 next summer, and "V.3 is the best release yet. We will spend a lot of effort persuading everyone to move to it." It will have streams-based networking (Unigram No 19) and "transparent remote file access in a distributed environment" as well as the Berkeley Network File System that Sun Microsystems have agreed to move to System V. AT&T hope that generic ports will be available for all the major microprocessors within three months' of the release date next June. The chipmakers and "large manufacturers committed to Unix - some of them in Europe" will get a beta test version in the New Year.Software and porting houses will have to do a deal with one of these if they want to see an early version of the release.

EMERGING WRITERS TOWER OVER PCS

Emerging Technology of Boulder, Colorado has a Professional Writers Package running under MS-DOS and Unix which it is gradually porting to different machines - the latest is the NCR Tower Series. The package has been available since February this year but was only available on the IBM PC under MS-DOS and on the AT&T 3B Computers and Unix PC under Unix System V but by the end of the first quarter next year Emerging intend to have the package available on the IBM PC/AT under Xenix. The Professional Writers Package consists of a text editor; a document formatter; a spelling checker; an index generator - all four available from Emerging Technology separately. The package is available for MS-DOS versions at $490 and for Unix versions from $595 to $1700. Emerging Technology has only one distributor in the UK which so far only handles MS-DOS so Emerging Technology is keen to to find outlets for the Unix variety.

AT&T PAYS SALES FORCE TO HELP VARS

AT&T, in an unprecedented move to defuse the conflict between VARs and its direct sales force, is offering its sales force full compensation for referring orders to VARs. The decision follows a successful joint marketing trial, reports **Computer Systems News**; AT&T Information Systems divisional manager Charles Redmond said that it wants to "integrate the efforts of its indirect partners with the direct sales force to create a unified, more capable combination".

INTERGRAPH PADS OUT THE BOTTOM END AND GETS INTO VIDEO

Intergraph (Great Britain) Ltd of Newbury, Berks one of the major CAD/CAM/CAE systems manufacturers showed off its latest additions to its line of interactive computer graphics systems at a seminar in London recently. The additions included a new bottom-end of the range workstation - the Interpro 32, a mid-range processor - the Intergraph 200 and a video projection system. The Interpro 32 is a 32-bit workstation built around the NS32032 and 80186 chips which may either be connected with the Intergraph 200 on Intergraph's Ethernet communications network to act as an intelligent graphics workstation terminal or it can operate as a standalone workstation running programs developed for the Unix System V operating system and as an IBM PC compatible for programs running under PC-DOS. This workstation has been available since the summer but its release was delayed due to teething problems with Natsemi's new 32032 were ironed out and waiting for a standard System V for the chip. The Intergraph 200 is a packaged data processing system built around the Digital Equipment Corporation 32-bit Microvax II microprocessor with specialised sub-processors; the Interbus File Processor; the Communications Processor; the optional Graphics Processor. The Interpro 32 costs £21,600 and the entry level price for the Intergraph 200, £130,000, includes five megabytes of main memory, one 337-megabyte fixed disk drive and a 1600/3200 bpi cache streamer tape drive plus the standard sub-processors for high speed disk searches and Ethernet communications. The video projection screen comes complete with screen, projection system, software and the relevant cables at a price of £27,000.

FERRANTI UNCOVERS UNIMAX FOR NEW YEAR

Ferranti Computer Systems was showing its Argus Unimax at Compec last week which will be generally available by January 2nd next year. The Argus Unimax uses several 68010 processors with up to 15Mb of RAM and the basic configuration comes with 70Mb Winchester disc but additional disc and streamer tape units can be added and may handle up to 16 users. The machine is supplied with the Uniplus+ System V Unix operating system and application software including Rootmap, Rootmap Manager, Rootmap Mail, Rootscreen and Rootspool. An end user price for this machine in its basic configuration, 70Mb of disc, and all software mentioned costs £17,000. Ferranti say that they have a plan covering several years that will mean the introduction of more Unix based systems.

His stake in **Olivetti** represents a rapidly declining proportion of Carlo De Benedetti's rapidly expanding industrial empire: it is now down to 49% and will decline to 30% in the next 12 months - and five years ago it was 90%; his holding in Olivetti is now put at 13.7%.

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Vuman Computer Systems, has a Russian text version of its Vuwriter word processor for personal computers; the Manchester company already has Greek and scientific character set facilities for Vuwriter.

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Wyse Technology has reported second quarter net profits up 79.4% at $2.7m on sales up 85.6% at $31.3m; mid-term net rose 77.7% to $5.2m on sales up 102.4% at $60.8m. Net per share, off 4% to $0.27 in the quarter, rose 6% to $0.56 in the half.

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ComputerVision Corp has reported a third quarter net loss of $20.7m against a profit last time of $4.7m, struck after a loss from discontinued operations of $6.5m, on turnover down 22.9% at $105.7m; the nine month net loss was $59.0m against a profit last time of $26.5m, struck after a loss from discontinued operations of $10.0m and an extraordinary gain of $3.7m, on sales off 17.5% at $323.9m.

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Apollo Computer is writing an interface between its Domain local area network and the **General Motors**-inspired MAP Manufacturing Automation Protocol.

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As we forecast in April RISC architecture specialist **Ridge Computers** of Santa Clara, California has launched its products on the UK market: all Ridge sales in the UK and Ireland will now be controlled from its new offices in Camberley, Surrey, and the Unix workstations will be aimed primarily at OEM customers and at scientific end-users.

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The Mechanical Engineering department of **Brunel University** has bought **Datavision**'s Universe product to allow software to be run on Brunel's Unix based machine.

Minigrams

Software house **Sligos SA** of Paris, France is taking over the Unix activities of **Cerg** and will integrate them with its consultancy and engineering division: it says that it wants build a business selling Unix software products, to develop vertical applications, and to provide consultancy services to users of Unix; as for Cerg, it wants to return to basics and concentrate on its core business of selling **DEC** machines for vertical applications in health care and in business.

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Following shutdown of **Callan Data Systems** earlier this year, founder Dave Callan has reappeared as vice president at **CIE Systems**, the C Itoh company whose products include 68000 Pick and Unix computers: Callan will head a new Image group whose initial developments are a jukebox-type optical disk filing system and a high resolution electrostatic plotter.

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There will be a **/usr/group/UK** Seminar on Current Legal issues at the Bloomsbury Crest Hotel, Coram Street, London starting at 9.30am on December 12th - free to members and non-members may join on the door.

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Wicat Systems of Camberley, Surrey has made its first appointment since Graham Walker was engaged as Dealer Sales Manager: the appointment of J H Associates as its official distributor - this is a departure for **J H Associates** as in the past it has concentrated on consultancy and training - J H Associates will continue to do this but it will also be selling the Wicat Interactive Terminal system with emphasis on compiling computer based audio-visual programs, enabling video presentations by combining video disk, computer graphics and stereo sound - according to Wicat J H Associates intend to angle the traditional Computer Based Training system for the advertising world: Wicat produces general purpose multi-user systems, computer based training systems for industry and government, and eductional systems for schools and home.

Computer Consoles Inc has reorganised its sales force and strategy to expand its indirect distribution channels: CCI's sales organisation is now divided into three regions each headed by a key man within the company - D A Gilmore, R E Masden and W A House.

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Marlow based **Access Technology Ltd**, the European subsidiary of **Access Technology Inc**, Massachusetts is according to its MD the first UK based company to use Site Licences: its spreadsheet modelling program, 20/20, available for Unix-based systems has the price tag of at least £19,000 for a site licence.

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Elxsi of San Jose, California has entered an agreement with **IPS**, Houston, Texas to develop an interface between the Elxsi System 6400 and the IPS 6000 which it is claimed will improve to better than four megabytes per second the data transfer rate between the Elxsi and selected array processors on the IPS 6000: it should be available by June 1986 - the Elxsi System 6400 is a multiprocessor supermini available with Elxsi's proprietary operating system, Embos, and Elxsi Unix, a port of AT&T's System V.2, it is priced from $369,000.

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Logic Replacement Technology, the Reading-based **Sintrom** subsidiary responsible for the EtherSeries of 68010 networked Unix workstations, plans a December launch of an Ethernet monitor and network debugging tool, based on its Etheruser workstation and costing under £5,000.

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AT&T Information Systems is estimated to be losing $1,000m a year.

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Unixsys of Paris - French Unix specialists - has announced a new version of its NX 6, the NX 6-S based on the Motorola 68000 processor it has one megabyte of memory, one 35 megabyte disc, one 20 megabyte tape streamer, ten serial ports and uses Unix System III: the basic configuration supports 10 users and costs about £20,250.

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ZILOG SYSTEMS LAUNCHES FIRST WE32100 SYSTEM 8000 MODELS

Zilog Systems of Campbell, California, has announced the first two models in its System 8000/32 family of 32-bit Unix machines, which use the AT&T 32100 microprocessor rather than the company's own forthcoming Z80000. Zilog is using the top speed 18MHz version of the chip, and the first two models are the 110 and the 130. The 110 comes with 1Mb to 8Mb main memory, 85Mb or 170Mb Winchester, 60Mb tape streamer and 26 serial and three parallel ports for a maximum of 26 users. Price for the base configuration is $24,950.

The 130 supports up to 58 users, has 1Mb to 16Mb main memory, one to four 337Mb Winchesters, 60Mb tape streamer, an optional one or two 1,600/6,250 bpi tape drives, and 58 serial, three parallel ports. Base price is $39,950. Bundled with the systems is Unix System V.2.1 release 1.0, now also available for the Z8000-based System 8000s, and communications support includes X25, Ethernet, 3270 bisync and SNA/SDLC and 2780/2780. First deliveries are set for the end of the first quarter of next year. Since the System 8000 backplane is already wired for 32 bits, 16-bit users can upgrade with a processor swap-out - for just $4,950 until June 30 1986, after which the price about doubles. The 85Mb Winchester is now available for other System 8000s, and prices on these have been cut up to 25%. The Model 10 with 1Mb CPU and 52Mb disk for 10 users is cut to $14,950 and costs $16,950 with the new 85Mb drive. Zilog says it picked the AT&T chip last March after looking at the 80386 and the 68020 because it is optimised for Unix, has 32106 maths co-processor option and 32101 memory management unit, and is the only second generation 32-bit chip.

BERKELEY CLOSE TO BUG FREE 4.3

The University of California at Berkeley is close to release of BSD 4.3, a "maintenance" release which in addition to a large number of bug fixes will provide performance improvements in both the kernel and commonly-used utilities. It hopes to get an initial version of the release tape out to beta sites next month, with general availability 6-8 weeks later. Programs written for 4.2 will run unchanged, according to Berkeley's Kirk McCusick, although recompilation will take advantage of the kernel enhancements and result in better performance. Scheduling has been streamlined and there is a cache for path name translation; the kernel is reckoned to spend as much 20% of its time translating pathnames to descriptors and the enhancements should cut this to 4-5%. Most of the performance enhancements have come from tinkering with utilities; these include altering pre-4.2 utilities to use advisory locking instead of laborious ad-hoc methods. The mail program is faster, and the password file now has a hashed "database" lookup method instead of linear searches. It is feasible to fit all the changes into System V. Berkeley has its more long-term developments "on hold" as far as releasing them goes; these include a distributed file system. Another long-term plan is rewriting the six-year old virtual memory code: currently the kernel has a hotch-potch of methods for dealing with memory and these could be unified to two or three, a shared memory facility could be added and larger virtual address spaces are needed - believe it or not some customers apparently want address spaces in Gigabytes. Berkeley has shipped around 800 4.2 tapes.

In this week's issue;
Page 2; Computing Services Association show the world Ada is a commercial reality
Page 3; Microport has Xenix compatible System V for AT; **Santa Cruz** has Xenix for all IBM PCs; **Wang** house pulls in **Spectrix; Sintra** to merge with **Thomson-Cimsa; AT&T** developing voice/mail facility
Page 4; National Semiconductor seminar
Page 5; Sphinx launches Xenix tutor; C Efficiency Pack from **Figure Flow; Motorola** goes to York for Unix software.

ALVEY STANDARDISES ON ORION

The Orion AMD 2901-based 32-bit Unix 4.2 minicomputer is one of the most remarkable UK computer success stories of recent years. Even the company which designed and builds it, High Level Hardware Ltd of Headington, Oxford launched the Orion expecting to make only the odd academic sale here and there - and in the first eight months of marketing last year sold twice as many as it expected. The machine has now won a further accolade by being chosen as the standard proc essor for the UK government Alvey research programme's Intelligent Knowledge Based Systems sector. Eight Orions have already been installed at seven development centres and two more are in use at the Directorate for software engineering. The machine, designed to be easily microcoded, has Prolog, Pascal, Fortran and C compilers and supports concurrent microcode sets.

ADA ARRIVES AT THE BALL AT LAST - BUT MoD WON'T ASK HER TO DANCE

The Computing Services Association mounted a conference and exhibition 10 days ago to show the world that Ada was now a commercial reality and to persuade the cautious that now was the time to start using it.

In the US the Department of Defence is funding research into Ada and software engineering to the tune of $43 million this year; has made the language mandatory for mission critical defence systems and has already placed 37 major contracts worth $307 million to develop software in the language.

Following the DoD's lead , the use of Ada is also growing in the commercial sector, especially in aerospace, communications and process control, although the first major civilian project was a payroll program.

After next January all Nato real-time software must be written in Ada, while in the UK we have until July 1987. All this activity in the US (even NASA specifies Ada for all software development for the space station - its major project for the next decade) and frantic moves by other European countries to keep up contrasted sharply with the Ministry of Defence's plans as described by Brian Gladman from the Royal Signals and Radar Establishment. Everyone was expecting strong leadership from the MoD and a clear statement of direction, if not funding for the more important areas of research. But all that was announced was the formation of yet more working groups to try and decide what the MoD wants and lists of "issues being considered". The working groups will look at ways to improve the MoD's control over large Ada projects; whether and how to stimulate the development of software engineering; and assess what staff resdources they will need.

The US DoD set up a lavishly funded software engineering institute last year to help develop tools and push the use of software engineering techniques. Most of the delegates assumed software engineering was what Ada was all about, but the MoD seemed undecided and worried that the traditional engineering bodies would object to software developers calling themselves "engineers".

Gladman did announce that the MoD was looking at ways to rewrite the Mascot software development system to support Ada, and is planning to commission yet another study to decide whether a full Apse will be needed to support the development of very large defence systems. For most Ada systems, the MoD seems to believe that Unix-based programming support environments such as those funded by Alvey will be sufficient.

However, Gladman believes that they will have to be tailored or tuned for each job, although the basic toolset will remain the same.

The good news at the conference, apart from the range of high-quality compilers available (see below), was the amount of Ada activity going on in the UK despite the MoD's lukewarm attitude (Ux 27).

ICL is working with its new parent STC and the Dansk Datamatik Centre (DDC) on the EEC-funded Adept (Ada Development Environment Portable Tools) project to produce the DDC compiler, together with a set of tools and the VDM formal tools all running under Unix System V on both the Vax, and all running under VME on ICL's new Series 39 mainframe. ICL is also working to host the compiler, which was produced using the Vienna Development Method formal methods, directly under VME on the Series 39, using the DDC backend. To get a production quality compiler ICL plans to use the back-end developed by the Ada Group before it collapsed with the DDC front end running under VME.

GEC Software was showing the Verdix compiler and VADS tools running under Berkeley 4.2, which they now market in Europe.

Software Sciences announced that it was rewriting its SDS 2 project management system in Ada and DEC showed its highly regarded Vax VMS Ada compiler.

For anyone who has not followed the Ada saga over the past few years, it is now more than 10 years since the US Department of Defence realised that it was spending far too much on software and decided to sponsor a single standard language for embedded system.

After years spent specifying the functionality required of the language and refining and revising the proposed design, it was finally published in 1980 and an American National Standards Institute standard agreed on in 1983. The final seal of approval from the International Standards Organisation is expected next year.

To keep control of ther language and prevent the emergence of numerous dialects, the DoD validates all Ada compilers to make sure that they conform to the standard. Ten compilers (some producing code for several different target machines) are currently validated (they have to retake the test every year as the test suite of almost 2,000 programs is constantly being refined to enforce an ever closer conformance to the standard).

Some of the early ones were slow and produced inefficient code, but many of them are are production quality compilers producing fast efficient code, and a second wave of high-quality compilers are due to be validated by the end of the year.

However, the compiler was not designed to stand alone, it was originally intended to be part of an Ada Programming Support Environment or Apse. This was planned to be a large set of development tools built round a database, able to control massive military projects from the initial specification right through to the final testing, code production and maintenance.

Unfortunately, despite the expenditure of millions of dollars and hundreds of man-years, all attempts to built an Apse have failed. British Telecom alone lost £7 million on an abortive attempt to built a support environment to support its language Chill as well as Ada and projects in both the US and the EEC have been allowed to quietly die.

However, technology has now moved on, and now most of the effort going into providing a support environment that can be used by developers working on separate workstations, usually based on some form of Unix.

Alsys Ltd managing director John Barnes gave the conference several reasons for the failure of the Apse projects (he was project leader for the UK attempt). The main problem was the lack of detailed requirements - everyone knew in general terms what features were wanted, there was no agreement on how to implement them in detail, or if it would be actually possible to implement them. The database, for example, which is at the heart of the Apse and controls every move it makes, turned out to require new technology as no existing system was powerful enough for the job. The design became obsolete due to advances in hardware technology.

MICROPORT COMES THROUGH WITH XENIX-COMPATIBLE SYSTEM V FOR IBM AT

Monterey, California-based Microport Systems Inc, the company spun off from the ill-fated Digital Research 80286 System V project, is due to join the fray with a low cost version of System V for the IBM Personal AT; a run-time system will be just $139, and the full system with development tools and text processing will be under $400. Microport's System V/AT is due in January, and the company is also planning a Xenix compatibility feature: the aim is to be able to offer a system costing less than Xenix which still allows loading of programs from IBM AT disks.

SANTA CRUZ HAS XENIX V FOR FULL IBM PERSONAL LINE

The Santa Cruz Operation has now introduced versions of its Xenix System V for all models of the IBM Personal Computer - making it the only System V implementation on the IBM line, and for the 80286-based AT&T PC6300 Plus - the only Xenix implementation on that machine. A single user licence is $495, the development system is another $495, and a text processor is $295 - or you can have all three for $995. The company also has a System V version of its UniPath SNA-3270 communications package for the PC6300 - Olivetti M24 - and 6300 Plus, enabling direct connection to an IBM host via a dial-up modem. The program enables each terminal linked to a System V machine to emulate a 3278, and the personal computer to emulate a 3274 cluster controller. It costs $595 for five users, $995 for eight, $1,995 for 32 - and needs a $395 synchronous input-output board in the micro.

WANG HOUSE PULLS IN CANADIAN SPECTRIX

Kerridge Computer Company Ltd has settled a five year deal with the Canadian company Spectrix to market Spectrix's new Motorola 68020 based processor. There are two types of processor available: the Kerridge Spectrix 10 taking up to 26 users which can be upgraded to the Kerridge Spectrix 30 with up to 42 users. Kerridge based in Newbury, Berks - one of Wang's largest European vendors is pleased with the deal as it sees the Spectrix series as the ideal upgrade for about a sixth of its existing Wang 2200 customers. The processor uses a Xenix System III operating system, by early '86 Xenix System V, and can interpret all the Kerridge range of software. Two Kerridge Spectrix processors have been installed and a third will apparently be on-line within the next two weeks. An entry level processor for eight users without VDUs costs about £20,000 from Kerridge.

SINTRA, TO MERGE WITH THOMSON-CIMSA, PLANS MINI-SUPERCOMPUTER

When commercial minicomputer manufacturer SEMS was taken away from Thomson and passed to Bull in the great French nationalisation, Thomson re-tained the Cimsa military computing arm of the company, which is now to be merged with terminals manufacturer Sintra on January 1 to create Sin-tra-Cimsa, a 4,000-person company doing some $220m a year. And Sintra has ambitions to take on the new US companies like Convex and Elxsi mak-ing Unix driven mini-supercomputers with the first such European product, a parallel scientific computer called Marie, the design of which comes out of one of the French state research projects. Sintra reckons the market for such machines will reach $1,500m to $2,000m by 1990, and wants 12% of that market. The aim is to produce a machine delivering between a quarter and a third the performance of a Cray 1 at a tenth the price. Marie will come with up to 16 processors - off-the-shelf floating point processors from the likes of Weitek or Advanced Micro Devices will be used, capable of delivering a peak performance of 100 Mflops, operating in either Single Instruction Multi-ple Data or Single Program Multiple Data mode. Maximum main memory will be 128 megawords of 32 bits, logically divided into banks each capable of 16 megawords per second transfer rate for an aggregate burst speed of 256 megawords per second. Needless to say, the machine will be under the control of a host processor running Unix System V, and will be programmed in Fortran - although the Fortran 8X compiler with vector extensions, is being written in C. Sintra plans to build a prototype Marie machine next year with production planned to start in 1988.

AT&T DEVELOPS LOW COST VOICE/MAIL FACILITY FOR 3BS

AT&T is developing a hardware and software extension for the 3B2 mini and microcomputer systems which will enable them to store and forward mail, with the possibility of voice input and speech synthesis. Details of the new device, the CM195G Integrated Telephone Module, were filed with the Federal Communications Commission. These filings are providing useful early warnings - they led to the details of the Unix PC becoming public before the product was introduced - but there is no confirmation of reports that it is due for imminent launch, according to **Computer Systems News**. AT&T already uses the 3B5 as an applications processor for its System 75 and 85 digital PABXs and the CM195G could enable the 3B2 to be used in a similar way for smaller, lower cost office automation networks.

NAT SEMI UNVEILS NS32332 PLANS, CMOS FUTURES AND ITS ICM CONCEPT

This week saw the formal introduction of National Semiconductor's NS32332 which it claims to be three times faster than its 32032. National at the same conference earlier this week alluded to the CMOS version that it will be bringing out - the 32C532 - scheduled for mid 1987. The 32532 will have the memory management unit integrated into the CPU and the floating point unit used by the 32532 will be the 32-bit 32C581 - scheduled to be available slightly earlier than the CPU/MMU chip. National claims that the 32532 will run about seven times faster than the 32332 and thus ten times faster than the 32032: the NS32332 has 100K transistors whilst the 32532 will have 460K. National also claim that by 1989 32 by 32 will become the standard macro cell. During the conference the Series 32000 was yet again pushed as an excellent vehicle for Unix systems, the arguments for this included the series 32000's design combination of 32-bit addressing with efficient memory management of large address spaces; the integration of hardware support for floating point arithmetic into the architecture; instruction set and addressing modes aid to compilers for high-level languages to generate code that is fast, compact and easy to debug.

faster clock

National claims that the improved performance of the NS32332 over the NS32032 is down to four factors; 32-bit addressing; fewer clock cycles per instruction; better bus utilisation; and a 15MHz clock. As an example of clock cycle savings National say that the command:- MOVD R0[R1:D],R2 takes 23 clock cycles using the 32032 and 11 clock cycles on the 32332. The NS32332 samples 1/2 clock later than the 32032 which according to National facilitates external cache implemenatations and to allow sufficient strobe widths and access times for any speed of memory or peripheral device, the NS2332 provides for extension of a bus cycle - any type of bus cycle can be extended except a Slave Processor cycle. The NS32332 is capable of performing Burst cycles in order to increase the bus throughput - Burst is available in instruction Fetch cycles and operand Read cycles only. National claims that the burst mode support exploits interleaved memories, nibble and static column RAMs; speeds up narrow transfers, gives no overhead on non-burst accesses; supports burst over system bus. The burst mode then provides 60% faster transfers than an ordinary access - four ordinary accesses takes 16 clocks but a burst of four takes 10 clocks. The NS32332 has a dynamically configurable bus for 8, 16 or 32 bits and also apparently has clean solutions for virtual memory and bus error recovery. The NS32332 has a larger queue - 20 byte which with burst mode provides maximum pre-fetch efficiency : 16 or more empty bytes in the queue triggers the burst pre-fetch. The NS32332 is designed to work with both the 16- and 32-bit slave processors of the NS32000 family - the NS32C382 Memory Management Unit, the NS32C381 Floating Point Unit and the NS32301 Timing Control Unit are all new members of the NS323XX family. In general National thinks that the NS32332 is good but even in saying that admit that one of its drawbacks is its comparatively slow memory but according to Natioanl scores well on other system performance issues, number of instructions per task; processor speed; high level language coding efficiency; and operating system overhead. Although the conference saw the formal introduction of the 32332 it is still in the stages of being sampled by 'preferred customers'. The pact with Weitek Corp of Sunnyvale, California to develop an interface chip, the NS3210, to link the 32000 family and Weitek's 64-bit floating-point chip set to add potential speed to systems based on National's processor has not yet come to fruition and National were not giving away any dates.

Launching ICMs

National was also using this conference to spread the word about its Integrated Computer Modules (ICM) - it is looking for Unix specialist distributors to support custom design using gate arrays for it. The ICM, announced back in August designed for the small Unix systems market, is based on the theory of decreasing reliance on using buses following the course that Andrew Allison, former chairman of the IEEE-896 Futurebus committee, suggested when saying that "in commercial computing, the only bus needed will most likely be an I/O link to such peripheral devices as mass storage and backup units and terminals". The ICM-3216 is now in full production over in the US but if you want one for Christmas you will be disappointed as they are in short supply in Europe - Bill Le Duc is driving round Europe with one in the back of his car so that it will be present at all National Semiconductor's Design Excellence seminars being held in Europe over the next couple of weeks. National think that the ICM series is ideal for OEMs as a single board implies a fixed configuration which can then be very expensive and would involve a large range of solutions for support so the OEM is either paying too much or he simply does not buy. The best solution then is according to National the ICM because of its generic base unit providing common functions and personality unit providing unique functions. The ICM-3232

quick solution?

based on the 32032 will be available next summer: National are apparently waiting to see what AT&T do with the new release of Unix System V before launching it so that they can incorporate any new features. The next ICM version will arrive after National has decided whether to provide a quick solution by taking the NS32332 and expanding the 16-bit MMU to a 32-bit MMU or by going to 4Kb pages from 512 bytes or whether to go for a more long term approach and wait for the NS32C532. National chose Unix as the operating system for its ICM series for pragmatic reasons, its availability; its relative cheapness; its apparent longevity; and the minimum support that is required for it. The ICM target range in the Unix hardware market is the supermicro to mini range.

SPHINX LAUNCHES TUTOR FOR XENIX

Sphinx Ltd launched its Xenix tutor at Compec '85. It is designed to teach potential Xenix users who have no prior experience of computers how to use the system for applications such as word processing, database systems, spreadsheets and accounting software. The Xenix tutor consists of five modules - an introduction to Xenix, the Xenix file system, manipulating files and directories, user communication facilities and advanced features - providing a total of six hours of tuition. The package uses graphics and animation and even calls you by name, at the end of each section there are self assesment exercises and context information is stored so you can stop and start as you like. The Xenix tutor will run on any IBM PC compatible machine running under PC-DOS or MS-DOS which supports IBM colour graphics - it requires 128K of memory, and either twin floppy or one floppy and one hard disk drive. The software is distributed on two disks one containing the run-time system and the other holding the student files. Up to ten users can use the training program if they wish to be tracked but no limit is stipulated if users do not wish to be tracked. Xenix tutor is the product of the Maidenhead based Sphinx and Educational Technology Ltd of Cranfield and is available from either for a cost of £250.

TUNING UP THE MS-DOS PROGRAMMER

C programmers can now become more efficient with the C Efficiency Pack available from the small UK firm Figure Flow based in Ipswich, Suffolk. The C Efficiency Pack is a suite of tools for C software development under MS-DOS - it consists of the C Browser, the Program Tuning Kit, C-Doc and U-Tools. The C Browser allows a programmer to select a particular item type, such as function, and then displays all the occurences of that item type in his program, if any changes are needed the Browser allows the programmer to enter the editor make any alterations and then returns him to his position in the Browser. The Program Tuning Kit is a diagnostic tool which produces a report listing the subroutines of a program in order of CPU utilization - the programmer is then supposed to take the most critical routines and tune them either by rewriting the algorithm in C or by rewriting the routine in assembler. C-Doc prepares standardized reports based on the actual source code of your system. U-Tools from Axis Software is a set of utility programs providing Unix-like facilities under PC-DOS or MS-DOS including make, xcopy, grep, wc, ls, tee, cat, rm, find, touch, mu, hd and chmod. The C Browser costs £125, The Program Tuning Kit £145, C-Doc £275 and U-Tools £75.

YORK SOFTWARE FIRM LANDS MOTOROLA DEALS

A little known 20-man York based software house is has turned its own in-house tools into a bit of a goldmine, signing up Motorola UK to distribute them, with other possible deals being lined up at both the government purchasing body, the CCTA, and at least one Bleasdale distributor. The tools were originally written to help Thomson Computers to write bespoke applications more efficiently, are called Sea-Change and consist of powerful code generators, i/o utilities, a library and a report writer. Thomson got Motorola's approval because the product isn't an all-singing all-dancing 4th generation language, but instead combines powerful code generation features with the ability to link generated modules with handwritten C code. Motorola UK has also asked Thomson Computers to write a friendly front end for its Unix systems, unrelated to the Sea-Change product. The small Unix and C software house started life as an Altos systems house back in 1981 but ceased to sell hardware 18 months ago. At the moment the Sea-Change tools are only gong to be sold by Motorola in the UK, not worldwide. Graham Mills, Motorola's National Support Manager for Data Processing said in defence of the Thomson choice that it was "in the minority of suppliers that were able to demonstrate to us a powerful development capability which generates highly efficient run time programs created in the C language". Despite Motorola's evident approval of the product it still wanted some work doing before taking the product on. Thomson has had to split the product into two versions, one less advanced and entirely menu-driven with lots of help frames; and the other syntax driven for the more sophisticated C programmer. Motorola is charging of about £2000. Thomson says that the both versions of the product split into a set of high level tools and a low level set. The low level tools include a terminal handler, Tip, and an indexed file system based on B+ Trees. The high level tools allow you to design screens and forms in a "what you see is what you get" manner, these are then passed through parsers to generate a report, a library of data structures is also available - the latest addition to Sea-Change is Trigger which allows you to build a library of sub-routines you may want carried out on specific data, and trigger them with a single command.

Sea-Change is available on 13 manufacturers' machines, Altos, Motorola, Convergent, Olivetti, IBM AT, Northern Telecom, Sun Microsystems, Bleasdale, ICL and Systime. One of Bleasdale's distributors has taken it on board and the CCTA is currently evaluating it. The front-end that Thomson has been working on for Motorola will be sold by Thomson on other manufacturer's kit. It is a simple to use menu-based interface that may be customised by VARs or even the end user himself. The company now specialises in producing bespoke system software, and has just landed a further contract with Motorola International to develop a project control system running under Unix.

MOTOROLA FINALLY MANAGES ITS MEMORY MANAGEMENT

Motorola aims to clear up a lot of the mess about memory management which has plagued 68000 and 68010 machines with its forthcoming 68851 MMU. The previous 68451 offering seems to have been widely disliked to the extent that many manufacturers have avoided it, going to the expense of a proprietary implementation. The result of this is non-portability of system software becasue of the proprietary MMU code. The most widely known of these is the "Sun-type" MMU, derived from work by Sun Microsystems VP of Technology Andy Bechtolsheim when he was at Stanford University; before Sun was formed the design was licenced to about eight companies, including Codata and Cyb Systems, and the original description is in the public domain. Sun last month was granted a US-only patent covering the implementation of parts of the design. The later versions of the Sun MMU supported demand paging with the 68010 and a virtual address space of 16Mb, as opposed to the original 2Mb; it is also working on a version for the 68020. Bechtolsheim claims that the 68451's segmented memory approach using large memory segments produces "very large context swapping overheads", hardly ideal in a multi-tasking Unix system. Motorola claims to have ironed out the early problems with the 68451 and says that the part should be performing to specification; a subset of the forthcoming 68851 was released, the 68461, initially as an interim measure before the 68851 emerges, but Motorola claims that there has been sufficient interest to regard it as a product in its own right. The 68461 is a gate array product sold on its own or as part of a board which also features an address cache for speedy translation. The cache is also incorporated in the 68851, which is designed for the 68020 and supports demand paging. The pages can be anything from 256 bytes to 32Kb; Motorola says that supporting different sizes of pages is in response to customer demand. The 68851 could also be used with the 68000 or the 68010; but you lose the demand paging, 32-bit addressing and it has to be treated as a "peripheral part", rather than as a co-processor. The 68020 has a co-processor interface which allows the memory management unit and floating point units to act concurrently with the 68020; Motorola says that with the 68000 or 68010 the cpu would have to do more setting up of addresses for the support chips, and handling the communications between them. The other main contender appears to come from Signetics, with its 68900 family; Bechtolsheim describes the 68851 as "very complex", the Signetics products as less so but says that the versions for the 68010 and 68020 are incompatible.

NASTRAN UP ON FAST MASSCOMP 68020 BOX

For those among you that combine the best of Unix with heavy scientific environments, it is probably only a matter of time before the well used MacNeal Schwendler's Nastran-II software appears on each scientific based Unix machine. And the latest machine to offer this software is the Masscomp MC5500.

The Masscomp machine is thought of as one of the fastest Motorola 68020 based supermicros on the market, perfect for scientific use, and running Masscomp's proprietary real-time implementation of the Berkeley Unix, and is used in applications anywhere from data acquisition and telemetry to voice analysis and image processing. Nastran runs on most large mainframes, and is often used as a gauge of performance for floating point comparisons between large machines and is a general purpose structural analysis tool.

ICHBIAH HAS TWO UNIX ADAs READY TO ROLL

The US future military language Ada, seems to be inextricably linked to Unix machines of some description, so it comes as no surprise that when Alsys announced two new validated Ada compilers at the US SigADA conference recently, they were targetted on two machines generally thought of as Unix boxes. They were the Apollo Domain, which offers both its proprietary Aegis operating system along with its own Unix variant, Domain/IX; and the other was aimed at the Sun range of workstations, which run the Berkeley 4.2 variant. Alsys is the company started by Ada developer Jean Ichbiah, with operations in France, the US and our own Henley-on-Thames. The Ada specialist is offering the compiler along with its own library of pre-defined packages, a library manager, binder and run-time executive. The two compilers come straight from the Ada compiler tests at the US department for Defence, which they passed just a few weeks ago, and if Ada is your forte they're going for £3,095 in single units, available in the UK as from December. **Inside** we take a look at emerging Ada tools.

AT&T HAS ARIEL IN US

AT&T has announced the Ariel "electronic video information retrieval system" in the US; the viewdata system uses 3B2s and PC6300s and was originally developed at Bell Labs for the splendidly named Environmental Prototype Community Of Tomorrow project at Disneyworld in Florida.

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UNIGRAM/X

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HITACHI, IN TECHNOLOGY, PRODUCT SWAP TALKS WITH SPERRY...
Sperry has finally acknowledged the talks it has been holding with Hitachi for several months, first reported here in the summer. Sperry has given only very board details of the scope of the discussions, but implies that they include an agreement comparable with the one between ICL and Fujitsu, under which the Japanese company would provide semiconductor technology and perhaps full processor subassemblies for Sperry's next generation 1100 machine which will succeed the 1100/90. Sperry is in need of a technology source now that its hopes of getting wafer-scale chips from Trilogy have been dashed by that company's failure to complete development. After Control Data's problems, Sperry is also expected to switch to Hitachi for supply of its largest disk drives - which may be made in the US, see below - and possibly for other peripherals, including high-speed printers. Hitachi is also expected to take some Sperry technology in return, with software the most likely commodity, particularly in the Unix and artificial intelligence fields.

ROOT BUYS 60 PER CENT OF AILING UNISOFT
Root has bought 60% of ailing Unix porting company Unisoft for an undisclosed sum, thought to be nominal. Marketing director Robin Schlee was coy about details of the deal, on the grounds that it was important for Unisoft to remain an independently run business. Root was previously European distributor for Unisoft's Uniplus+ System V implementation of Unix. Unisoft will keep its name and separate identity, but gets Root's financial backing and a more solid presence in the UK and Europe. Root is about to open a new European office in Munich from which Unisoft will operate. In return Root gets a long-established presence in the US, where Unisoft has headquarters in Berkeley. At present Root's only office in the US is in San Diego. Schlee talked about "consolidating the relationship" rather than controlling the company, but there have already been changes at Unisoft. Founder Jeff Schriedman stays as a director but will be returning to "strategic engineering assignments". Schlee, Root chairman David Saunderson and technical director Andrew Twigger all become directors of Unisoft. Other changes initiated by the Root deal are concerned with marketing, an area where Unisoft has been weak. According to Schlee the new appointments are largely a matter of internal promotion and an exchange of hats than a matter of bringing in new blood. He says that no-one has left Unisoft as a result of Root's intervention. The main gain for both companies seems to be the aquisition of a wider marketing network. Kevin Gorey, previously director of Unisoft marketing, moves from California to do the same job in the new Munich office. Despite several prestigious contracts, Unisoft was thought to be in need of cash and, like many technical companies, more aggressive marketing. As well as beefing up its US presence, Root will also be getting its foot through the door in Japan, where Unisoft has contracted with AT&T's Unix Japan to produce a Kanji interface for the 3B computers. (UX No 41).

MOTOROLA SAMPLES 20MHz 68020
The company is on target to ship an estimated 50,000 of the original 12.5MHz version of the full 32-bit 68020 this year, as well as a handful of the 16.67MHz version, and Motorola has now moved on and has begun sampling the 20MHz version of the part. The new microprocessor promises to become the basis of some very fierce Unix machines in-deed later next year. No date has yet been set for production quantities.

In this week's issue;
Page 2: Intel plans 32-bit iRMX, low-cost Ethernet.
Masscomp adds its MC 5000 hypermicro.
Page 3Flexible aims for Europe while **Arete** snaps up Tandem founder and **UX Software** readies PC-DOS and native Basic compilers.
Page 4: Culler Scientific Systems gives details of the advanced computer architecture of its Culler 7 minisupercomputer.
Page 5Depix bring out intelligent CAD/CAM from deepest Tunbridge Wells as **Fortune** suffers staff cuts.

TEXAS INTRUMENTS JOINS THE 32-BIT SLICE FRAY
NCR Corp has disappointingly failed to make an impact with its imaginative microcodeable NCR 32 chip set, but new entrants to the uncommitted 32-bit world are coming along in a steady stream. Leader of the pack at the moment is Advanced Micro Devices with its Am29300 chip set but not far behind is Tex-as Instruments with the 74AS8832, which comes hot on the heels of the company's 8-bit 74AS888 slice. According to **Electronics**, the 32-bit microprogrammable part will be upwards-compatible with, but twice as fast as, the 74AS888. Due for availability next year, the set will consist of a 32-bit arithmetic logic unit, a 32-bit barrel shifter, a 64-bit funnel shifter, a register file, and a 16-bit microcontroller, all in the company's 1.5 micron Impact-X bipolar technology. The other two parts, in 1 micron CMOS, will be a 32-bit multiplier accumulator and a 64-bit floating point processor - implying 32-bit supermini performance.

INTEL MAKES TEASER ANNOUNCEMENT ON 32-BIT IRMX, ADDS LOW-COST ETHERNET BOARD

Intel has enlisted the aid of a string of mainly un-identified companies to complete development of the 32-bit version of Intel's iRMX real-time operating system. The aim of what the company describes as a multi-million dollar effort is to extend the operating system to make full use of the 32-bit 80386 mic-roprocessor architecture and Multibus II. The only companies Intel has named in the development effort are Mitsubishi Electric and Seiko, but says that other companies in communications, industrial automation and computer-aided engineering are involved. Intel has also introduced the iSBX 586 Ethernet Data Link Engine, an Ethernet Multimodule controller for Multibus systems as the latest mem-ber of its OpenNET family. The new board plugs into any iSBC bus-comp-atible host board and is based on the 82586 local area network co-processor chip, implementing the first two layers of the Ethernet standard. It supports Intel's iNA 960 transport and network layer protocol implementations, and iRMX-Net, which allows concurrent file sharing between iRMX, Xenix and MS-DOS systems. The board costs £600 for 100-up. Finally, Intel has a board and software development package for would-be users of its 4Mbit bubble memory components. The PC-Bubble card, designed for IBM Personals and Personalikes, comes with 512Kb or 1Mb, and the PCB-75 evaluation package includes software to teach users to program the 7225 bubble memory controller. The 512Kb PCB-75-1 version is £495, the 1Mb PCB-75-2 version is £795.

MASSCOMP ADDS ITS MC 5000 HYPERMICRO IN THE UK

Masscomp, Massachusetts Computer Corp, has now announced its new family of high-perform-ance 68020 machines in the UK. The new mul-ti-CPU MC 5000 series, which was launched by the builder of scientific and engineering Unix systems in the US October 1, succeeds the original MC-500 announced back in Novem-ber 1982. The UK support office in Reading, founded in July 1984, is quoting delivery dates one to two months after the US dates and a price range of £13,000 to £200,000 depending on the model required. Masscomp was formed in August 1981 and achieved rev-enue of $2.5m by the end of its fiscal year, June 30th 1983 - the end of the 1985 fiscal year saw revenue at $45.2m. Masscomp has installed $1m worth of equipment in the UK including places such as Rolls Royce and GEC. Discussions are continuing on location of a European manufacturing plant - countries in-clude Scotland, Holland, France and Germany.

COMPUTER SOLUTIONS BRINGS IN NOVIX FORTH MICROPROCESSOR

The Novix NC4000 16-bit microprocessor optimised for Forth has arrived in Britain. The microprocesssor is described as an implementation in silicon of the high-level Forth language, and will be marketed in the UK and the rest of Europe by Forth specialists Computer Solutions of Chertsey, Surrey. Forth is a language and operating environment in one, and is positively Germanic, because programs are created by simply stringing the standard set of Forth words together to create new Forth portmanteau words. It is par-ticularly suited to real-time scientific, signal processing, robotic and artificial intelligence applications. The chip is a 4,000-gate HCMOS array with a processing throughput of between 4 and 40 million Forth op-erations per second, rated at up to 16 times the speed of a Motorola 68000 with only 6% of the gates. It derives this speed from its ability to run operations in parallel: it can call a subroutine in a single cycle and return from a call at the same time as other operations, effectively taking no time at all. Up to five instructions can be executed in a single cycle, and the add operation takes one 125nS cycle. The part has 16-bit data and address buses, but there is an extra 5-bit address bus to extend to directly addressable space to 2Mb. The chip is designed to be programmed directly in Forth - the instructions are Forth subroutines - so that it doesn't have to compile high-level instructions down to machine code - and it is capable of executing a single Forth instruction typed in at the keyboard. The Beta Board development board for the chip comes with 56Kb of static RAM and 8Kb of ROM - both using 35nS access time CMOS parts - and the ROM contains all the software including keyboard interpreter, run-time package and multi-tasker re-quired to support programming. The board also features two serial ports which can link to an IBM Personal or Apricot, which can then be used as VDU and disk controller. Initial versions of the chip were done by Mostek before it was shut down and sold to Thomson, but Harris Corp and Advanced Micro Devices are both second-sourcing the microprocessor. The chip costs £250, the board is £2,800, and first ships of 8MHz boards are set for January, with a 10MHz version following in March. An IBM plug-in board and VME card are scheduled for second quarter 1986. Computer Solutions is the sole European distributor for both chip and board. An unamed company that works for the UK Ministry of Defence is already a customer. Computer Solutions has the rights to sell the product throughout Europe but is concentrating on the UK.

INFOSPEC COMPUTERS BOASTS OPEN NETWORKING

Infospec Computers of Leeds is boasting a Unix breakthrough with the development of an open networking capability which according to the company extends beyond Unix-to-Unix connections and provides real Unix networking on a turnkey basis, with derestricted connectivity. A demonstration in September to Leeds Polytechnic and Perkin-Elmer showed three different databases being accessed on three different machines. The three machines linked together were a Perkin-Elmer 3205 mini running under OS-32, a 68010 running under Unix, with 8-bit and 16-bit micros running CP/M, MS-DOS and Concurrent CP/M. The databases were Microbase, DMS and Unify. The Unix networking system was developed by Infospec as an extension of its current networking system - Infonet. Infonet provides enhanced file handling, user interface and terminal controller facilities for each connected operating system. Infospec say that concurrency is powerfully utilised with full multi-file, multi-key logical record locking and the system is password protected. Infospec sees the role of this system as a means making multi-programming facilities of Unix available to first time commercial users and provides existing users with an entry point into Unix networking. Infospec has been around for about five years and currently employs about 20 people. Historically it is a systems house specialising in vertical markets and has produced a system for Leeds Health Authority which allows different Area Health Authorities within and around Leeds to access each others databases with the minimum of information. Called Fuzzi Access, it aims to track down the records of people who move from area to area and is based on Infonet. None of the Unix-based Infonet systems have been sold as yet but Infospec think that about half a dozen are in the pipeline.

DATA GENERAL LAB SET FOR JANUARY

Data General will hopefully have a European Development Laboratory established in Cambridge by the 6th of January. There is still a little bit of doubt about it because the contract for the leasehold on the property has yet to be signed. Martin Judd who will take responsibility for the lab hopes to move in and start organizing coffee machines, telephones and other vital ingredients for a feasible workplace on the 14th of December. The lab's main function will be to develop software and the first project is communications products. Data General will be recruiting technical staff for the lab in early January.

FLEXIBLE AIMS FOR EUROPE WITH TOP APPOINTMENT FROM GOULD...

Flexible Computer Corp, building high-performance scientific-oriented multi-CPU machines in Dallas, Texas, has signed up Lionel Agar, formerly head of Gould Computer Systems' international marketing, to seek sales in Western Europe and Canada. Flexible, whose Flex/32 uses up to 20 NatSemi 32032-based CPUs running under Unix or a real-time operating system for building into parallel processing OEM applications, has also picked up two more sizeable sales for the Flex/32. Infoflow of Indianapolis represents an early commercial sale and is planning to use it for an on-line database information service. And Falcon Systems, in Washington DC, is taking a $400,000 machine to supply for an unnamed US government research project involving a network of scientific processors. Flexible reckons that revenues for the third quarter 1985 were $1.1m, against just $200,000 in the second quarter; the company was founded in January 1984.

...AS ARETE SNAPS UP TANDEM FOUNDER TO HEAD MARKETING

Arete Systems Corp, ramping up production following that $35m OEM deal with Sperry, has snapped up Tandem Computers co-founder and US marketing vice-president David Mackie to head up its own marketing. Mackie takes over the work formerly handled by Arete founder Beau Vrolyk, who moves over to vice-president of business development, investigating marketing strategies and opportunities for the manufacturer of multiprocessor 68000-based Unix systems, reports **Computer Systems News.** Mackie's responsibilities will focus on expanding the customer base - something like 75% of Arete's output currently goes to Sperry. Vrolyk, who recently put Arete's output at 120 machines a month, said that the company will focus on vertical markets where it will produce machines for specific applications: he cited as an initial example Byte Magazine's use of two of the machines for for data communications conferencing and mail. Arete's revenues were $12m in the year ended June 30 1985, and the company looks to double that this year. It has raised $15m in four rounds of funding so far.

UX SOFTWARE READY WITH COMPILER, PC-DOS BASIC; SEMADS DISTRIBUTOR IN UK

UX Software, the Toronto developer of the Oasis- and ANSI-compatible UX-Basic+, is planning to announce a native code compiler and a PC-DOS version of the product at the upcoming Comdex exhibition in Las Vegas this week. The native code compiler should remove the need to pay for run time licences for reselling UX-Basic applications. Meanwhile London EC1 systems house Semads Ltd - which is in line for the southern region distributorship for NCR Tower machines (CI No 316) is distributing UX-Basic over here; it has already used the product to convert a variety of its own Oasis packages to run under Unix, including a range of accounting software and packages specialised for the construction industry and civil engineering. Prices for UX-Basic are from $500 for the IBM Personal up to $6,000 for large systems like the Towers.

CULLER 7 SUPERMINI

BLAZES THROUGH

SCIENTIFIC SUMS

The latest minisupercomputer to come on the market offering cheap mips and megaflops is the Culler 7 from Culler Scientific Systems in Santa Barbara. It achieves a remarkable throughput partly by separating scientific calculations from i/o tasks and housekeeping (the latter, together with overall control, is performed by a kernel processor - a Sun workstation running a dismembered version of Berkeley Unix); and partly through a custom built globally optimising back end compiler that optimises concurrency on both scalar and vector processing for front end Fortran 77 and C front end compilers. The mathematical calculations are performed by up to four user processor modules working in parallel and connected to the system by two high speed, 64-bit data, 32-bit address buses. The data bus acts like the main bus in more conventional systems and is used for data movement and communications access. The staging bus is used by a dedicated block transfer device to load tasks to and unload them from the high speed instruction and data caches in the user processors. These work in parallel internally and consist of a scientific processor - a tightly coupled pair of basic and extended scientific processors which are in turn tightly coupled to two high-speed data caches - which is in turn linked to the high speed instruction cache, register banks and 4 megabytes of local memory, all controlled by a 32-bit core processor via high speed private buses. The basic maths processor handles the more numerous mathematical functions, including addition, subtraction, shifts, data type conversions, bit and byte manipulations and logical operations such as AND, OR and XOR. It does integer and single precision calculations inone cycle, douple precision in two. The extended maths processor handles all multiplication and division, both integer and floating point, as well as microcoded maths functions such as standard trignometrical functions, square root and the like. The extended maths processor can execute complex instructions requiring several machine cycles such as double precision floating point divides while the basic maths and core processors execute other instructions in parallel. It can also, because of the tight coupling between them, direct the basic maths processor to help it execute complex multicycle operations such as fast Fourier transforms or matrix dot products. In addition to being tightly coupled to each other, the two maths processors are tightly coupled to a pair of 16-K, 45-ns caches. The intelligent compilers know about them and their structure and use them for fast program stacks and register files to generate efficent code. The compilers, rather than complex hardware, make all the parallel expansion decisions dividing the program code between the different processors. There are several front-end language processors, one for each language, connected to a common optimising code generator back-end. This uses such techniques as flow analysis,low-level common subexpression elimination, folding and propagation of constants, dead storage elimination register allocation by lifetime analysis, loop optimisation, and user process optimisation. The latter makes the most efficient use of the hardware by rearranging the sequence of program execution. Because each user processor can simultaneously execute a basic maths operation such as addition, a complex maths operation such as multiplication, and three fetch and store operation from three different memories - two data caches plus main memory - the optimisers aim is to perform one instance of all five operations in each user processor in every machine cycle.This involves a lot of reorganisation of the code, and makes the compiler completely machine dependent. The 32-bit core processor inside the user processor takes care of all the other activities to allow the scientific processor to concentrate on calculations. It computes addresses, fetches data and stores it in local and global memories, manages program flow through branches and sub-routines and system calls, as well as helping the scientific processor with some of the basic arithmetic - the compilers make the load-balancing decisions. Although the maths processors can access the two 32-bit wide data caches (which are loaded by the staging controller) directly, access to the local memory in the user processor and the global system memory is handled by the core processor. It transfers input data to the maths processors via a 64-bit wide 3 word deep first-in first-out buffer which allows it to race ahead and acquire the next three data items while the maths processors are working on the last one. Then while the maths processors crunch these items, the core processor can execute sequence control instructions or basic maths operations. The output from the scientific processor goes through a single stage buffer to the core processor and then on to the main memory. The core processor has access to two register files containg 16 general and 17 special-purpose registers. Both the core processor and the scientific processor get instructions concurrently from the fast instruction cache, which is loaded by the staging controller via the staging bus. The 4 megabyte local memory is connected to the core memory by a 56 Mbit/sec private bus and to the system data bus. The large global memory is also connected to the system bus, which is also used by the user processor to access the local memory in other user processors. But as this is slower than using the private bus to the local memory, the compilers must try to keep local programs and data in the local memory. The global memory is reserved for input/output, shared data and interprocessor communications whenever possible. The kernel processor, with its own 2 megabyte memory, is the operating system processor for the whole system. It links to i/o peripherals, terminals and workstations through a Multibus and deals with the user processors and high-speed i/o processors through a task control and interrupt mechanism. The Unix - 4.2bsd - has been modified to run a multiprocessor system with several layers of memory. The changes are claimed to be transparent to the user and compatibility with the standard version maintained. The disk file block size has been increased from 2K to 8K to speed up disk transfers; and many of the exception processing tasks such as divide-by-zero, floating point exceptions and memory management faults have been distributed to the user processes. A round-robin selection assigns task to the multiple processors to help spread the workload evenly. The tasks are assigned by the kernel processor by sending too the staging processor, which takes the task and ensures it goes to the right place at the right time with all the necessary data. It also removes the finished tasks and ensures that each processor has at least two tasks on hand at all time.

INTELLIGENT CAD/CAM FROM TUNBRIDGE WELLS

Tunbridge Wells firm BCD has just launched its Depix CAD/CAM system, which combines draughting facilities directly with the programming of "intelligent" machine tools, cutting out the programming stage between design and machine tool. BCD has just begun marketing Depix in earnest, coupled with the Whitechapel MG-1 under Genix on the NS32016 processor. The system has already been extensively tested at West Kent College, which has invested in £1 million worth of kit, including 4 Whitechapel machines. Depix is the result of four years development, and is being automated further with an "expert" interface. One installation, Global Canopies, has already programmed so much information into the system that production of its designs (the company has half the market for garage canopies in the UK) is virtually automatic. The user only has to sketch the rough shape of the canopy on the workstation and the system does the rest, using all the engineering calculations and previously defined guidelines to produce the final design. "Effectively we're deskilling the design engineer's job" said Douglas Shankland, who formed BCD six years ago with his brother Robert. "He's still needed to check the calculations but effectively this software doesn't just replace the draughtsman, it takes the job right from design engineer level; you can do 99% of the designing in a one-minute task." Depix has been running under Xenix for more than three years, and before that was sold on the German BASIS 208 under CP/M. BCD opted for Unix because it needed unlimited I/O processing, communications, and memory management, but has aimed at hiding the operating system behind windows and an icon system. The system is written in Pascal and has now been implemented on a variety of processors including Z8000, 8086, and 68000. A typical configuration costs under £20,000, and is designed to interface with highly sophisticated CNC machine tools via an RS232 port. The trouble with such complex production equipment is that it can lie expensively idle, as a new design can take several days to set up. Depix takes the design from the workstations and translates it directly into the control codes which set up the machines for a production run. Typically it is used to link engineering designs with CNC machine tools such as lathes, mills, laser cutters, and punch nibblers. Software already available for the systems include project planning, database, and printed circuit design. There is a certain amount of intelligence already built in, for example, in working out optimum cutting-out patterns from sheet steel. "If it works on the screen, it will work on the machine tool" said Shankland. He has already demonstrated the system to Ferranti in Dundee, which is interested in Depix for its intelligent laser cutters. At present he is concentrating on selling the system to educational institutions in his home patch in Kent, as he sees education at this level as a vital factor in cracking open the manufacturing market. He sees his main target as small manufacturing companies (60+) up to large organisations. Each system can control up to twelve machine tools. BCD is privately owned, although it is currently dicussing investment from a major merchant bank. The firm has funded the development of Depix from its bread and butter business of supplying turnkey industrial computers to the likes of Thorn EMI and Rolls Royce for automated production.

PPL DOING WELL WITH UNIX BOXES

The newly formed manufacturing division of PPL is selling "more Unix boxes than anything else" according to Andy Makeham, general manager of the small systems division in PPL-Sheffield Micro. The clumsy name for PPL's new division recognises that PPL's real presence in manufacturing came with the aquisition of Sheffield Micro in April this year. PPL, best known as a supplier of IBM mainframe financial and management software, has been looking at manufacturing for about two years, since 40% of its user base provided a ready market in this area. Sheffield Micro's Uniplan package is the low-end offering for the new division. Written in Micro Focus Level II Cobol under Unix, it has already sold into 150 small to medium sites in the UK. At the same time as buying Sheffield Micro, PPL picked up the intellectual property rights to MRP II, a real time mainframe manufacturing system for big-league users. MRP II comes in various permutations and sells across the range of IBM operating systems under CICS for around £100,000. Now PPL is talking about providing integrated manufacturing offerings across the micro to mainframe spectrum, backed up by a consultancy service. Micro-to-mainframe links between the packages are on the menu, also a CAD interface. Uniplan carries the main thrust of PPL into manufacturing; MRP II only has six UK sites as yet. Makeham quotes market research figures which predict that 20,000 small businesses will buy manufacturing systems this year; only 52 of those have to be Uniplan for the company to double it profits. According to Makeham, Unix-based systems are a ideal solution for this market sector for reasons of speed and upgradeablity. Uniplan is selling typically into small businesses which are constantly expanding and find single-user micros both limiting and slow. "This sort of software is terribly disk and power intensive, and a lot of people are tied to very slow micros. They tear their hair out when I tell them they could have a system which is 20 times faster, and cheaper as well." At the moment Uniplan's user base is predominantly Fortune (for which the system was initally developed) and IBM, though the system works across most of the Unix names. Sheffield Micro claims total portability of the Cobol-based software.

FORTUNE CUTS STAFF BY 11%

Fortune Systems Corp in Belmont, California is shedding 28 technical and 10 administrative employees, amounting to 11% of its present staff, the company announced last week. Fortune says the cuts were part of a planned move to reduce research and development costs to 9% of revenue from 17%. The cuts follow completion of several projects including the IBM 3270 emulation and the graphics workstation, released in August this year. According to newly-appointed dealer Nexel, Fortune has shipped over $4 million worth of kit in October and another $4 million in November, with Comdex marking a turning point which should reap another $16 million worth of orders in the last quarter of this year.

FERRANTI PROMISES UNIMAX MACHINE FOR THE NEW YEAR

Ferranti Computer Systems was previewing its long-gestating Argus Unimax at Compec, with the promise that the machine will be generally available by January 2 next year. The Argus Unimax uses several 68010 processors with up to 15Mb of RAM, and the basic configuration comes with 70Mb Winchester disk but additional disk and streamer tape units can be added and may handle up to 16 users. The machine is supplied with the Uniplus+ System V Unix operating system and application software including Rootmap, Rootmap Manager, Rootmap Mail, Rootscreen and Rootspool. An end user price in its basic configuration with 70Mb of disk, and all the software listed costs £17,000. Ferranti says it has mapped out a strategy for the next several years for introduction of a succession of Unix-based systems.

AT&T "READY WITH OLIVETTI-BUILT LAP-TOP PERSONALIKE"

IBM is due to launch its Clamshell LCD display lap-top version of the Personal Computer in January, and when it does, AT&T will be ready. According to **PC Week** the US phone giant has a machine called Safari 7 which will be built by Olivetti. The specification includes a full screen 80 character by 24 line LCD display which will have a 320 by 200 pixel four-colour option and put up 640 by 240 pixels in mono-chrome. No word on storage, but the 43" square machine will have one full IBM slot and two AT&T slots, a serial port and an optional parallel port, and is likely to be sold all over the world, because it will have both a 110V 60Hz and a 240V 50Hz power supply. Options will include a Hayes-compatible 1,200/300 bps modem and a thermal transfer printer.

Minigrams

Tolerant Systems, developing machines to run Unix on National Semiconductor 32000 CPUs in San Jose, California, is the latest to sign up for a source licence to the **Verdix** Ada Language Development System.

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Alpha Microsystems, which is putting together a family of Unix systems to match the machines running the proprietary AMOS, says it has completed the series with the new AM-1100X, an expanded version of the previously announced AM-1100E: it has 68010 CPU with 1Mb memory running the Unimos version of Unix System V; with 55Mb disk, three ports - expandable to 11 - and a 40Mb tape streamer, it costs from £13,721.

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M/A-Com Information Systems, sell-ing to the Federal Government out of Washington, DC, has been awarded a $13.8m two-year contract for Unix systems by the US Internal Revenue Service, and will fill it with 169 Zilog System 8000 Model 22 and 32 Unix System V machines. The 22 is the company's 16-bit machine based on the Z8000 chip, while the 32 is the new one, based on AT&T's 32100. The tax-gatherers want the kit for training staff in regional offices, running software from Global Information Systems Technology of Chicago, Illinois.

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The text retrieval systems Spires is to be distributed in France and the Benelux countries by SG2, the software arm of French banking giant Societe Generale. SG2 sees Unix as an important factor in the rapidly expanding European market for distributed systems, and the company has already developed file transfer software to ISO level 6 standard. SG2 is committed to Spires, a mixture of text retrieval and database, as its sole database product.

No-one is quite sure what the company wants it for, but we hear that AT&T is developing a single-user version of Unix System V and has a prototype of the software in test.

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If there seems to have been a dearth of **Altos** 3068 machines around, the explanation is simply that Altos fitted a tape streamer into its first Motorola 68000 family Unix box - then found that streamers don't work with System V and virtual memory without a lengthy tweak: the job is now complete, and Altos looks to ship 120 this month, another 120 in December and twice as many in January.

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Preparing for its prospective OEMs to begin shipping systems, **Flexible Computer** of Dallas, Texas has come up with two compact versions of its multi-32032 Flex/32 machines in 19-inch card cages; the Series 600 takes up to four CPUs and costs under $50,000 for a two CPU system in OEM quantities, and can be upgraded to the Series 1200 with up to eight CPUs.

- o -

There are several new computer pro-ducts in the works at **Apple Computer** for launch early next year - if the company holds with tradition it will be at the annual meeting around January 25, but the picture is not yet at all clear: some versions have three different new Macintosh machines - all expected to be based on the 68000 family, including a 32-bit 68020 model with high-resolution screen for CAD/CAM; although Apple refuses to countenance the words "Macintosh" and "Unix" in the same breath - but as we went to press Microsoft announced that they would put Xenix on the Macintosh - some of the products - possibly including the file server on the way from **Convergent Technologies** - are expected to run Unix.

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UNIGRAM/X
The newsletter for UNIX systems users

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In this week's issue;

TRILOGY TO PURSUE DEC WITH ELXSI's PLANNED VAXALIKE

Having succeeded in his first but failed in his second attempt to beat IBM at its own game, Dr Gene Amdahl is now shaping up for a confrontation with industry number two, DEC, through his Trilogy Ltd's acquisition of Elxsi Corp. Elxsi builds multiprocessor 64-bit scientific computers with one to 12 CPUs, each rated equivalent to a VAX 8600, and as well as Unix System V.2 and Berkeley 4.3, the machines run under the San Jose company's proprietary Embos operating system. Now, reports **Electronic News**, Elxsi has decided that the VAX/VMS operating system has become so much of an industry standard that it is necessary to provide compatibility between VMS and its own Embos. It says that the next release of Embos will support programs written for the VAX with little modification - provided that they are not instruction-set-dependent: it intends to provide compatibility at the operating system but not the instruction set level. The new release is planned for the first half of next year, and successive releases will take it close to 100% compatibility. It intends to beat DEC hands down on price-performance. The company will also double the performance of the System 6400 with a new CPU, which will continue to be offered in configurations with up to 12 CPUs on the 110-bit wide super-high speed Gigabus. The basic architecture is described in detail in Unigram/X No 18. In the third iteration of the processor, Elxsi will use Trilogy's component interconnect technology to increase performance further. Trilogy says that it has managed to conserve $42m in cash and short-term notes from the crash of its IBMulator and wafer scale chip disaster and will pump $30m of this into Elxsi over the next 18 months, investing in an expanded sales force, research and development and support.

INTEL READY WITH 12.5MHz VERSIONS OF 80186

Since it became available a couple of years back, the highly integrated version of the Intel 8086 microprocessor has never had the media attention of the other members of the iAPX86 family - quite undeservedly because it has a fair bit go ing for it, saving substantial board space, layout and stuffing time over the 8086 or 8088. It costs no more than the sum of the parts it replaces - and the extra performance from higher integration is thrown in for free. And Intel is now ready with a racey 12.5MHz version of the part, in 1.5 micron HYMOS-III technology, which gives a 6 megabyte-per-second bus transfer rate. Intel says that the 6MHz, 8MHz and 10MHz versions of the chip have scored over 300 design wins from cost-conscious customers this year - 30% up on 1984, and has samples of the 12.5MHz 80186-12 version available now, with volume set for mid-1986, at £36 for 100-up.

AT&T, $6,000m IN COMPUTERS, WILL TAKE 40% OF OLIVETTI.

Despite the state of the market, AT&T reckons that 1985 will turn out well overall for the company - and it reckons its total computer business will run out at $6,000m, so that after only two years in the business it will be disputing second place with DEC behind IBM in the US computer industry. It has decided to take up its option to increase its stake in Olivetti SpA to 40% from the present 25%, and intends to do so in March 1986.

DISTRIBUTED DATABASES FOR VAXCLUSTER ACCOMPANY DEC VAX 8650

DEC duly wound up the minicomputer MIPS war a couple of notches further yesterday with launch of the VAX 8650, 44% faster than the year-old VAX 8600 and rated at 6.9 MIPS. The company also more than doubled main memory and halved memory prices - and introduced versions of its databases capable of being distributed over multiple VAXcluster processors. The higher speed of the 8600 is achieved by winding up the clock on the processor boards for a 55nS cycle against 80nS for the 8600. Using the new memory boards, maximum main memory on both the 8600 and 8650 is expanded to 68 megabytes. DEC has now sold 100 8600s in the UK, and installed 80. On the software front, the company has new releases of its DBMS 32 Codasyl and RDB relational database managers: version 3 of DBMS and 2 of RDB provide full support of the company's VAXcluster so that databases can be distributed over processors tied together locally by the VAXcluster facility. The new releases, which operate with VMS version 4 are set for last quarter 1986. There is a companion distributed release of the ACMS transaction processing monitor so that applications can be spread over multiple CPUs. And the company has packaged up some of its more popular software products.

LOCUS LAUNCHES UNIX/DOS FACILITY AS MULTISYSTEM MERGE

Locus Computing Corp, the Santa Monica, California company which was responsible for the OS/Merge facility which runs MS-DOS and Unix System V concurrently on the 80286-based AT&T PC6300 Plus, has also launched the product itself for other 80286 hardware as Multisystem Merge, and already talking to several OEMs. But the product may not be quite the universal panacea that it seems: 1Mb of low memory is divided into a 640Kb partition to run PC-DOS in real mode, and a screen area used by both operating systems, while Unix runs in protected mode in the rest of memory. The result is that 1.5Mb memory is needed to run the combined system. And while Locus says that it has not found any problems running PCDOS programs, AT&T has taken the precaution of adding extra memory management hardware to prevent unruly PC-DOS programs from overwriting other areas of memory this is apparently most likely when switching from protected mode to real mode - and to take advantage of planned future OS/Merge enhancements. AT&T's agreement with Locus provides exclusive rights to sell the software to end users until July 1986, but Locus says that it will take OEM customers six to nine months to incorporate it into a new system, and so the restriction shouldn't cause any would-be implementer any problems. Locus has been best known for its PC Interface Unix file transfer and terminal emulation software for IBM Personals; the PC Interface already stored DOS files within the Unix file system and thus an important part of the Merge technology was already in place before the product was developed. It first implemented Multisystem Merge on IBM's Personal AT; it says that it suggests an end user price for OEMs implementing the product of just under $900, but expects the product to be bundled with hardware in most cases.

STRUCTURED SOFTWARE HITS SNAGS ON PERSONAL WINDOWING EMULATION PROGRAM

US developer Structured Software Solutions has run into some unforeseen problems in introducing its Facet program, which is being designed to turn an IBM Personal into a Unix terminal with windows, and it has discovered that alterations are needed to the Async line driver of the host Unix machine before Facet can be run. Structured Software is in the process of talking to various manufacturers and Facet is currently available only on the IBM Personal AT running under Xenix. But it should be available on high volume, low cost machines such as the Altos Xenix line within 60 to 90 days. Facet, which is written in C, turns an IBM Personal or Personalike into a multi-function terminal with windows when it is linked to a Unix or Xenix system host computer, and it allows 10 terminals to be emulated simultaneously from one Personal. Facet, which took nine months to develop, costs $249 on the host Unix or Xenix machine, plus $199 for each IBM Personal terminal computer. It is Structured Software's first product, and the 12 people there have primarily been involved in consultancy and contract work since the company was founded six years ago.

SPHINX CATALOGUES 3B1 APPLICATIONS

The linking of MS DOS and Unix applications is likely to take a prominent place in the catalogue being compiled by Sphinx of Madenhead for the new Olivetti-AT&T 3B1 computer.

It aims to have the software catalogue, commissioned by Olivetti-AT&T, ready by the New Year to coincide with volume hardware shipments.

The Unihost/PC Works file sharing system from Touch-stone has become something of a favourite with Sphinx customers for linking Olivetti M24s with Unix systems. It manages terminal emulation, allows the M24 to invoke Unix systems via a low-cost RS232 link, and transfers data in either direction between DOS and Unix, stripping such hangnails as unnecessary carriage return control characters as it goes.

The software effectively allows gives DOS users a window on applications running under Unix and vice versa. It sells for £195 on the PC, and £295 on the 3B1.

According to marketing manager Keith Davies, other packages already on the list include Informix-SQL relational database management systems, Quadratron's Q-One word processor, Multiplan spread-sheet and Redwood's Uniplex II office automation package.

ICL PERQ GETS BACKUP FROM SPIDER

ICL has turned to Spider Systems of Edinburgh to provide networked backup tape streamers for the ICL PERQ 3000 family of workstations.

Spider, formed by refugees from ICL's Perq development team, is increasing its concentration on networking and was responsible for implementing the OSLAN network, which is ICL's version of Ethernet for the PERQ.

Following Spider's implementation of the distributed file store (using the Newcastle Connection), the development team dealt with the time wasted backing up onto 1 megabyte floppy discs. As a networked device, the tape streamer backup becomes a less costly solution to backup.

ICL is to supply Spider's tape streaming unit as an option to OSLAN, for an end-user price of £4,800, under a £15,000 contract between the two companies.

ESPRIT PROJECT TEAMS 20 EUROPEAN FIRMS ON COMPUTER-BASED FACTORY STANDARDS

A five-year project to establish Open Systems Architecture standards for Computer-Integrated Manufacturing has been agreed under the EEC Commission's Esprit programme, and it brings together no fewer than 17 European companies and organisations - plus two Americans, IBM Deutschland and DEC, and the Americo-Dutch AT&T & Philips Telecommunications.

UK participants are GEC, British Aerospace, and ICL, and France is represented by Aerospatiale, Cap Gemini Sogeti, Bull and CGE. West Germans include AEC, Dornier, Messerschmitt-Bölkow-Blohm and Siemens. Italsiel and Selenia Autotrol are in from Italy, Christian Rovsing from Denmark and Philips from Holland, and on the academic front the University of Aachen is included.

The starting point for the effort, put at 250 man-years, will be international standards already agreed, notably the MAP Manufacturing Automation Protocol. The project will propose means to develop factory applications which use standard data entities and process and transmit them in a standard manner.

ICON SYSTEMS, SANYO UPGRADE MPS020-2

MULTIPROCESSOR, HAS PICK UP AND RUNNING

Before Utah-based Icon Systems and Software had even shown off the Sanyo/Icon MPS020-2 multiprocessor (UX 50), it was upgrading the specifications.

And it has had Pick up and running on the machine for the last three weeks.

The novel architecture machine will support Unix System V, Berkeley 4.2, MS-DOS and a full IBM System/370 emulation and was given an airing at the November Comdex in Las Vegas.

The MPS0202-2 supporting 32 users has four configurations; with and without IBM AT compatibility and with two different models of the central processor - one operates at 16.67MHz, rated at three to eight MIPS, the other operating at 12.5MHz with a MIPS rating of two and a quarter to 6.

The machine shown at Comdex has 64Kbytes of virtual memory cache, 2Mbytes of disk cache memory and 1 gigabyte of virtual memory space per user.

The central processor has 64K of high speed static RAM. The disk cache proceesor has 32K of high-speed static RAM memory for the exclusive use of operating systems functions, and a 16K high-speed static RAM message buffer. The optional 286/AT processor has 512K bytes of memory.

The enhancements to the system will include the 286/AT processor having a standard 2 megabytes of memory as opposed to 512K bytes, with no price change. The virtual cache will have 512K memory as opposed to 64K.

The system is based on the Sanyo/Icon MultiPath Bus Structure which allows MC68020 processors to have simultaneous access to the virtual memory cache - by January the MC68020 processors will have access to 1 megabyte of memory.

The deal is that Sanyo takes care of the manufacturing in Japan whilst Icon handles all the marketing and development in the US.

Back in October (UX-50) Sanyo was planning to to go into initial production with 100 of the machines in November but it did not apparently quite make it - between 35 and 50 were produced.

Icon claims it has already sold most of them to distributors and end users for a variety of applications. These include teaching computer science courses in universities; office automation systems; and CAD/CAM/CAE engineering shops.

To date there has apparently been only one sale for a system with Pick, a VAR in Orange County - but it has only been available for a couple of weeks.

From the beginning of December Sanyo plans to produce 50 units per month but Icon thinks that demand will be greater than its predictions so the arrangement between Icon and Sanyo is a rolling 90 day forecast.

The MPS020-3, the advanced version of the -2, will be available early next year and is claimed to support up to 256 terminals.

UNIFY TELLS ALL ABOUT ACCEL

Unify Corporation has revealed more about its Accel generator which surrounds the Unify database with both an applications generator and a fourth-generation language (4GL).

According to Leigh Anderson, product manager at the Lake Oswego developer, methods used in Appgen, PRO IV, and IBM-oriented languages such as Ramis and Focus have been taken into account in the design of Accel. PC tools have had a strong influence on the way that Accel appears, especially with such features as the"zoomview" windows for on-screen lookup.

Accel is written in C, and produces applications in a compiled intermediate level code which is said to be machine independent. The generator is table-driven for speed of execution.

Unify has taken the "fill-in-the -blanks" approach, although developers are not limited to this technique. Generated programs can be merged with routines in the Accel language, which means that fairly complex facilities can be built into applications.

One ready-made facility is a lookup-and-paste, which uses multiple windows on the screen.

This kind of facility is targeted at the end user who can't remember the name or code which has to be entered. The user can look up the relevant file with one keystroke, which opens up a window on the screen listing the items. The user then chooses the particular item with one keystroke, and it gets transferred to the working screen.

The short cut, according to Anderson, is that Accel allows programming by exception. Such situations where, for example, a clerk is not allowed to enter an amount in excess of a certain sum without the supervisor's permission, can be programmed in with four or five lines of Accel code. (One of the main gripes about applications generators and front-end languages is that they do basic tasks very speedily, but rarely allow fancy options and sophisticated exceptions).

Another feature adopted from PC tools is extensive use of cursor and function keys, so that developers and end users both avoid using a "language".

While such tools are common in the PC field, they demand more engineering for multi-user applications. Anderson estimates that it will take until mid-1986 for the benefits of Accel to filter through to end-users.

At present there are several beta test sites, including General Motors , EDS and Amoco.

General Motors is using Accel and the Unify database in three sites, where it is known to be using over 16,000 Unix machines.

Unify is charging between $7500 upwards to $140,000 for the top mainframe versions of Accel. It is available for "all the most popular machines" according to Anderson.

The program joins such products as Appgen and the Today generator, which are aimed at putting a quick-and-clean front end on Unix development facilities.

Accel will be available in the first quarter of 1986, with an MS-DOS version planned for the end of next year.

FLEXIBLE WINS US GOVERNMENT CASH TO SPEED PAST CRAY 1S

WITH 150 MEGAFLOPS FLEX/32 MULTICOMPUTER

Flexible Computer Corporation in Dallas, Texas, has won a US government research grant to complete the development of an array processing board for its Flex/32 Multicomputer (UX 7)which will give each module a scientific computing capability of over 150 megaflops - millions of floating point operations per second.

The Flex/32 architecture has 20 slots linked by both a high-speed local bus and an input/output VMEBus - and each slot can house either a cpu card, a memory card, or one of the array processing cards under development, in any combination.

This is claimed to produce that rare beast, true multiple instruction stream/multiple data stream parallel processing, with each processor able to act either independently or as part of a single multiprocessing whole.

The cpu cards currently use the NatSemi 32032 chip, but early next year versions will be available using the Motorola 68020, its own 32-bit bit-sliced processor, or a specialised Lisp processor.

The company claim that the new array processing card will enable the machine to do for the 32-bit scientific processing market what Cray Research has done for the 64-bit supercomputing market. The Cray 1S is rated at 150 megaflops, while each of the scientific processing cards is rated at 15 megaflops, giving each cabinet a comparable megaflop rating to the Cray 1S.

The whole machine is controlled by an extended System V, and the individual cpus can run a chice of three operating systems in any combination: System V for softweare development, a Concurrency Simulator to test parallel applications , or the proprietry MMOS - Multicomputing Multitasking Operating System - which is a stripped down, modular, real-time, run-time version of Unix.

MMOS is designed for real-time embedded systems and will run applications developed under Unix with only 20 per cent of the overhead of the Unix run-time system. The run-time system for each embedded application is assembled at compile time, with only those modules of the operating system needed by that particular application loaded and linked.

Flexible have taken the Verdix Ada compiler (Ada is the language specified by the Pentagon, Nato, and the Ministry of Defence for all "mission critical" real time military applications)and hope to have a validated version running on ther Flex/32 early next year, to add to the currently available Concurrent C and Concurrent Fortran.

Ada applications will be developed under System V to run under MMOS in the embedded systems.

Flexible uses a 50" by 19" by 24" box taking three rows of ten slots; the lower two rows take either CPU modules or memory modules, while the top row takes interface cards. The CPU modules include 32032, memory management, hardware floating point support, optional 1Mb RAM and interfaces to local bus and the VMEbus used for input-output. Memory cards come in two varieties; a mass memory card with one to 8Mb RAM with 150 Nanosecond access time, and a high performance card with 128Kb to 2Mb of 35Ns memory. The mass memory is intended to provide local storage for each CPU, while the high speed card is intended as common memory shared by one or more CPUs. The interface cards are in two types; a common access card interfaces the local bus of each CPU to the common bus used for communications between CPUs; it includes 128Kb memory and proprietary hardware for interprocess communications, and there is one card per CPU in a multi-CPU system.

The common control card provides an arbitration mechanism for controlling the communications between CPUs, and only one is needed in a multi-CPU system, although it can be duplicated for fault tolerance.

In addition, every building block has a hardware selftest system which performs automatic startup and shutdown, diagnostics and can be used for performance analysis and tuning of applications.

A second box takes a selection of VME peripheral control cards.

To support concurrency betwwen CPUs, several mechanisms are provided, accessible through the ConCurrent C extended C language. Three extensions to System V interprocess communications are supported, which use the common memory and hardware arbitration; semaphores can be shared by multiple CPUs, the common memory can be designated as shared memory, and messages between CPUs use hardware to synchronise access to message queues.

The system also supports "remote" facilities to allow CPUs to get at each other in different ways, including remote print queueing to enable a CPU to share its printer, mail, file transfer and remote execution. ConCurrent C allows the programmer to allocate tasks to specific CPUs, to define interprocess communications, and to protect shared data from more than one process at a time.

A number of keywords have been added to C for these features; C already provides the external data definitions needed for common variables, but new words include EXCEPTION - to define traps or interrupts which can then facilitate interprocess communications.

COBEGIN is a concurrency control statement that defines the order in which processes execute.

ACTIVATE initiates an event causing EXCEPTION handling. WHEN, WHEN - ELSE and WHENEVER are fairly self-expanatory constructs to extend condition processing.

The ConCurrent C preprocessor turns ConCurrent C source into a C source file with unresolved system calls to the real-time utilities which is compiled with the Unix C compiler and then run through the system loader, which links in the library routines from the system library to support the concurrent and real-time features.

RELATIONAL ADDS SQL TO INGRESS 4.0

Relational Technology Inc of Alameda, California has launched version 4.0 of Ingres, its relational database management system, in Europe.

The Ingres update includes SQL, the query language first seen on the company's products as part of Ingres/CMS in September this year (CI No 278). RTI claims that 4.0 has a performance capability around 40% higher than previous versions and expects to produce similar improvements over each of the next three years.

At present, only 20% of the company's business comes from Unix users but a 50% increase in this level is expected in the next two years, because of the built-in distributed access facility which will link dissimilar computers in the same network.

The price of Ingres 4.0 starts at £6,000 for MicroVAX I ranging up to £72,000 for the DEC 80600. RTI is rumoured to be close to its biggest deal for Ingres/CMS, the IBM version of Ingres. General Motors appears to be the likely customer.

In April, RTI set up a London-based European subsidiary. Already, Relational Technology International has generated revenue "in excess of £1.5m" and is confidently expecting to turnover between £3.5m and £4m for the year.

PROMISE TO HELP END USERS

Comparitively few productivity tools pretend to be for naieve end-users; they are primarily to speed software development for programmers.

However one candidate designed specificially for computer innocents is PC-Promise, a British database management system which made its debut at Compec last month. PC Promise is both fast and rich in fancy facilities, and is already adaptable due to being written in C.

Author Nick Duncan of Duncan Databases has been approached by several interested manufacturers and suppliers. It is likely that a multi-user Xenix version of PC Promise is will be out before long.

AMCODYNE AIMS DISKS AT UNIX MARKET

Amcodyne Inc of Longmont, California is making a pitch for the Unix market with a new, larger capacity 8" fixed/removable disk drive.

The Tomahawk 7130 has 107.8Mb of unformatted storage with the fixed portion accounting for three-quarters of the total capacity. This means that the removable cartridge is 26.9Mb, the same as on Amcodyne's existing Arapahoe 7110 and 7110S drives so that existing users can expand their capacity without changing their cartridges.

Within the last year, the company has signed major OEM deals worth a total of $50m to supply ICL (for the Clan), NCR and Hewlett-Packard with the 7110S and is hoping for similar success with the 7130.

In the UK, the product will be boosted by the availability of controllers for Microvax, Data General's desktop, the Wang 220 and IBM PC/AT from Amcodyne's distributor, Legend Group. The 7130 will cost around $4000 to OEMs in the US, slightly more in Europe. There are two versions: one with a SMD interface, the other with SCSI, aimed at the Unix market.

APPLE SET WITH BIG MACS, JONATHAN AS MICROSOFT ADDS LOGO, SETS XENIX FOR MAC

First step in the emancipation of Apple's Macintosh is expected in January with launch of the Mac Plus, with 1 megabyte of main memory, and Microsoft is planning a Macintosh version of Xenix.

The Mac Plus will include 800Kb 3.5" floppy, hard disk controller and AppleTalk network interface for about the same price as the present Mac. The machine, or a later model, will have memory expandable to 8Mb against the present limit of 512Kb.

Not much further out is Jonathan, a 68020-based model with 12.5MHz clock and 4 megabytes of main memory - plus a healthy 128Kb of ROM, which should mean the machine is a good deal faster than the present Mac. It is also expected to have a full-page portrait screen putting up 512 by 720 pixels - but colour is still two years away.

Meantime, although Apple told us from Cupertino that it had no plans for Unix on Macintosh, Microsoft says that it is working on a version of Xenix - but with no release date.

And, bolstering the machine for the educational market, Microsoft has launched a £145 Macintosh version of Logo. Logo, invented by Seymour Papert, is fast gaining popularity amongst teachers, especially of primary school children, as it is easy to learn, uses graphics, and includes high-level techniques such as recursion and pattern-matching which feature in artificial intelligence languages like Lisp and Prolog.

NEXEL SEEKS ITS FORTUNE IN THAME

Thame based Nexel, the service company that grew out of the Government owned Nexos experiment, has signed up to distribute the Fortune range of machines, and is planning to cut the amount of business that it does through backup services.

It is wooing large company accounts with its own permutation of Fortune's office automation systems linked to laser printers and word processing interfaces. Fortune machines run on a proprietary version of Unix called 4:Pro. The company plans to follow somewhat in the footsteps of its old parent Nexos, by trying to offer a broad spectrum of services into the office, right down to providing the photocopier.

Nexel's expects to use all the standard components from the Fortune office automation range, but reckons that selling everything for the office, rather than just computer hardware is a whole new niche in its own right.

Add-ons to the system include Ricoh's heavy-duty laser printers (LP4120 and LP4080) and the Hewlett-Packard laser printer, and a clever box from Keyword Office Technologies.

The Keyword 7000 provides software pairings and disk-to-disk copies from one word processor to another. The 7000 pairings include all document and format codings for popular word processors such as Wang, and the hardware, costing £9,000 or so, copes with 5.25 and 8 inch disks.

Fortune offerings include all the extras which came out with the 1.8 release of the operating system, graphics co-processor and Graphwriter software, and the latest release of Fortune:Word word processing software, with simultaneous Fortune:Windows, and communications facilities including 3270 SNA emulation and local area networking linking up to 255 machines.

UNIGRAM/X

IBM UK ANNOUNCES NINE PRODUCTS FOR ITS IX/370 MAINFRAME UNIX

IBM has now announced in the UK its first nine products for the IX/370 version of Unix System V which runs under the VM operating system. The products, which all come from third parties, include IX Cobol from Austec in Australia, Basic from UX Software and Pascal from Human Computing Resources. There is the Informix relational database from Relational Database Systems along with a C and Cobol programming facility. And there is UltraCalc from Olympus Software and ProChart from Visual Engineering.

ENCORE EXODUS GATHERS SPEED AS FIRM KILLS WORKSTATION

Demonstrating once again that enormous volumes of venture capital and a supergroup of all the talents is no guarantee of success, a haemorrhage of top talent at Encore Computer Corp has culminated in a decision to scale back operations drastically and kill the Resolution workstation. The Wellesley Hills, Massachusetts company is shutting down the Resolution division with the loss of 40 jobs, leaving it with 200 employees, and it now in tends to concentrate on its flag ship product, the Multimax multi processor Unix machine built around NatSemi Series 32000 microprocessors. The announcement was preceded by a new string of departures from the firm. Leonard Hughes, who was president of the surviving Multiprocessor Systems Division has left to become vice-president of operations at the Digital Products Division of Vitesse Electronics in Camarillo, California. Vitesse is the company doing a Gallium Arsenide version of the AMD 2901 bit-slice microprocessor, but the Digital Products Division is working on a multiprocessor system. New recruit James Pompa, hired from Honeywell, adds the post vacated by Hughes, who was with Encore only six months. Joseph D'Angelo, manufacturing vice-president at Multiprocessor Systems has left for Charles River Data Systems. And Len Hafitz, vice-president of the Resolution workstation division, has also left the company. Other major recent departures include co-founder Henry Burkhardt, and Tomo Razmilovicz.

MS-ASSOCIATES PLAN PL/1 TRANSLATOR

C specialist MS-Associates of Bourne End is eyeing PL/1 as the next candidate for its conversion software.

The company has already produced several dialects of Basic-to-C translators which enable customers to move their software out of their native environment into Unix.

Recently Cobol got the escapology treatment with an interface to C-ISAM, which as yet has not become a full source-to source translator (UX No 53). In the meantime the company is turning its attention to IBM's workhorse PL/1, following an approach from a large unnamed corporation.

According to managing director Keith Maskell there are hundreds of packages written in PL/1 for IBM mainframes which are ripe for distribution in the multi-user market which has grown up around Unix.

The contract could be worth more than £50,000 to MS Associates, which is also considering a translator for that other IBM stalwart, RPG II.

EMERGING TECHNOLOGY PUTS ITS WRITERS PACKAGE ON THE NCR TOWER

Emerging Technology of Boulder, Colorado has a Professional Writers Package running under MS-DOS and Unix which it is gradually porting to different machines - the latest being the NCR Tower family of Unix supermicros.

The package has been available since February this year but was available only on the IBM Personal under MS-DOS, and on the AT&T 3B family and the Unix PC under Unix System V.

But by the end of the first quarter next year Emerging intends to have the package available on the IBM Personal AT under Xenix.

The Professional Writers Package consists of a text editor; a document formatter; a spelling checker; and an index generator, and all four are available separately from Emerging Technology.

The package is available for MS-DOS versions at $490 and for Unix versions from $595 to $1,700.

Emerging Technology has only one distributor in the UK, and that company handles only MS-DOS, so Emerging Technology is keen to to find outlets for the Unix versions.

Minigrams

- o -

AT&T is claiming a breakthrough in flat screen technology with a one inch thick high contrast, distortion-free AC Argon and Neon plasma display weighing 4 lbs. It has a 75° viewing angle. Samples are out now with volume in mid-1986.

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At this rate there won't be a 1M-bit random access memory chip generation at all: **Toshiba Corp** claims that it has successfully fabricated a 4M-bit dynamic RAM to 0.8 micron design rules, integrating 10m transistors in what is presumably CMOS.

- o -

A few more details have been reached us on the Safari 7 IBM Persona-like lap-top to be manufactured for **AT&T** by **Olivetti**: ac cording to **Computerworld** the thing will have **two** 80C88 microprocessors from **Harris Corp**, will have 256Kb of main memory expandable to 1Mb, 360Kb of solid state secondary storage and a 360Kb 5.25" floppy disk drive with 10Mb Winchester option; most unusual feature is that the 9.5" liquid crystal display will offer a four-colour mode.

- o -

$10m to **Cray Research** from **AT&T Bell Laboratories** for an X/MP-24 scientific supercomputer.

- o -

Texas Instruments is working up Unix System V for its 80286 Business Professional Computer.

- o -

Data General is determined to get the screen for its Data General/One lapsize computer right, and having twice improved the liquid crystal display screen currently offered since the machine was launched in September 1984, it is set for yet another iteration: it is not certain whether the new screen, set for the first quarter of next year, will be yet another LCD or a gas plasma.

- o -

MAP Computer Systems has formed a new company, **Evolution Software**, based at MAP's head office in Greater Manchester, to promote its Evolution suite of accountancy software written specifically to run under Unix. Packages available include nominal, sales and purchase ledger, sales invoicing, stock control, sales order processing and payroll. Evolution is priced at £850 per package for multi-user systems, and £450 on single-user systems.

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UNIGRAM/X

The newsletter for UNIX systems users

London, Week Ending December 21 1985 Issue Number 58

AT&T's C++ IS BAD NEWS FOR SLOPPY C PROGRAMMERS

If you're a sloppy programmer, you're in for a hard time with C++. This was the caveat issued by Mark Rafter of Warwick University when he shared his short experience of AT&T's new pre-processor with the one-day UKUUG conference on Monday.

C++, he said, sticks to the spirit of C, but derives its flavour from various other languages; BCPL, Pascal, Lisp and Algol 68 all got a crack of the whip.

As with original C there are no large hidden runtime costs, and C++ retains the same level of intimacy with the hardware that its predecessor enjoyed, without so many snags.

"It's much more enjoyable than programming in C" he stated. "It was getting to the point where that felt like a waste of time."

Among the other advantages he mentioned were the comparitively supportive nature of C++,which has built-in mechanisms to deal with such irritations as lost pointers.

Added to that, C++ is supported (where C had 200+ bugs), well-documented, comparitively cheap, and available immediately.

Some of the disadvantages he aired were the result of the need to stay totally compatible with C. The C++ translator is already expanding ("biggish" was his most precise description) and required serious re-tooling of C. It also needs around a half Megabyte to run effectively.

C++ is already widely used within Bell Labs where it is rumoured that the Unix kernel is being rewritten in C++.

Costs are $250 for an educational licence, $2000 for a commercial licence (plus $1000 per CPU) and $2000 plus $50 to $500 per user for sell-on licences.

C's borrowings from other languages are subtle but effective. You no longer need an ampersand for implicit variables, and as with Algol 68, all declaratives are as close as possible to their first occurence. Function arguments perform the same job as Pascal VAR arguments. Comments use the same conventions as BCPL. And Lisp? That's what your code looks like when it has been through C++: full of brackets.

For the insatiable, here are a couple of Rafter's samples.

```
extern double sqrt (double x);//<math.h>

for (int i =1; i < arg c; i++){
```

If this whets your appetite, there is already a book on C++ available from Addison Wesley.

ORION HAS UNIX SNA PACKAGE AFTER JOINT WORK WITH APPLE

Orion Group Inc, another in the growing group of vendors developing SNA products for Unix machines, has come up with a package jointly developed with Apple Computer, which is distributing the product. Orion's sna62 software-only package, written in C under Unix, supports the Logical Unit 6.2 level, which allows communication between network devices with a greater degree of independence from host mainframes and is currently the hot topic in SNA communications. Berkeley, Cali-fornia-based Orion is seeking OEM customers for the package and says it's close to agree-ment with two Unix systems manufacturers.

In this week's issue;

CONVERGENT STRIKES HARD BARGAIN ON BURROUGHS "B28"

Paul Ely, boss of Convergent Tech-nologies since January, clearly reckons that his predecessors were too prone to give the store away in the agreements they signed with major OEM customers like Burroughs Corp which allowed them to manufacture its workstations and supermicros once a pre-set level of purch-ases had been met. According to **Electronic News**, Convergent is close to concluding a deal under which Burroughs will market the 80286 version of the N-Gen station, perhaps as the B28 - but this time, Burroughs will get manufacturing rights only if Convergent is unable to deliver in the quantities agreed or if its unit price rises to high.

UKUUG SPREADS THE WORD TO 300 FAITHFUL ON RECENT DEVELOPMENTS

The latest release of System V and a taste of things to come; C++ ("C will never be the same again..."); the way forward with X/Open; and previews of a number of software tools under development in the UK were among the highlights of a technical meeting at University College, London, last Monday (December 16).

The event was organised by the UK Unix Systems User Group, the national arm of the the European Unix User Group, in response to the interest generated by the pilot meeting in Glasgow last February. Around 300 members turned up for a full day of lectures covering recent trechnical developments.

Alex Osadzinski from Unix Europe announced what is probably the first benefit to the user of AT&T's recent decision to "unbundle" Unix: now, for the first time, you don't have to pay for the "optional" features in a release that you do not use.

The good news came during a talk on "System V, Release 2.1 - The Transition Release", so called because it is designed to ease the move to Release 3, planned for next spring, which promises to be a major effort.

The end of the Vax era

Not only has the porting base changed from the traditional Vax to the AT&T 3B2 Model 400, but also the changes and additions are so major it will take many months to become familiar with them all.

So, to lessen the shock, AT&T has bundled a number of the changes with the change of porting base and called it Release 2.1. And, for the first time, Unix Europe will be offering support contracts with it.

A partial list of the changes would include:

a new layout for the source files; changed system administration, help files; major changes to the C compiler; demand paged virtual memory; and advisory or mandatory file and record locking. (See Unigram No 54 for more detail).

The last two are unbundled options that you don't pay for if you don't use.

The basic price for the release is $5,000, which can be set against the cost of the full V.3. And it entitles to customer to a 30-35 per cent discount on a 3B2 from Olivetti to use as a porting base.

Osadzinski also revealed that education sites would be able to try out and test the robustness and usefulness of new tools and features developed at Murray Hill, the home of Unix inside Bell Labs. These preview tapes will come with the world-famous documentation, user-friendliness, back-up and support enjoyed by Unix in the early days.

A report on developments in the X/Open proposed European standard was delivered by Colin Taylor from ICL - a prime mover in the international bid to stamp on the uncontrolled proliferation of "near-compatible" versions of System V.

Seven major European manufacturers agreed (itself almost unheard of) that everyone would benefit and make more money if Unix applications were truely portable across all their machines, allowing the user to mix and match hardware and software from many different suppliers.

They then took the revolutionary step of defining a Common Applications Environment (CAE) to turn the dream into reality - any application conforming to the Portability Guide will be portable at the source code level to a wide variety of machines.

The environment is based, at the operating system level, on AT&T's System V Interface Definition - the group is committed to making it pass the verification tests - but with many extentions at the applications level.

These include data management, applications integration, data communications, distributed systems and high level languages. However, like System V itself, these extentions are optional, with the user conforming only to the mandatory base and those extentions relevant to each application.

The current guide supports C, Cobol and Fortran, with Pascal planned for the next edition due in September 1986. In data management, the guide only defines an interface for the Indexed Sequential Access Method, but the group is working on a definition of SQL as the standard applications interface to relational database systems.

The X/Open group is also working to define applications interfaces for access to the Open Systems Interconnection networking services being developed by the International Standards Organisation to link different kinds of systems from different suppliers.

Probably the most ambitious proposal from the X/Open group concerns Generalised Inter-Process Communication - the ability to exchange data between processes either in the same machine or transparently over a network.

The standard Unix IPC is limited to pipes and filters, although System V has kernel extentions to allow limited message passing via a shared memory. The latter is rejected by the X/Open group as inadequate, and it plans to define a generalised IPC service for applications, probably based on the forthcoming Streams mechanism.

The group also has plans to define facilities to support distributed file systems, but it is silent as to whether it will support the Network File System from Sun Microsystems on 4.2 bsd or the Streams-based Remote File Sharing approach taken by AT&T in the "revolutionary" Release V.3 due for next summer. However, as AT&T has commissioned Sun to port the NFS to System V and Sun has committed itself to SVID, it seems likely that both will appear as options in a future SVID, allowing X/Open to define interfaces to either or both systems.

Distributed Transaction Processing and graphics are two areas that seem to be coming under the iron grip of international standards, simplifying the definition of applications interfaces. But the group seems to be in dispair over its attempt to even begin to define a portable set of routines for the User Interface - the whole area seems to have been relegated to the distant future and "advanced human factor principles".

Taylor stressed that the Portability Guide was in the public domain and the X/Open Group encouraged anyone and everyone to follow it, thereby increasing the potential market for the portable applications and the range of machines to run them on.

The group still consists of Bull, Phillips, Olivetti, ICL, Nixdorf, Siemens and Ericsons, but Taylor expects it to grow in the near future. Most major European suppliers had enquired about joining, he claimed , but membership had been restricted to those who could offer new skills.

The EUUG concentrates on helping Unix users understand and get the most from the system, while the complementary /usr/group/UK promotes commercial Unix. The latter has recently set up regular meetings with Unix Europe, AT&T's licencing arm, to exchange information on Unix developments and feedback from users in the UK.

HCX-7 POINTED AT IBM'S OA CUSTOMERS

When Harris launched its new HCX-7 high performance last week, it emphasised the traditional Unix markets of universities, polytechnics, research and systems houses. In fact the HCX-7 is spearheading Harris' attack on IBM's traditional preserve. The HCX-7 will be sold against IBM machines, and as add-ons to existing installations.

The HCX-7 is significant because it marks the first time that the company has implemented a native Unix on any of its machines.

Harris has concentrated on getting high performance out of the HCX-7, which is the result of two years' development and research. The 32-bit machine was developed with help from Computer Consoles under the $10 million technology agreement between the two companies which was signed last year, although Harris did the bulk of the design work. The HCX-7 uses a five-board CPU built in Schottky TTL bit-slice chips.

Previously Harris only offered Unix under its own VOS operating system, on its 860 to H1200 machines, (1.5 MIPs to 5 MIPs) and Xenix on its lower-end machines, the 4000, 5000 and 6000. The HCX-7 is reported to run at 7.7 MIPs under AIM and 7.1 under Whetstone benchmarks. According to Mike Baker, newly appointed UK manager, the price-performance of the HCX-7 outstrips DEC Vax 8600, Data General's MV20000 and the Prime 9955.

In the open market, the system is likely to be competing with Data General's MV10000 under MV/X, the Vax 8600 under Ultrix and the Gould PN9000 under UTX. Harris says that the HCX-7 has been optimised for Unix and C in such a way that it should be very attractive to universities and development environments. Computer Consoles aided in the addition of various Berkeley 4.2 additions to the System V implementation, including the network file system. According to Software Manager Robin Moore, the idea was to pick the most frequently used features of 4.2 such as VM system and the fast file server, so that it appeared to be true Berkeley for those that worship at that altar. The portable compiler conforms to the proposed ANSI standards and is true to Kernighan and Ritchie. (To demonstrate that it's really serious about this, Harris is sponsoring C standards meetings in the US).

Harris is relying on its ability to run large programs under Unix, along with the price/performance hook, to land educational contracts for the HCX-7, particularly in the CAD/CAM area.

At present the machine has hardly taken the US market by storm. Harris reports four US installations since the June launch of the HCX-7 in the US, all in the 100-128 terminal configuration.

However the long term plans involve some heavy in-house software development. The key is the blending of product lines, which should appeal to Harris' eventual target of corporations and IBM sites which are looking to integrate a variety of systems. The idea is to mix any number of proprietary operating systems and environments under one user - friendly interface. Harris is calling its "soft key" system Perspective, and Moore's description sounds ingenious. The confused multi-environment user gets a bird's eye view of all the different operating conventions, what function keys do which jobs under which system, and so on. The system is said to cope with any number of environments, and should be just the bait to catch large DP installations already in possession of a hotch-potch of IBM hardware. With the administrative and database markets in view, Harris plans to implement the Unify database by March, and Oracle by the end of next year.

The company admits that as yet it has not put its full weight behind the product, but that should change in the New Year, with some intensive education going on amongst its sales force. The company's UK plans received severe setback with the sudden death of UK manager Jim Payne this summer. Payne, an American, was heavily involved in changing Harris' marketing strategy. Things now appear to be on course with the appointment of Baker and Moore, both Britons, to get the show on the road in the UK. The arrival of the HCX-7 strategic product for the company.

Prices start at £230,000 for the 32 terminal HCX-7 system, including Unix licence, going up to the top-of-the-range HCX-7 which supports 240 terminals, for which Harris could not give a price. The HCX-7 also features up to 32MB of main memory, dual bus architecture, floating point precision with 32- and 64-bit precisions, and independent caches for virtual address translation, instructions and data.

C-HORSES OF A DIFFERENT COLOUR

Brighton-based Trafalgar House subsidiary ABS Computers, currently locked in litigation with Perkin-Elmer over alleged defects in its 32-bit Unix minis, has now gone to Zilog for its machines, taking the new System 8000/32 Unix machines, which use the AT&T WE32100 microprocessor and were launched last month as the latest in its C-Horse range of Unix boxes. It has received a £1m writ for non-payment from Perkin-Elmer and has replied with a counter-claim alleging that the Perkin-Elmer implemention of Unix was one reason that ABS now had almost £1m of unsold machines in stock. The new deal with Zilog is worth about $4.5m and will provide compatability with ABS' previous range and run the company's own Simple language, blamed by Perkin-Elmer for poor performance of the C-Horse 300. The latest machine will be called the C-Horse 800 and is being seen as a mid-range machine with larger and smaller ones promised next year. ABS is going after the traditional ICL market with customers in local government and health authorities as well as commercial customers. Indeed, the availability of communications for the C-Horse range may be a threat to ICL for the forthcoming 68000-based Clan, still unannounced in the UK, will have no communication facilities until late next year. The C-Horse 800 will support an average of 25 users and has a maximum memory of 8Mb. It comes with 32Kb cache memory, 52 or 168Mb Winchester and back-up cartridge running at 6Mb a minute.

EUUG CATALOGUE FOR MICROS AND PRODUCTS

The European Unix systems User Group has produced two new catalogues for European users of Unix. The second edition of the 'Unix Micros Catalog' is based on updated information on about 70 microcomputer systems gathered from manufacturers in Europe and the USA. 'Unix products for Europe' is a survey of European and US Unix products and services. It lists about 300 different Unix products and covers consultancy, courses, hardware systems, hardware/software packages, publications, services and categorises the various software packages available such as software graphics or software compilers.
The first edition of the 'Unix Micros Catalogue' was brought out two years ago and this like the new one is not apparently intended as the definitive answer to all Unix micro problems but is intended to point out that there are options and who the people are to talk to. This catalogue is set out by company ordered alphabetically, the address and telephone number of the company is also given. Each entry in the catalogue uses the following key words in order to give as complete an overview of the Unix system as possible:- Name System: the name or the type of the system, CPU and Speed: the processor type and the speed specification of the processor, Max. Physical memory, spec. mem bus, dual ported mem: the minimum and maximum physical memory allowed possibly together with some specification, Type Unix system: the version of the Unix system or the name of the Unix port, Company of Unix port: the name of the company who did the port of the Unix kernel to the system, Vendor of controllers: vendors of the CPU board etc., Vendor of peripherals: vendors of disk dive etc., Basic Configuration: the basic configuration for the system and the user price or the board price, Applications: if the system is intended for special applications this is noted, Remarks: General remarks about the system or company, Distributors: location of distributors in different countries. Not all keywords are used for every company and occasionally the comments are not terribly helpful - details available on request. An index of systems is provided as well as an index of Unix type operating systems.
In the 'Unix products for Europe' catalogue entries are again ordered by company name but this time within product categories. Each entry is a product and for each one the name and address of the supplying company is given.

MAP FORMS UNIX COMPANY

MAP Computer Systems has formed a new company, Evolution Software, based at MAP's head office in Greater Manchester, to promote its Evolution suite of accountancy software written specifically to run under Unix. Packages available include nominal, sales and purchase ledger, sales invoicing, stock control, sales order processing and payroll. Evolution is priced at £850 per package for multi-user systems, and £450 on single-user systems.

AT&T PAYS SALES FORCE TO HELP VARS

AT&T, in an unprecedented move to defuse the conflict between value-added resellers and its direct sales force, is offering its sales force full compensation for referring orders to VARs. The decision follows a successful joint marketing trial, reports **Computer Systems News**; AT&T Information Systems divisional manager Charles Redmond said that it wants to "integrate the efforts of its indirect partners with the direct sales force to create a unified, more capable combination".

INTERGRAPH PADS OUT THE BOTTOM END AND GETS INTO VIDEO

Intergraph (Great Britain) Ltd of Newbury, Berkshire, one of the major Computer-Aided Design, Manufacturing and Engineering systems manufacturers showed off its latest additions to its line of interactive computer graphics systems at a seminar in London recently. The additions included a new bottom-end of the range workstation - the Interpro 32, a mid-range processor - the Intergraph 200 and a video projection system. The Interpro 32 is a 32-bit workstation built around the NS32032 and 80186 chips which may either be connected with the Intergraph 200 on Intergraph's Ethernet communications network to act as an intelligent graphics workstation terminal or it can operate as a stand-alone workstation running programs developed for the Unix System V operating system and as an IBM Personalike for programs running under PC-DOS.
This workstation has been available since the summer but its release was delayed while teething problems with Natsemi's new 32032 were ironed out and Intergraph waited for a standard implementation of Unix System V for the chip. The Intergraph 200 is a packaged data processing system built around the 32-bit DEC MicroVAX II microprocessor with specialised sub-processors; the Interbus File Processor; the Communications Processor; the optional Graphics Processor. The Interpro 32 costs £21,600 and the entry level price for the Intergraph 200, £130,000, includes 5Mb of main memory, one 337Mb fixed disk drive and a 1600/3200 bpi cache streamer tape drive plus the standard sub-processors for high speed disk searches and Ethernet communications. The video projection screen comes complete with screen, projection system, software and the relevant cables at a price of £27,000.

CIRCULAS GET AROUND TO ALTOS

Circulas of West London has ported its electronic mail and message handling service, Ceemore, to the Altos 3068 machine.
Ceemore is an electronic mail system that provides a private mailbox service and access to various public networks and mailbox services. The package is only implemented on Unix machines and all Ceemore work files and mailboxes are held under one directory accessible through root only. A full Ceemore system's size is about 1500 blocks, depending on the volume of messages held. Ceemore allows, according to Circulas' managing director, users to send messages via any electronic mail service and the same message may be sent to multiple addresses: Ceemore is also apparently not hardware dedicated.

QUADRATRON: ONE OF THE TOP TEN? HAS A VME PORT FOR Q-OFFICE+

The US based company Quadratron has just raised 5 million dollars of private institutional investment through an investment bank in the US. This values the company at 25 million dollars putting Quadratron according to the Chairman of the board, Karl Klessig, in the ranks of the top ten software company's in the world. The company is despite this claim still relatively small it numbers only 68 members of staff in its corporate office at Sherman Oaks, California and perhaps another thirty or so spread around the world. Klessig attributes a portion of the company's success to its small size. The other major contributing factor to this claim to success is Quadratron's product Q-Office+, which Klessig claims has no competition in the market. Q-Office+ is the company's C-language, hardware independent office automation package which includes eight software modules operating separately or as a whole. The packages are Q-One - word processing; Q-Date - electronic calendar; Q-Menu - menu manager; Q-Mail - electronic mail; Q-Note - electronic notepad; Q-Call - database phone directory; Q-Math - office calculator; and Q-Forms - forms generator. Another series of packages from Quadratron called Productivity Software Products and are reputedly full-function office automation packages including Q-Plan - spreadsheet; Q-Phact - data base manager; Q-Chart - business graphics which may be used with Q-One; Q-Craph - business graphics incorporating colour; Q-File - text data base manager. All of these products have according to Klessig been designed for compatibility with a wide range of computer systems, from 16-bit personal computers to large mainframes. The software will run under Unix, Unix derivatives, MS/DOS and PC/DOS: a VMS port on the DEC operating system will be completed before the 15th of January. Quadratron think that the VME port could be important to them as DEC is to the office automation environment but it will not affect the company adversely if this is not realised. Quadratron has also completed a series of customized adaptions of the Q-Office+ family that will allow users of CAD/CAE type engineering workstations to access all Q-Office+ functions available on dedicated design/engineering and traditional multi-user systems - this has arisen through customer demand. Current custom development efforts are aimed at providing Q-Office+ support for Sun Microsystems, Apollo and Cadmus workstations, AT&T 7300 multi-user systems and systems that incorporate Digital Research's Graphics Environment Manager and Microsoft's Windows to control the user interface. Klessig thinks that "one of the most significant developments in the office automation industry during 1986 will be software products that allow end-users to access and share documents originating in different environments": Quadratron has recently announced Q-Bridge software which allows standalone intelligent workstations to link to a foreign system and either download or directly access Quadratron applications running on that system without concern for the differences in operating system and hardware. Klessig also says that "From the start our goal has been to develop a single environment that incorporates all of the most useful computerized productivity functions within a system that doesn't require each operator to be an accomplished programmer." Q-Office+ hides the features until the operator requires them for any complex processing additionally each component of Q-Office+ allows the operator to specify his skill level thus you could be a novice word processor user but an expert spreadsheet user whilst accessing them both at the same time - three skill levels are available; the first takes you through step by step and the last gives you very little guidance. Quadratron was founded in 1983 by Karl Klessig, chairman; Stefan Zimberoff, vice-president of software; and Les Kristoff, vice-president of finance. Quadratron is a privately held corporation and a public offering is planned for 1987. 1985 sales forecasts include a $13m guaranteed minimum sales contract from OEMs - Quadratron now has 61 signed sales contracts with manufacturers such as Bleasdale, Burroughs, Gould, ITT, NCR, Nixdorf, Northern Telecom, Olivetti, Perkin Elmer, SCO etc. The products are distributed through direct sales to computer manufacturers that bundles or private-label Quadratron software on their computer zsystems. The deal with the manufacturers is that they commit themselves to buying acertain number of packages even if they do not actually sell them. The UK technical support and training office was set up in September 1984 in South West London with very little fuss made - Quadratron says that people were going to great lengths to find them and get the product off them even though Quadratron were not at that stage ready to sell - but all problems of this nature have apparently been ironed out.

Unix was chosen at the launch pad for Q-Office because the founders thought, as did a lot of other people, that this would be the operating system for the coming years - thus insuring their product not because they considered Unix the most suitable one. Klessig is confident that the right decision was made despite him covering his bets with other ports and says of Unix that "it'll just keep on growing". Quadratron according to Klessig intend to become the standard office automation software suppliers in every country within the next few years. By the end of next year he expects to have eight or nine European governments committed to Quadratron and talks are already underway with the Ministry of Defence in the UK. Apart from the Californian and London offices Quadratron has offices in Switzerland, Canada, Australia and soon in Asia. Quadratron's future plans include further exploration of communications software following hardware development from others; speech recognition and usage; and the expansion of the vertical marketplace for its current product range.

PERKIN-ELMER FILES TO OFFER 2m CONCURRENT SHARES

Proceeding with its plan for a partial flotation of its minicomputer business, to be called Concurrent Computer Corp, Perkin-Elmer has filed with the Securities & Exchange Commission for the sale of 2m shares in the newly organised company. Concurrent Computer Corp starts life with an installed base of 23,650 machines and annual sales of some $260m. After the sale, at a price not yet set, Perkin-Elmer will be left with 83% of the company. Lead underwriter to the share issue will be First Boston Corp.

UNIXSYS OF PARIS ESTABLISHES US, SWEDISH SUBSIDIARIES

Unixsys, the French manufacturer of Unix systems which it puts together using technology from the Onyx part of Corvus, from Plexus and from Computer Consoles, is spreading further afield with the establishment of sales subsidiaries in Wichita, Kansas and in Vallingby, Sweden. The Swedish company, formed by employees from Unixsys' previous distributor Microtech - from which it inherited five sites - and 52% owned by Unixsys in France, is offering the complete Unixsys NX range including the NX 32 VX, based on the Computer Consoles Power 6 32-bit processor with the OfficePower software. It plans to produce a Swedish version of OfficePower.

DENELCOR IS ORDERED TO LIQUIDATE

Scientific supercomputer manufacturer Denelcor Inc of Aurora, Colorado, has been forced to liquidate under Chapter VII of the US bankruptcy code - but efforts are still being made to revive the business. Liquidation of the company, which ceased operations in October after failure of a long quest for the cash it needed to keep going, was ordered by the bankruptcy court in Denver, Colorado. The president and four other board members have resigned, and another director, David Hirsch, has been appointed executive vice-president and he will try to reorganise the company so that its business can be restarted.

Minigrams

Computer Consoles Inc, now based in Waltham, Massachusetts is to make 200 people in all parts of the com-pany redundant in January with most of the cuts coming in the former Rochester, New York headquarters. The directory inquiry and Unix office systems company wants to cut another 150 jobs later in the year, reducing its workforce by 24% - and adding to the fourth quarter loss.

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Nothing like hitting a company when its down and almost out (from Japanese price-cutting): **Sun Microsystems** has weighed in with a $5.8m lawsuit against **Micron Technology**, the chip-maker which resides in a potato patch in Boise, Idaho, alleging that the company knowingly shipped poor quality 64K memory chips to Sun which broke down all over its memory boards.

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Speaking of the **AT&T** PC6300 Plus, there's no question about where the **IBM** AT-compatible Basic Input-Output System comes from: as you boot the machine, a message saying **Phoenix Software Associates** rises the cigarette ashes at the bottom of the screen; Phoenix is of course the Norwood, Massachusetts company which sells IBM Personal and AT BIOS programs to manufacturers at very affordable prices, and guarantees that they are both compatible and don't infringe IBM copyrights.

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And still with the **AT&T** machines, **Samna Corp**'s Word series of word processing software products are now up and running under Unix System V on both the PC6300 Plus and the Unix PC.

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Price on the new **AT&T** Argon and Neon flat-panel gas plasma display will be "under $600" for the 9.5" by 13" version - and there will also be smaller models.

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Root Computers has achieved savings on disc space in the development of its run-time shared libraries: the disadvantages were in runtime and startup overheads, incurring extra JMP instructions, and debugging.

A similar dispute to the one between Cosmos and Pick Systems has blown up over the **VMark** Universe Pick-under-Unix which is to be of-ferred by the Natick, Massachusetts company on the **AT&T** 3B line. Pick Systems is threatening VMark with a lawsuit over code which it claims infringes its software copyright.

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Convex Computer Corp of Richardson, Texas has signed agreements for its scientific mini-supercomputers totalling $25m in Japan: it has formed **Convex KK**, signed **Tokyo Electron Ltd** as distributor, and signed an OEM agreement with **Digital Computer Ltd** to market its C1 machines under its own name.

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Whitechapel Computer Works' colour monitor will be going out to beta test sites in the New Year, and may be generally available by Spring 1986. The colour monitor uses a 16-inch screen with a refresh rates of 58hz, non interlaced to reduce flicker to a minimum. Resolution is 768 x 512, and 256 colours (out of a possible 256000) are provided. The system runs Whitechapel's proprietary Oriel windowing system, and will support a colour laser printer, as yet unspecified. The system is likely to be considerably cheaper than the colour system available from **Sun Microsystems**, said Whitechapel. The company is also working on a product similar to the Interleaf integrated text/illustration system with automatic typesetting, although commercial availability is a long way off.

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Tetra Business Systems are investing £1/4m in training resources, support and manuals for the Tetraplan Business and Accounting Suite of Packages: Tetra also run courses for Uniplex, Multiplan, Q-Office+, Informix and Unix.

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